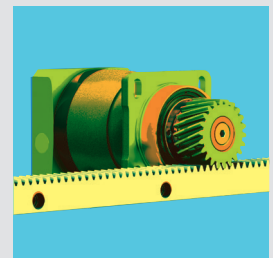
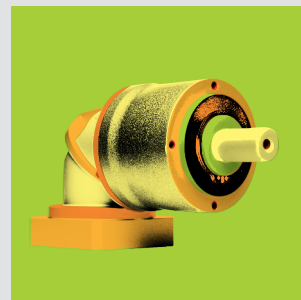
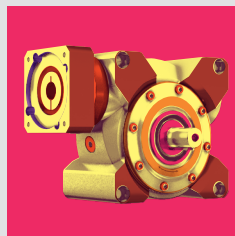
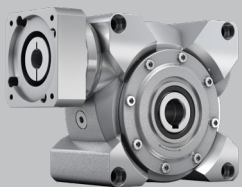


# alpha Basic Line & alpha Value Line Product catalog

Reliable  
Flexible  
Economical





# alpha Basic Line & alpha Value Line Product catalog

Reliable  
Flexible  
Economical

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Dear Business Associates,

Even though we are extremely passionate about technology and innovation, the success of our customers is our top priority. We have designed our products and services to help you achieve a competitive advantage – through consistently high quality, permanent availability, and the best service worldwide.

To ensure that you will find the right solution at WITTENSTEIN for your specific requirements, we have tailored our range of services to the needs of many different markets. Thus our series from “Basic” to “Premium” today cover a wide product range. Gearboxes of the alpha Basic and alpha Value Line are especially suitable for applications requiring cost-oriented yet efficient solutions. Both series are specially designed for axes with medium requirements for precision, dynamics, and power density, and precisely deliver the familiar alpha quality in this domain. They offer a unique modularity in this market segment. Thanks to additional output versions in combination with the angle sections provided by our portfolio, the alpha Basic and alpha Value Line provide every possible freedom when designing different applications.

Whatever solution you need, you are sure to reach your goal quickly and easily with us. Because we offer integrated mechanical and mechatronic drive solutions for all types of axis. On demand we also provide complete solutions from a single source – complete systems including servo actuators – also for linear systems. Our product range has grown significantly again, and yet we are continuing to develop new ideas to make your work easier.

Take our word for it!

Yours

Philipp Guth  
Managing Director of WITTENSTEIN alpha GmbH



# YOUR WORLD IS OUR DRIVE. FOR MORE THAN 30 YEARS.



SP



LP



Linear systems



TPM+



High Performance  
Linear System

1983

1994

1996

1999

2002

2004

2006

2007

2011

2013

TP



cymex®  
sizing software



XP+ / TP+ / SP+ / LP+



TPK+ / SPK+ /  
HG+ / SK+ / TK+



HDV  
Hygiene Design



## PERFORMANCE

### Performance where it counts:

High torque, outstanding precision and high power density – essential for our products and systems.

## FUTURE PROOF

### We live processes:

Only those who know the exact details of customer processes and requirements are in a position to develop solutions that offer added value in the short and long term.

## SCALABILITY

### You never make compromises:

Whatever the performance area – we offer solutions that grow with your requirements.



**WITTENSTEIN**

alpha

It is good to know today what will be needed tomorrow. Applying it in practice is even better. We develop technology that shapes the future –  
**ENGINEERING FUTURE SOLUTIONS.**

## EFFICIENCY

### We like it „lean“:

We offer products and systems that are energy-efficient and require minimal installation space in machines.

## AVAILABILITY

### You need reliability:

We have the widest range of products on the market and can implement your application „just in time“.

## CONNECTIVITY

### We think in terms of interfaces:

All of our systems can be integrated in a wide range of peripherals.



alpha Value Line



DP+ for Delta robots



INIRA



alpha Linear Systems



alpha Basic Line

2015

2016

2017

2018

cymex® 5

SIZING  
ASSISTANT

V-Drive Family

premo

CAD POINT



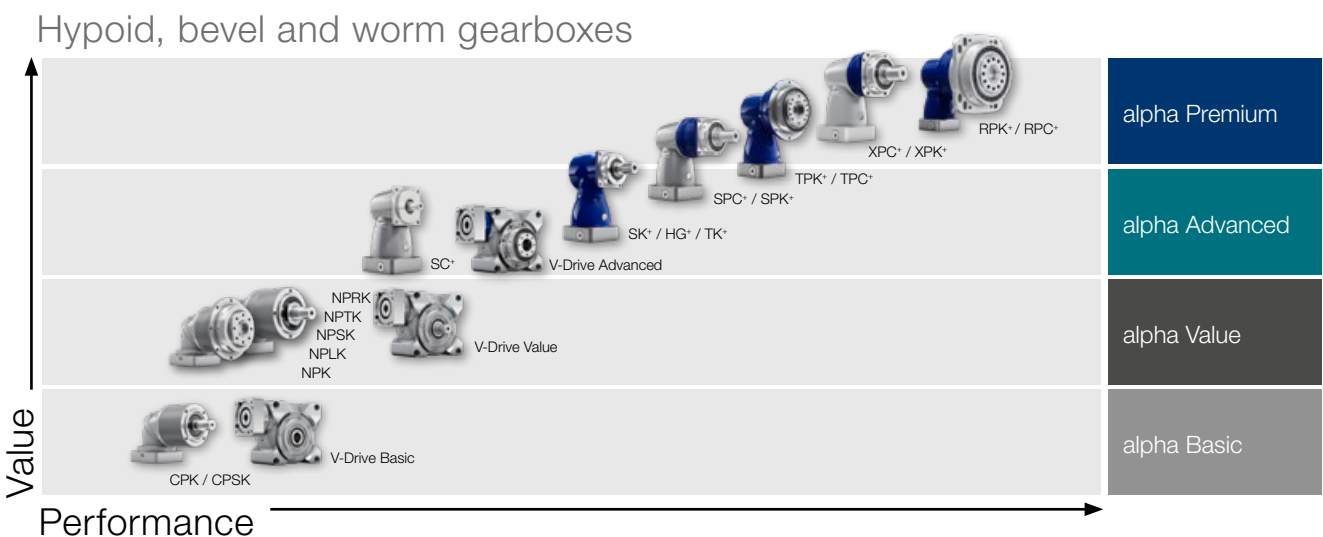
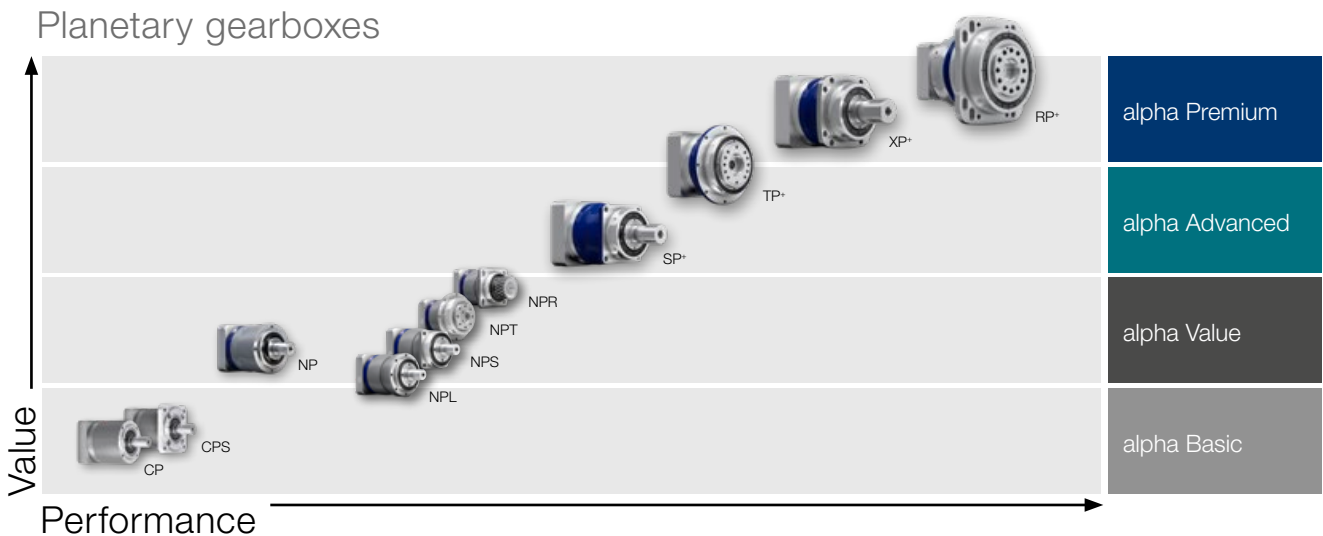
# WITTENSTEIN alpha in all axes

## Complete drive solutions under one roof

We offer the best solutions for almost every application. In addition to gear-boxes, our product portfolio includes a wide range of drive solutions with linear systems and servo actuators. Adapted accessories such as couplings and shrink discs round off the product portfolio.

Our products are divided into the Basic, Value, Advanced and Premium Segments in terms of „Performance“ and „Value“. We want to make it even easier for our customers to find the right solution from our large portfolio for each specific application.

## Overview of our product portfolio:

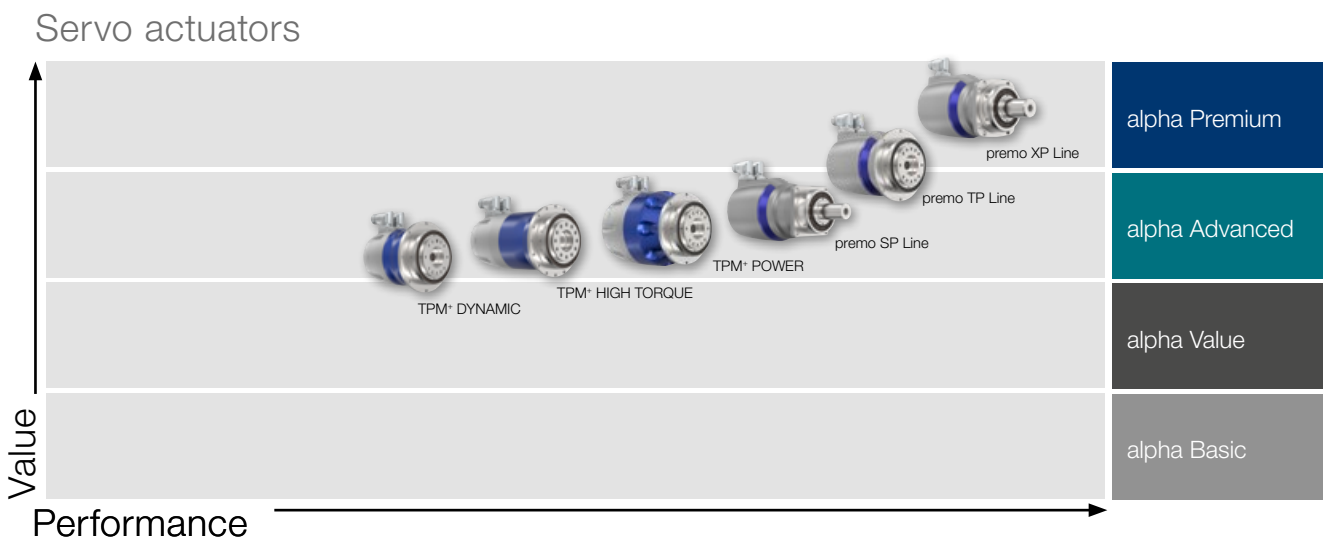
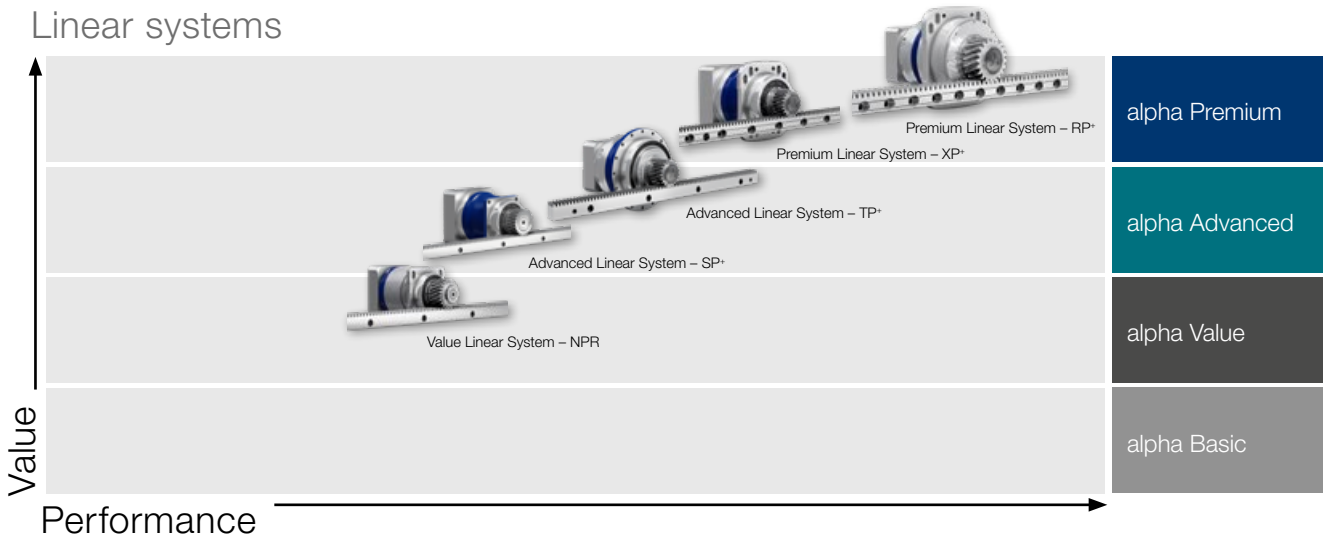


## Know-how in every sector

Our solutions range from high-precision axes in manufacturing systems to packaging machines that must operate with maximum productivity in the smallest installation space.

### Overview:

- Machine tools and production technology
- Food and packaging machines
- Wood working machinery
- Printing and paper machines
- Robotics and automation





# WITTENSTEIN alpha

## Sizing Tools





# Several ways to reach your objectives

## Our software portfolio helps you choose the right drive

You can conveniently download dimension sheets and CAD data, select the best gearbox quickly and easily design complex kinematic sequences in detail – our software solutions offer various methods of selecting the best, most reliable drive on all axes.

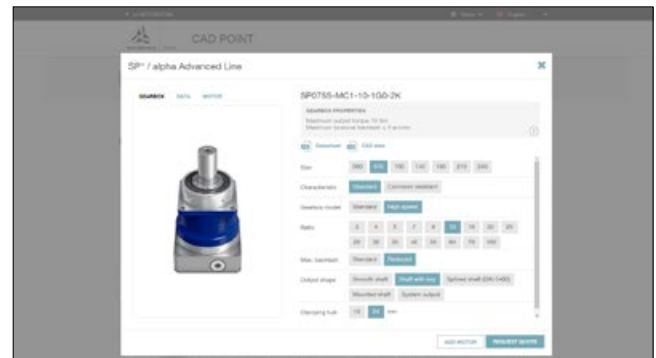


### CAD POINT

– Your Smart Catalog

- Performance data, dimension sheets and CAD data for all types of gearboxes
- Available online without logging in
- Comprehensive documentation of the selection

[www.wittenstein-cad-point.com](http://www.wittenstein-cad-point.com)

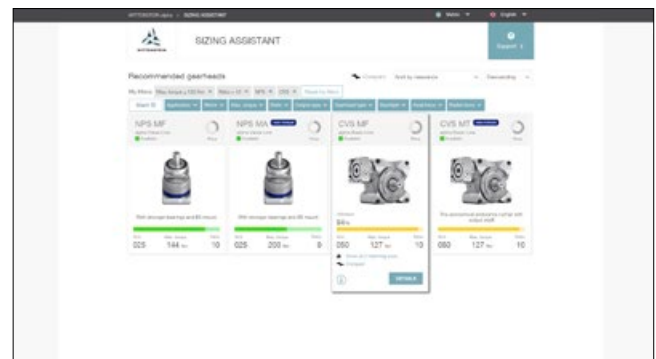


### SIZING ASSISTANT

– Your Gearbox within Seconds

- Efficient gearbox selection in seconds
- Available online without logging in
- Access by specifying application or motor
- Information about price and delivery time
- Possibility of requesting quotation directly

[www.sizing-assistant.com](http://www.sizing-assistant.com)



### cymex®5

– Calculate on the Best

- Detailed calculation of complete drive trains
- Precise simulation of motion and load variables
- Downloadable software for complex designs

[www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)



# Efficient online design with the **SIZING ASSISTANT**

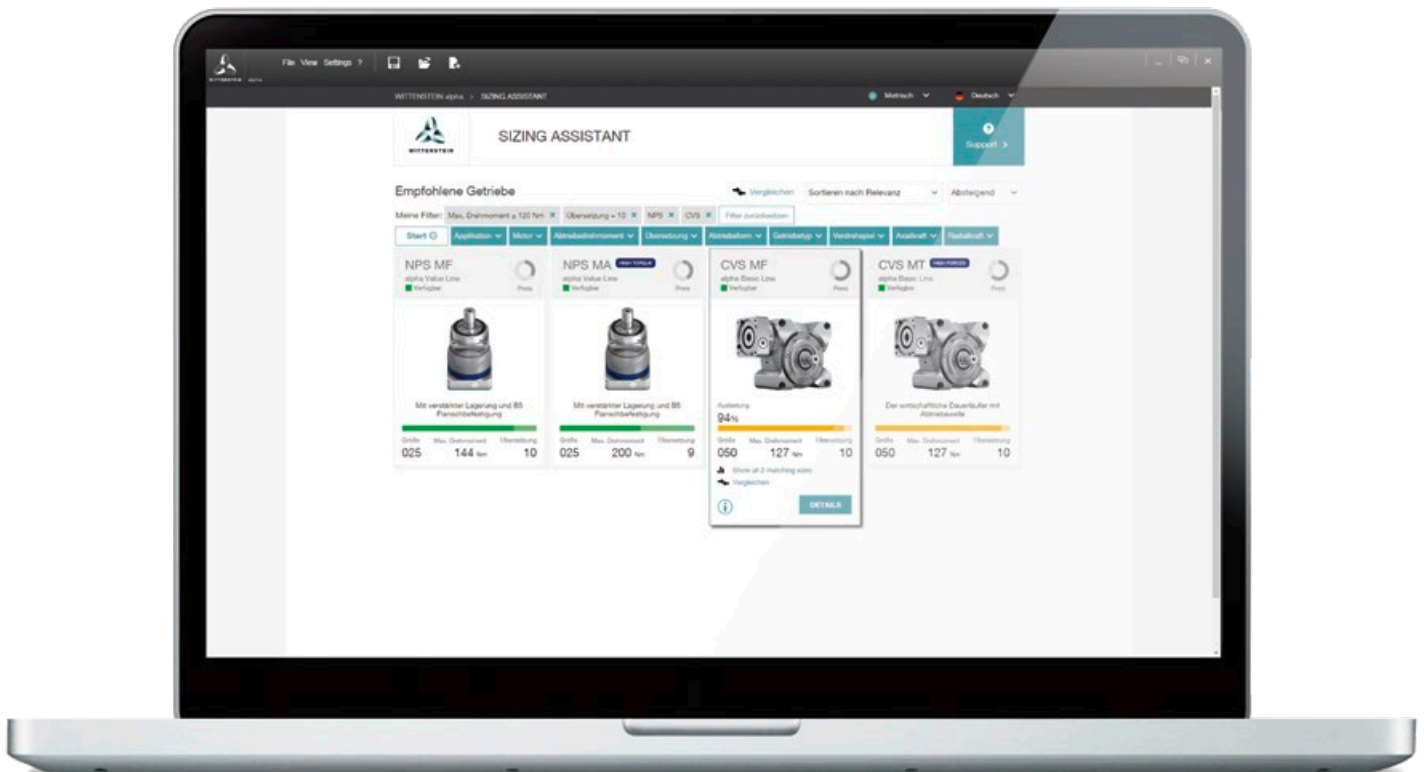
You want to find the optimum drive solution quickly and easily? Based on your application data or the desired motor, the SIZING ASSISTANT online tool suggests an appropriate gearbox from our WITTENSTEIN alpha product portfolio.

Available in 11 languages

The web-based app  
SIZING ASSISTANT is available online  
without login.



[www.sizing-assistant.com](http://www.sizing-assistant.com)



# SIZING ASSISTANT

[illegible]

 Details at a glance

| 5 Baugrößen für NP      |                          |                          |                          |                          |                         |
|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------|
|                         | NP 025                   | NP 035                   | NP 050                   | NP 075                   | NP 100                  |
| Druckhöhe               | 300                      | 375                      | 450                      | 525                      | 600                     |
| Max. Fördermenge        | 100 l/min                | 125 l/min                | 150 l/min                | 175 l/min                | 200 l/min               |
| Leistung                | 407 W                    | 514 W                    | 619 W                    | 726 W                    | 833 W                   |
| Umschaltzeit            | 4 s                      | 5 s                      | 6 s                      | 7 s                      | 8 s                     |
| Lebensdauer             | 1                        | 1                        | 1                        | 1                        | 1                       |
| Max. Förderhöhe         | 18 m                     | 22 m                     | 27 m                     | 32 m                     | 36 m                    |
| Max. Ansaughöhe         | 10 m                     | 12,5 m                   | 15 m                     | 17,5 m                   | 20 m                    |
| Leistungsaufnahme       | 300 W                    | 375 W                    | 450 W                    | 525 W                    | 600 W                   |
| Maximale Förderleistung | 5,1 kg/min <sup>1)</sup> | 6,3 kg/min <sup>1)</sup> | 7,5 kg/min <sup>1)</sup> | 8,8 kg/min <sup>1)</sup> | 10 kg/min <sup>1)</sup> |
| Leistungsaufnahme       | 5,1 kg                   | 6,3 kg                   | 7,5 kg                   | 8,8 kg                   | 10 kg                   |
| Lebensdauer             | Standard > 6 Monate      | Standard > 6 Monate      | Standard > 6 Monate      | Standard > 6 Monate      | Standard > 6 Monate     |
| Verfügbare Varianten    |                          |                          |                          |                          |                         |
| Verfügbare Varianten    |                          |                          |                          |                          |                         |

 All sizes of a product type

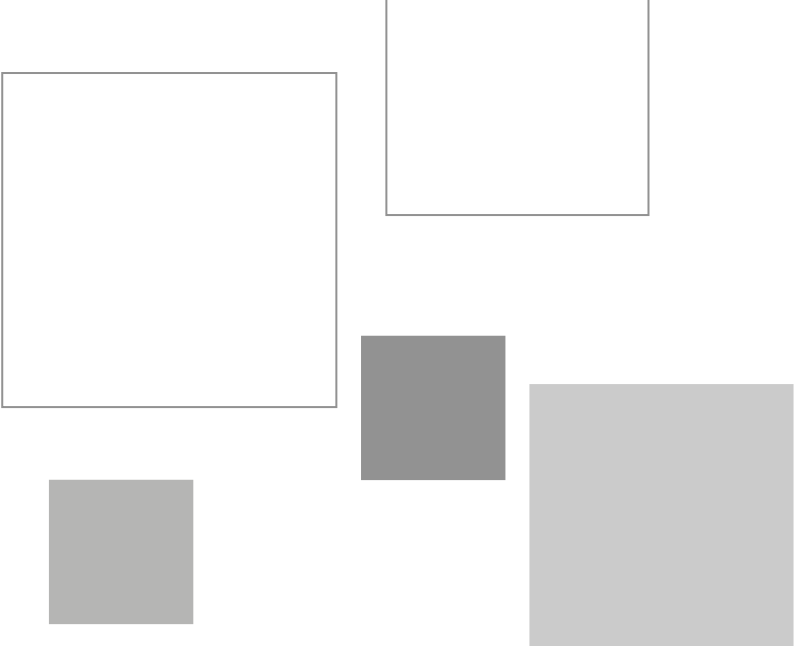
[illegible]

## Filtering and sorting

| Vergleichsliste        |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                        |  |  |  |  |  |
| Relative Preis         |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Werkzeugpreis          | 1                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   |
| Einheitspreis          | 495                                                                                 | 495                                                                                 | 425                                                                                 | 565                                                                                 | 81                                                                                  |
| Anzahl                 | 125                                                                                 | 125                                                                                 | 125                                                                                 | 125                                                                                 | 473                                                                                 |
| Gehäuseaufbau          | Standard                                                                            | Standard                                                                            | Standard                                                                            | Standard                                                                            | Standard                                                                            |
| Umwandlung             | 10                                                                                  | 10                                                                                  | 10                                                                                  | 10                                                                                  | 10                                                                                  |
| Max. Durchsatz         | 144 l/min                                                                           | 144 l/min                                                                           | 127 l/min                                                                           | 159 l/min                                                                           | 145 l/min                                                                           |
| Max. Druck             | 1                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   |
| Werkstoffe             | Standard & 4 screws                                                                 | Standard & 4 screws                                                                 | Standard & 11 screws                                                                | Standard & 4 screws                                                                 | Standard & 4 screws                                                                 |
| Werkzeug               | 228 mm                                                                              | 228 mm                                                                              | 228 mm                                                                              | 228 mm                                                                              | 228 mm                                                                              |
| Max. Arbeitsbreite     | 7000 mm <sup>2</sup>                                                                | 7000 mm <sup>2</sup>                                                                | 8000 mm <sup>2</sup>                                                                | 8000 mm <sup>2</sup>                                                                | 7600 mm <sup>2</sup>                                                                |
| Mittlere Arbeitsbreite | 3800 mm <sup>2</sup>                                                                | 2300 mm <sup>2</sup>                                                                | 4000 mm <sup>2</sup>                                                                | 4000 mm <sup>2</sup>                                                                | 2700 mm <sup>2</sup>                                                                |
| Max. Klappenbreite     | 228 mm                                                                              | 228 mm                                                                              | 128 mm                                                                              | 458 mm                                                                              | 128 mm                                                                              |
| Max. Arbeitsbreite     | 3000 mm                                                                             | 3000 mm                                                                             | 1200 mm                                                                             | 3600 mm                                                                             | 3100 mm                                                                             |
| Max. Radialkraft       | 4200 N                                                                              | 4200 N                                                                              | 1200 N                                                                              | 3600 N                                                                              | 4200 N                                                                              |
| Gewicht                | 5,8 kg                                                                              | 5,7 kg                                                                              | 8 kg                                                                                | 8 kg                                                                                | 5,8 kg                                                                              |
| Leistung               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max. Drehmoment        | 85 Nm                                                                               | 85 Nm                                                                               | 85 Nm                                                                               | 85 Nm                                                                               | 85 Nm                                                                               |
| Stückzahl              | 170 Stk                                                                             | 170 Stk                                                                             | 170 Stk                                                                             | 170 Stk                                                                             | 170 Stk                                                                             |
| Leistungsbereich       | ≤ 10 (Stk)                                                                          | ≤ 10 (Stk)                                                                          | ≤ 10 (Stk)                                                                          | ≤ 10 (Stk)                                                                          | ≤ 10 (Stk)                                                                          |
| Max. Drehmoment        |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max. Drehmoment        |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Comparing possible alternatives

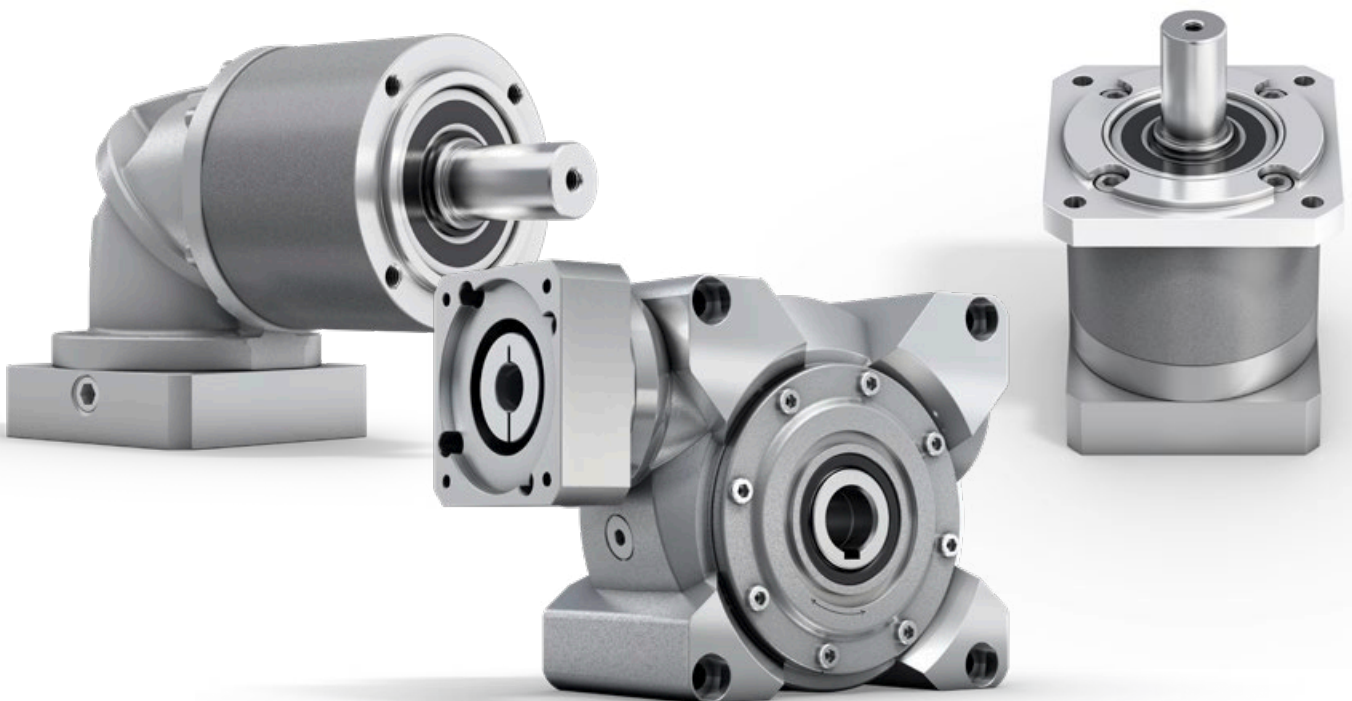
15

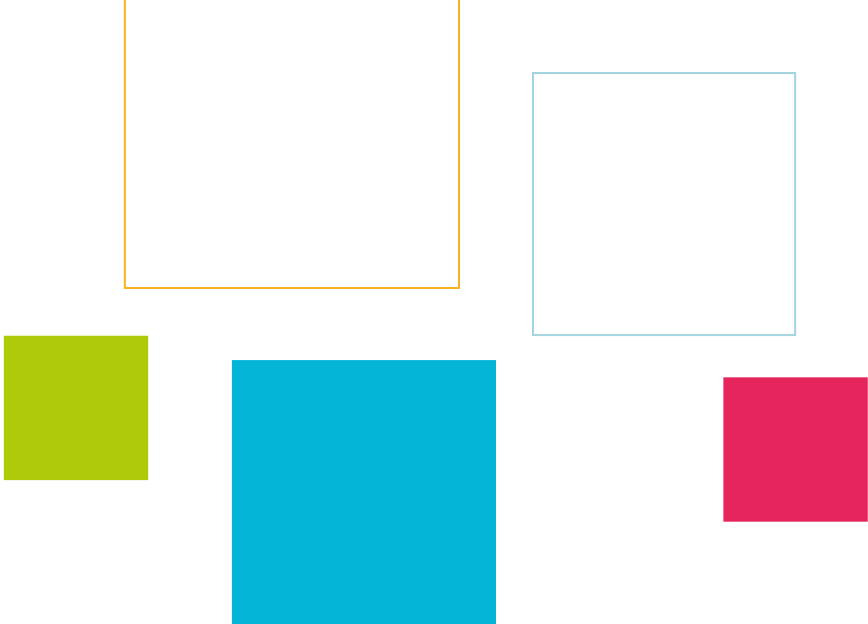
A decorative graphic consisting of several squares of different sizes and shades of gray, arranged in a scattered pattern in the upper left corner of the page.

# alpha Basic Line

## Geared up to Fit

The gearboxes of the alpha Basic Line live up to the motto “Geared up to Fit”. The CP, CPS, CPK, and CPSK planetary and bevel gearboxes as well as the CVS and CVH worm gearboxes combine high flexibility on the drive side with optimum economy. In conjunction with backlash less than or equal to 12 arcmin, the gearboxes are the perfect choice in machines with medium to low requirements for positioning accuracy.

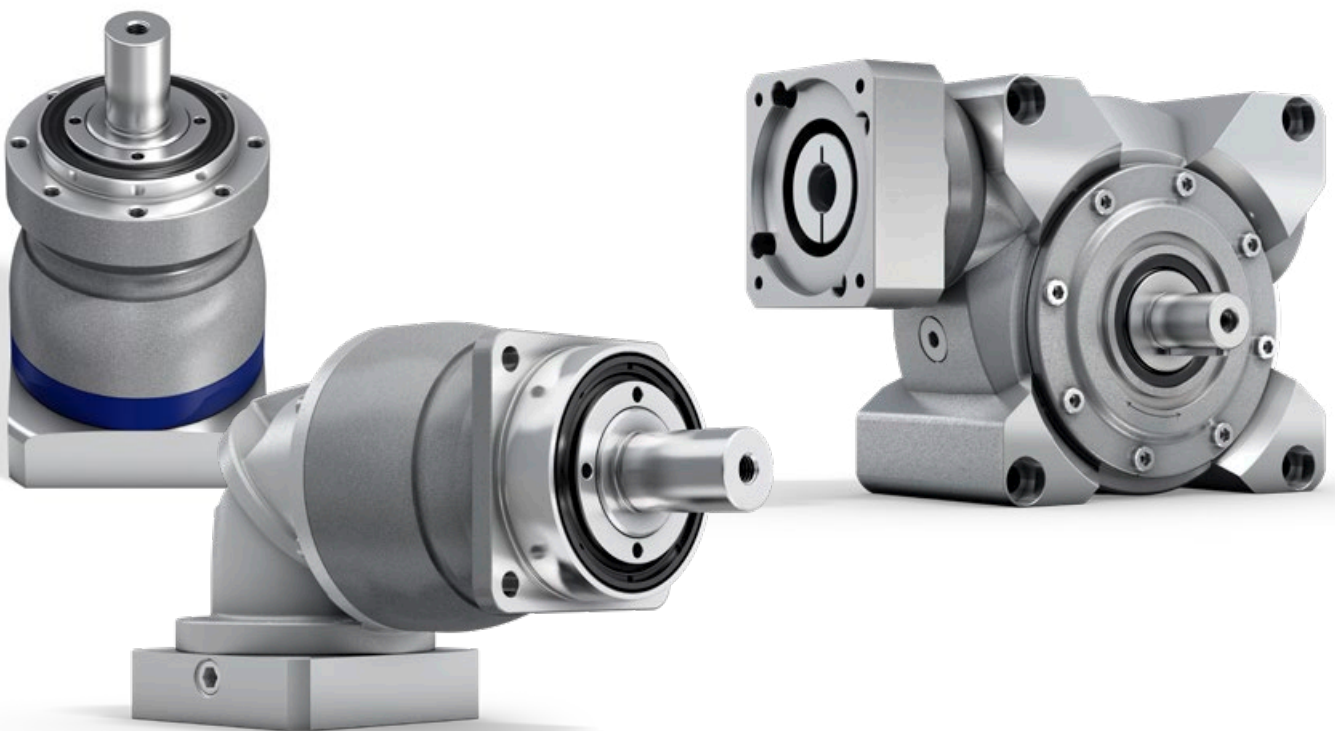




# alpha Value Line

## Individual Talents

The alpha Value Line impresses with economical and flexible solutions with backlash less than or equal to 8 arcmin. For example, the planetary and bevel gearboxes of the NP and NPK series as well as the NVS and NVH worm gearboxes are suitable for a wide range of applications thanks to numerous ratios and output versions – our “Individual Talents” give you new design freedom!

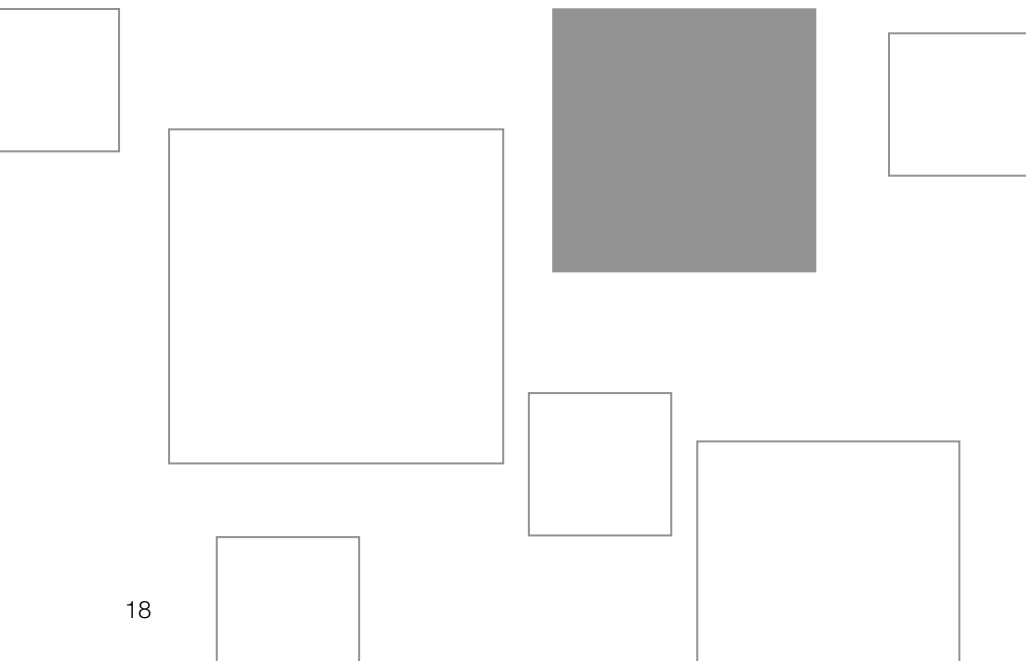




# alpha Basic Line

## PLANETARY GEARBOXES CP / CPS

The planetary gearboxes of the alpha Basic Line are the ideal choice for cost-oriented solutions. These gearboxes further increase design freedom in machines due to new additional output variants as well as five different sizes.





\* CPS with replaceable B5 output flange

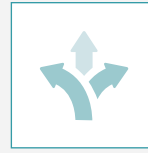
# CP / CPS – Geared up to Fit

CP



Tailored to applications in the mid-range and economy segment with low to medium requirements for positioning accuracy, the CP and CPS planetary gearboxes do not fail to impress. The key benefits offered by the gearboxes are high flexibility combined with maximum efficiency.

## PRODUCT HIGHLIGHTS



### High flexibility

Different output variants offer design freedom tailored to individual requirements. The flexibility on the input side also enables the realization of different motor mounting versions.



### Maximum economy

The gearboxes of the alpha Basic Line are extremely economical to purchase and highly efficient in operation.



### Fast sizing

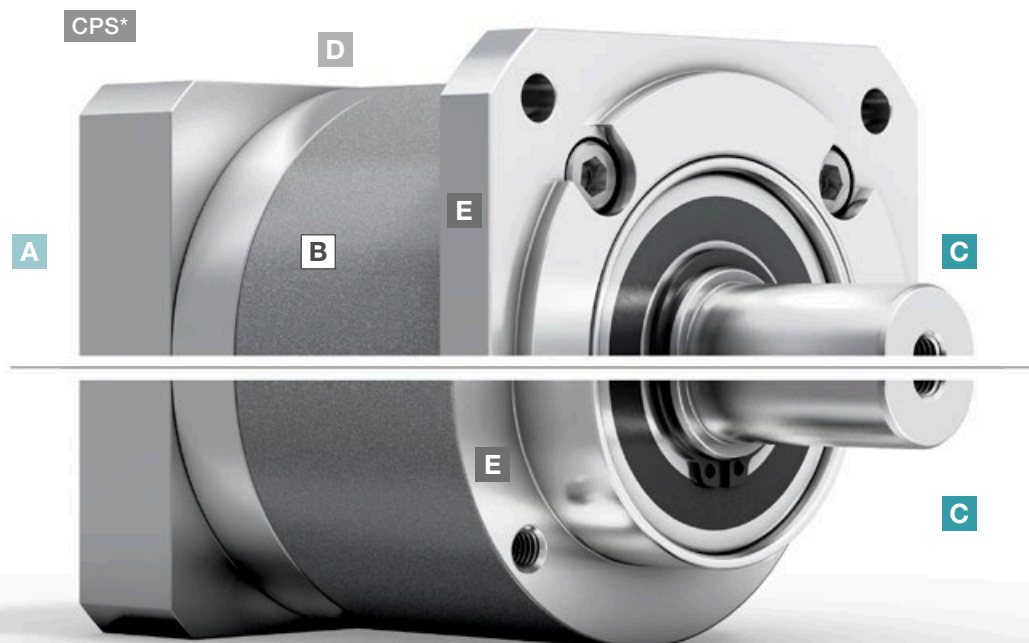
Efficient online sizing within seconds in the SIZING ASSISTANT on the basis of the application data or the motor.



CPS – planetary gearbox with replaceable B5 output flange



CPS – planetary gearbox with long centering



CPS

\* CPS with replaceable B5 output flange

**A**

#### Flexible motor connection

- Mounting of all common servo motors by means of a flexible and screw-fastened adapter plate
- Large number of motor shaft diameters connectable

**B**

#### High ratio variation

- Large number of ratios ( $i=3$  to  $i=100$ )
- Available in the common binary ratios

**C**

#### Various output shapes

- With smooth shaft as well as shaft with key

**D**

#### Variety of sizes

- CP available in five different sizes (005 – 045)
- CPS available in three different sizes (015 – 035)

**E**

#### Variable application connection

- Reduced installation space and maximum compactness thanks to a long centering
- Flange attachment for B5 mounting



CPS – planetary gearbox with elastomer coupling



**SIZING ASSISTANT**  
YOUR GEARBOX WITHIN SECONDS

Efficient gearbox sizing within seconds – online without login  
[www.sizing-assistant.com](http://www.sizing-assistant.com)

# CP 005 MF 1-stage

|                                                                                                            |   |             |                 | 1-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|-------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      |   | i           |                 | 4                                     | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$    | Nm              | 17                                    | 21   | 21   | 20   | 20   |      |
|                                                                                                            |   |             | in.lb           | 150                                   | 186  | 186  | 177  | 177  |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$    | Nm              | 11                                    | 14   | 14   | 13   | 13   |      |
|                                                                                                            |   |             | in.lb           | 97                                    | 124  | 124  | 115  | 115  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$  | Nm              | 26                                    | 26   | 26   | 26   | 26   |      |
|                                                                                                            |   |             | in.lb           | 230                                   | 230  | 230  | 230  | 230  |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$    | rpm             | 3800                                  | 3800 | 4300 | 4300 | 4300 |      |
| Max. input speed                                                                                           |   | $n_{1Max}$  | rpm             | 9000                                  | 9000 | 9000 | 9000 | 9000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$   | Nm              | 0.07                                  | 0.06 | 0.06 | 0.06 | 0.05 |      |
|                                                                                                            |   |             | in.lb           | 0.62                                  | 0.53 | 0.53 | 0.53 | 0.44 |      |
| Max. backlash                                                                                              |   | $j_t$       | arcmin          | ≤ 12                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{21}$    | Nm/arcmin       | 0.58                                  | 0.58 | 0.58 | 0.52 | 0.52 |      |
|                                                                                                            |   |             | in.lb/arcmin    | 5.1                                   | 5.1  | 5.1  | 4.6  | 4.6  |      |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$ | N               | 240                                   |      |      |      |      |      |
|                                                                                                            |   |             | lb <sub>f</sub> | 54                                    |      |      |      |      |      |
| Max. lateral force <sup>c) f)</sup>                                                                        |   | $F_{2QMax}$ | N               | 170                                   |      |      |      |      |      |
|                                                                                                            |   |             | lb <sub>f</sub> | 38                                    |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$ | Nm              | 4                                     |      |      |      |      |      |
|                                                                                                            |   |             | in.lb           | 35                                    |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$      | %               | 97                                    |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$       | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$         | kg              | 0.5                                   |      |      |      |      |      |
|                                                                                                            |   |             | lb <sub>m</sub> | 1.1                                   |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$    | dB(A)           | ≤ 59                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |             | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |   |             | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |   |             | °C              | –15 to +40                            |      |      |      |      |      |
|                                                                                                            |   |             | °F              | +5 to +104                            |      |      |      |      |      |
| Lubrication                                                                                                |   |             |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |   |             |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |   |             |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |             |                 | ELC-0005BA010.000-X                   |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |   |             | mm              | X = 004.000 - 012.700                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | B | 11          | $J_1$           | kgcm <sup>2</sup>                     | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 |
|                                                                                                            |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

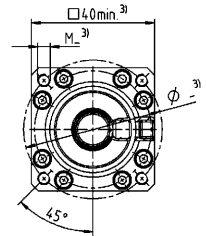
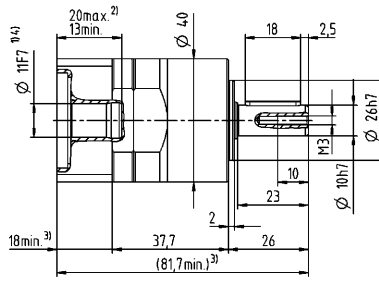
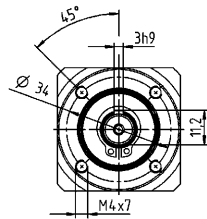
<sup>f)</sup> At increased lateral forces – see glossary



Motor shaft diameter [mm]

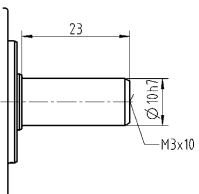
1-stage

up to 11 <sup>4)</sup> (B) <sup>5)</sup>  
clamping hub  
diameter



## Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

- 1) Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

3) The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

<sup>5)</sup> Standard clamping hub diameter

# CP 005 MF 2-stage

|                                                                                                                                        |              |                 | 2-stage                               |      |      |      |      |      |      |      |      |      |      |
|----------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                                                  | i            |                 | 16                                    | 20   | 25   | 28   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                                                        | $T_{2a}$     | Nm              | 17                                    | 17   | 21   | 17   | 17   | 21   | 17   | 21   | 20   | 21   | 20   |
|                                                                                                                                        |              | in.lb           | 150                                   | 150  | 186  | 150  | 150  | 186  | 150  | 186  | 177  | 186  | 177  |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                                                  | $T_{2B}$     | Nm              | 11                                    | 11   | 14   | 11   | 11   | 14   | 11   | 14   | 13   | 14   | 13   |
|                                                                                                                                        |              | in.lb           | 97                                    | 97   | 124  | 97   | 97   | 124  | 97   | 124  | 115  | 124  | 115  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox)                             | $T_{2Not}$   | Nm              | 26                                    | 26   | 26   | 26   | 26   | 26   | 26   | 26   | 26   | 26   | 26   |
|                                                                                                                                        |              | in.lb           | 230                                   | 230  | 230  | 230  | 230  | 230  | 230  | 230  | 230  | 230  | 230  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                                             | $n_{1N}$     | rpm             | 3800                                  | 3800 | 3800 | 3800 | 4300 | 4300 | 4300 | 4300 | 4300 | 4300 | 4300 |
| Max. input speed                                                                                                                       | $n_{1Max}$   | rpm             | 9000                                  | 9000 | 9000 | 9000 | 9000 | 9000 | 9000 | 9000 | 9000 | 9000 | 9000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)                                         | $T_{012}$    | Nm              | 0.09                                  | 0.08 | 0.08 | 0.08 | 0.07 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 |
|                                                                                                                                        |              | in.lb           | 0.8                                   | 0.71 | 0.71 | 0.71 | 0.62 | 0.62 | 0.62 | 0.62 | 0.53 | 0.53 | 0.53 |
| Max. backlash                                                                                                                          | $j_t$        | arcmin          | ≤ 18                                  |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                                                       | $C_{t21}$    | Nm/arcmin       | 0.58                                  | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.52 | 0.58 | 0.52 |
|                                                                                                                                        |              | in.lb/arcmin    | 5.1                                   | 5.1  | 5.1  | 5.1  | 5.1  | 5.1  | 5.1  | 5.1  | 4.6  | 5.1  | 4.6  |
| Max. axial force <sup>c)</sup>                                                                                                         | $F_{2AMax}$  | N               | 240                                   |      |      |      |      |      |      |      |      |      |      |
|                                                                                                                                        |              | lb <sub>f</sub> | 54                                    |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c) f)</sup>                                                                                                    | $F_{2QMMax}$ | N               | 170                                   |      |      |      |      |      |      |      |      |      |      |
|                                                                                                                                        |              | lb <sub>f</sub> | 38                                    |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                                                    | $M_{2KMax}$  | Nm              | 4                                     |      |      |      |      |      |      |      |      |      |      |
|                                                                                                                                        |              | in.lb           | 35                                    |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                                                | $\eta$       | %               | 95                                    |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                                                           | $L_h$        | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                                               | $m$          | kg              | 0.7                                   |      |      |      |      |      |      |      |      |      |      |
|                                                                                                                                        |              | lb <sub>m</sub> | 1.5                                   |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)                                | $L_{PA}$     | dB(A)           | ≤ 59                                  |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                                                     |              | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |
|                                                                                                                                        |              | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                                                    |              | °C              | -15 to +40                            |      |      |      |      |      |      |      |      |      |      |
|                                                                                                                                        |              | °F              | +5 to +104                            |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                                            |              |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                                                  |              |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                                                       |              |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)<br>Bore diameter of coupling<br>on the application side |              |                 | ELC-0005BA010.000-X                   |      |      |      |      |      |      |      |      |      |      |
|                                                                                                                                        |              | mm              | X = 004.000 - 012.700                 |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                                                         | B 11         | $J_t$           | kgcm <sup>2</sup>                     | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 |
|                                                                                                                                        |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

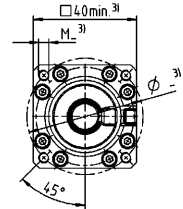
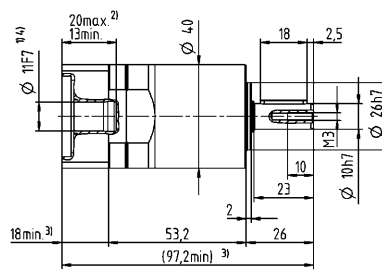
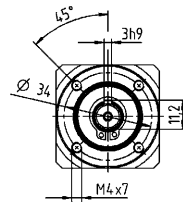
<sup>e)</sup> Valid for: Smooth shaft

<sup>f)</sup> At increased lateral forces – see glossary

Motor shaft diameter [mm]

## 2-stage

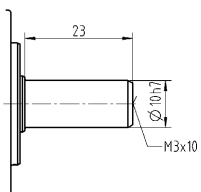
up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



Planetary Gearboxes  
Basic Line

### Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CP 015 MF 1-stage

|                                                                                                            |   |              |                 | 1-stage                               |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|--------------|-----------------|---------------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i            |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     | Nm              | 48                                    | 56   | 58   | 58   | 56   | 56   |      |
|                                                                                                            |   |              | in.lb           | 425                                   | 496  | 513  | 513  | 496  | 496  |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     | Nm              | 30                                    | 35   | 40   | 40   | 35   | 35   |      |
|                                                                                                            |   |              | in.lb           | 266                                   | 310  | 354  | 354  | 310  | 310  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   | Nm              | 75                                    | 75   | 75   | 75   | 75   | 75   |      |
|                                                                                                            |   |              | in.lb           | 664                                   | 664  | 664  | 664  | 664  | 664  |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$     | rpm             | 3300                                  | 3300 | 3300 | 4000 | 4000 | 4000 |      |
| Max. input speed                                                                                           |   | $n_{1Max}$   | rpm             | 7000                                  | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$    | Nm              | 0.25                                  | 0.2  | 0.17 | 0.15 | 0.14 | 0.13 |      |
|                                                                                                            |   |              | in.lb           | 2.2                                   | 1.8  | 1.5  | 1.3  | 1.2  | 1.2  |      |
| Max. backlash                                                                                              |   | $j_t$        | arcmin          | ≤ 12                                  |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    | Nm/arcmin       | 2.1                                   | 2.1  | 2.1  | 2.1  | 1.9  | 1.9  |      |
|                                                                                                            |   |              | in.lb/arcmin    | 19                                    | 19   | 19   | 19   | 17   | 17   |      |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$  | N               | 750                                   |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 169                                   |      |      |      |      |      |      |
| Max. lateral force <sup>c) f)</sup>                                                                        |   | $F_{2QMMax}$ | N               | 500                                   |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 113                                   |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$  | Nm              | 17                                    |      |      |      |      |      |      |
|                                                                                                            |   |              | in.lb           | 150                                   |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$       | %               | 97                                    |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$        | h               | > 20000                               |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          | kg              | 1.4                                   |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>m</sub> | 3.1                                   |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     | dB(A)           | ≤ 60                                  |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |              | °C              | +90                                   |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +194                                  |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |              | °C              | –15 to +40                            |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +5 to +104                            |      |      |      |      |      |      |
| Lubrication                                                                                                |   |              |                 | Lubricated for life                   |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |              |                 | In- and output same direction         |      |      |      |      |      |      |
| Protection class                                                                                           |   |              |                 | IP 64                                 |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |              |                 | ELC-0020BA014.000-X                   |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |              | mm              | X = 008.000 - 025.000                 |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C | 14           | $J_1$           | kgcm <sup>2</sup>                     | 0.23 | 0.2  | 0.18 | 0.15 | 0.15 | 0.15 |
|                                                                                                            |   |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.2  | 0.18 | 0.16 | 0.13 | 0.13 | 0.13 |
|                                                                                                            | E | 19           | $J_1$           | kgcm <sup>2</sup>                     | 0.43 | 0.4  | 0.39 | 0.38 | 0.38 | 0.37 |
|                                                                                                            |   |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.38 | 0.35 | 0.35 | 0.34 | 0.34 | 0.33 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

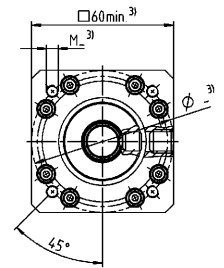
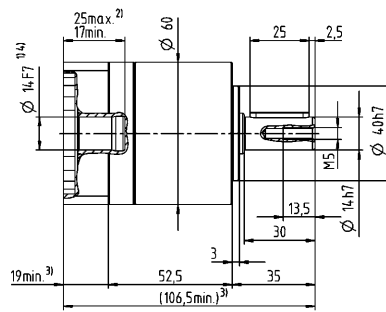
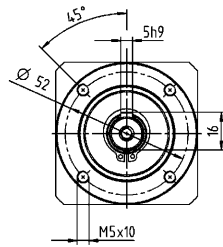
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

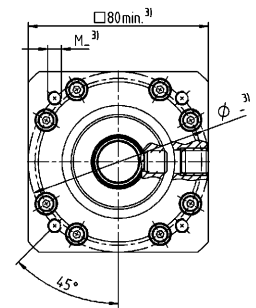
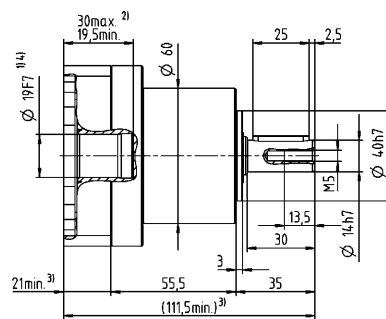
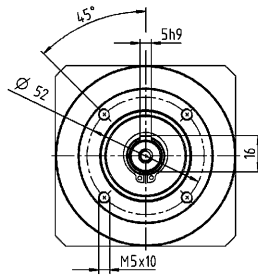
<sup>f)</sup> At increased lateral forces – see glossary

# 1-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



up to 19<sup>4)</sup> (E)  
clamping hub  
diameter

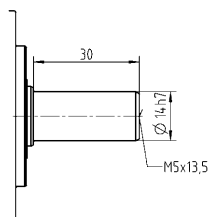


Motor shaft diameter [mm]

Planetary Gearboxes  
Basic Line

## Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CP 015 MF 2-stage

|                                                                                                            |   |              |                | 2-stage                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|--------------|----------------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i            |                | 9                             | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     | $Nm$           | 48                            | 48   | 48   | 56   | 56   | 58   | 56   | 48   | 56   | 58   | 56   | 58   | 56   | 58   | 56   |      |
|                                                                                                            |   |              | $in.lb$        | 425                           | 425  | 425  | 496  | 496  | 513  | 496  | 425  | 496  | 513  | 496  | 513  | 496  | 513  | 496  |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     | $Nm$           | 30                            | 30   | 30   | 35   | 35   | 40   | 35   | 30   | 35   | 40   | 35   | 40   | 35   | 40   | 35   |      |
|                                                                                                            |   |              | $in.lb$        | 266                           | 266  | 266  | 310  | 310  | 354  | 310  | 266  | 310  | 354  | 310  | 354  | 310  | 354  | 310  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   | $Nm$           | 75                            | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   |      |
|                                                                                                            |   |              | $in.lb$        | 664                           | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$     | $rpm$          | 3300                          | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 4000 | 4000 | 4000 |      |      |
| Max. input speed                                                                                           |   | $n_{1Max}$   | $rpm$          | 7000                          | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$    | $Nm$           | 0.33                          | 0.28 | 0.26 | 0.25 | 0.22 | 0.21 | 0.2  | 0.21 | 0.19 | 0.18 | 0.17 | 0.16 | 0.16 | 0.15 | 0.14 |      |
|                                                                                                            |   |              | $in.lb$        | 2.9                           | 2.5  | 2.3  | 2.2  | 1.9  | 1.9  | 1.8  | 1.9  | 1.7  | 1.6  | 1.5  | 1.4  | 1.4  | 1.3  | 1.2  |      |
| Max. backlash                                                                                              |   | $j_t$        | $arcmin$       | ≤ 15                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    | $Nm/arcmin$    | 2.1                           | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 1.9  | 2.1  | 1.9  |      |
|                                                                                                            |   |              | $in.lb/arcmin$ | 19                            | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 17   | 19   | 17   |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$  | $N$            | 750                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $lb_f$         | 169                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c) f)</sup>                                                                        |   | $F_{2QMMax}$ | $N$            | 500                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $lb_f$         | 113                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMMax}$ | $Nm$           | 17                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $in.lb$        | 150                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$       | %              | 95                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$        | $h$            | > 20000                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          | $kg$           | 1.8                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $lb_m$         | 4.0                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     | $dB(A)$        | ≤ 60                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |              | °C             | +90                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F             | +194                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |              | °C             | –15 to +40                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F             | +5 to +104                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |              |                | Lubricated for life           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |              |                | In- and output same direction |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |              |                | IP 64                         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |              |                | ELC-0020BA014.000-X           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |              | $mm$           | X = 008.000 - 025.000         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C | 14           | $J_1$          | $kgcm^2$                      | 0.22 | 0.22 | 0.21 | 0.2  | 0.19 | 0.18 | 0.17 | 0.19 | 0.16 | 0.16 | 0.17 | 0.16 | 0.15 | 0.15 | 0.15 |
|                                                                                                            |   |              |                | $10^{-3} in.lb.s^2$           | 0.19 | 0.19 | 0.19 | 0.18 | 0.17 | 0.16 | 0.15 | 0.17 | 0.14 | 0.14 | 0.15 | 0.14 | 0.13 | 0.13 | 0.13 |
|                                                                                                            | E | 19           | $J_1$          | $kgcm^2$                      | 0.43 | 0.42 | 0.42 | 0.4  | 0.4  | 0.39 | 0.39 | 0.41 | 0.39 | 0.39 | 0.39 | 0.38 | 0.37 | 0.38 | 0.37 |
|                                                                                                            |   |              |                | $10^{-3} in.lb.s^2$           | 0.38 | 0.37 | 0.37 | 0.35 | 0.35 | 0.35 | 0.35 | 0.36 | 0.35 | 0.35 | 0.35 | 0.34 | 0.33 | 0.34 | 0.33 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

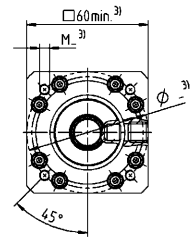
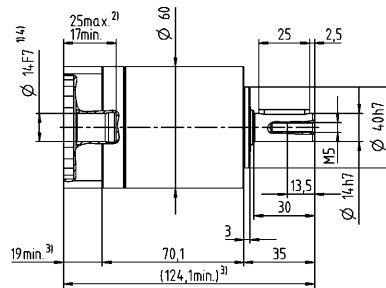
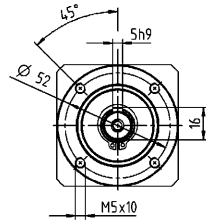
<sup>e)</sup> Valid for: Smooth shaft

<sup>f)</sup> At increased lateral forces – see glossary



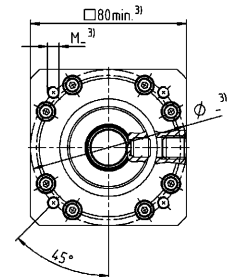
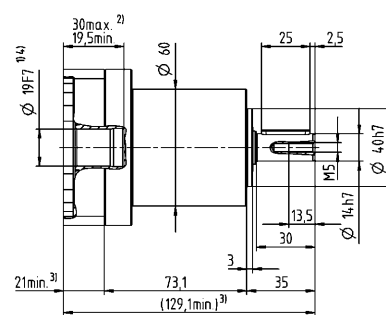
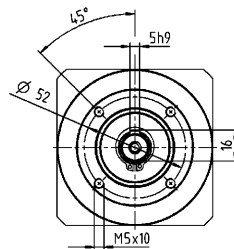
## 2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



Planetary Gearboxes  
Basic Line

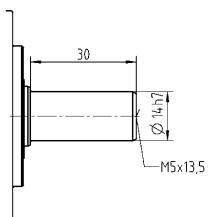
up to 19<sup>4)</sup> (E)  
clamping hub  
diameter



Motor shaft diameter [mm]

### Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CP 025 MF 1-stage

|                                                                                                            |   |             |                 | 1-stage                               |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|-------------|-----------------|---------------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$    | Nm              | 112                                   | 150  | 150  | 150  | 144  | 144  |      |
|                                                                                                            |   |             | in.lb           | 991                                   | 1328 | 1328 | 1328 | 1275 | 1275 |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$    | Nm              | 70                                    | 95   | 100  | 100  | 90   | 90   |      |
|                                                                                                            |   |             | in.lb           | 620                                   | 841  | 885  | 885  | 797  | 797  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$  | Nm              | 114                                   | 152  | 187  | 187  | 187  | 187  |      |
|                                                                                                            |   |             | in.lb           | 1009                                  | 1345 | 1655 | 1655 | 1655 | 1655 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$    | rpm             | 3100                                  | 3100 | 3100 | 3600 | 3600 | 3600 |      |
| Max. input speed                                                                                           |   | $n_{1Max}$  | rpm             | 7000                                  | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$   | Nm              | 0.38                                  | 0.3  | 0.26 | 0.23 | 0.21 | 0.19 |      |
|                                                                                                            |   |             | in.lb           | 3.4                                   | 2.7  | 2.3  | 2    | 1.9  | 1.7  |      |
| Max. backlash                                                                                              |   | $j_t$       | arcmin          | ≤ 12                                  |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$   | Nm/arcmin       | 6.1                                   | 6.1  | 6.1  | 6.1  | 5.5  | 5.5  |      |
|                                                                                                            |   |             | in.lb/arcmin    | 54                                    | 54   | 54   | 54   | 49   | 49   |      |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$ | N               | 1600                                  |      |      |      |      |      |      |
|                                                                                                            |   |             | lb <sub>f</sub> | 360                                   |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMax}$ | N               | 1200                                  |      |      |      |      |      |      |
|                                                                                                            |   |             | lb <sub>f</sub> | 270                                   |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$ | Nm              | 54                                    |      |      |      |      |      |      |
|                                                                                                            |   |             | in.lb           | 478                                   |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$      | %               | 97                                    |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$       | h               | > 20000                               |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$         | kg              | 2.9                                   |      |      |      |      |      |      |
|                                                                                                            |   |             | lb <sub>m</sub> | 6.4                                   |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$    | dB(A)           | ≤ 62                                  |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |             | °C              | +90                                   |      |      |      |      |      |      |
|                                                                                                            |   |             | °F              | +194                                  |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |             | °C              | –15 to +40                            |      |      |      |      |      |      |
|                                                                                                            |   |             | °F              | +5 to +104                            |      |      |      |      |      |      |
| Lubrication                                                                                                |   |             |                 | Lubricated for life                   |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |             |                 | In- and output same direction         |      |      |      |      |      |      |
| Protection class                                                                                           |   |             |                 | IP 64                                 |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |             |                 | ELC-0060BA020.000-X                   |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |             | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E | 19          | $J_1$           | kgcm <sup>2</sup>                     | 0.66 | 0.53 | 0.48 | 0.43 | 0.41 | 0.4  |
|                                                                                                            |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.58 | 0.47 | 0.42 | 0.38 | 0.36 | 0.35 |
|                                                                                                            | G | 24          | $J_1$           | kgcm <sup>2</sup>                     | 1.5  | 1.4  | 1.3  | 1.3  | 1.3  | 1.3  |
|                                                                                                            |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.3  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

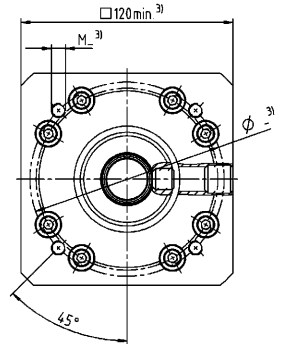
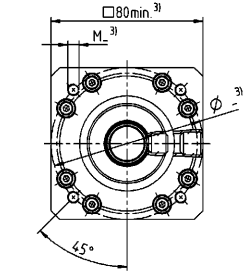
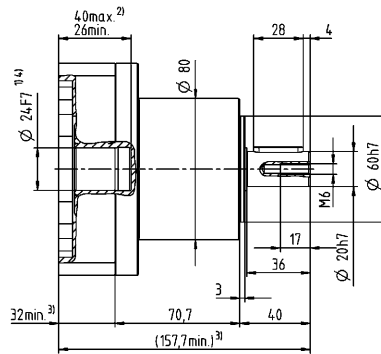
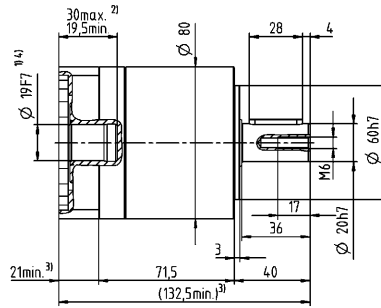
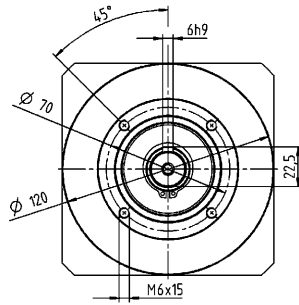
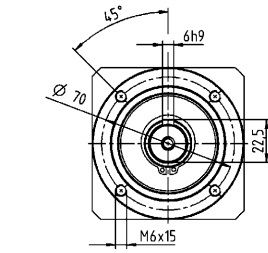
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 19 <sup>4)</sup> (E) <sup>5)</sup>  
clamping hub  
diameter

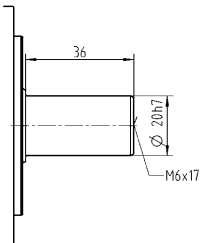
Motor shaft diameter [mm]

up to 24 <sup>4)</sup> (G)  
clamping hub  
diameter



## Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

- 1) Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

3) The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CP 025 MF 2-stage

|                                                                                                            |   |                     |                 | 2-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|---------------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i                   |                 | 9                                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | T <sub>2a</sub>     | Nm              | 112                                   | 112  | 112  | 150  | 150  | 150  | 150  | 112  | 150  | 150  | 150  | 150  | 144  | 150  | 144  |      |
|                                                                                                            |   |                     | in.lb           | 991                                   | 991  | 991  | 1328 | 1328 | 1328 | 1328 | 991  | 1328 | 1328 | 1328 | 1328 | 1275 | 1328 | 1275 |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | T <sub>2B</sub>     | Nm              | 70                                    | 70   | 70   | 95   | 95   | 95   | 95   | 70   | 95   | 100  | 95   | 100  | 90   | 100  | 90   |      |
|                                                                                                            |   |                     | in.lb           | 620                                   | 620  | 620  | 841  | 841  | 841  | 841  | 620  | 841  | 885  | 841  | 885  | 797  | 885  | 797  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | T <sub>2Not</sub>   | Nm              | 187                                   | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  |      |
|                                                                                                            |   |                     | in.lb           | 1655                                  | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 |      |
| Permitted average input speed <sup>d)</sup><br>(at T <sub>2a</sub> and 20 °C ambient temperature)          |   | n <sub>1N</sub>     | rpm             | 3100                                  | 3100 | 3100 | 3100 | 3100 | 3100 | 3100 | 3100 | 3100 | 3100 | 3100 | 3100 | 3600 | 3600 | 3600 |      |
| Max. input speed                                                                                           |   | n <sub>1Max</sub>   | rpm             | 7000                                  | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at n <sub>i</sub> =3000 rpm and 20 °C gearbox temperature)   |   | T <sub>012</sub>    | Nm              | 0.5                                   | 0.43 | 0.39 | 0.38 | 0.34 | 0.32 | 0.3  | 0.31 | 0.28 | 0.28 | 0.26 | 0.24 | 0.23 | 0.22 | 0.21 |      |
|                                                                                                            |   |                     | in.lb           | 4.4                                   | 3.8  | 3.5  | 3.4  | 3    | 2.8  | 2.7  | 2.7  | 2.5  | 2.5  | 2.3  | 2.1  | 2    | 1.9  | 1.9  |      |
| Max. backlash                                                                                              |   | j <sub>t</sub>      | arcmin          | ≤ 15                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | C <sub>t21</sub>    | Nm/arcmin       | 6.1                                   | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  | 5.5  | 6.1  | 5.5  |      |
|                                                                                                            |   |                     | in.lb/arcmin    | 54                                    | 54   | 54   | 54   | 54   | 54   | 54   | 54   | 54   | 54   | 54   | 54   | 49   | 54   | 49   |      |
| Max. axial force <sup>c)</sup>                                                                             |   | F <sub>2AMax</sub>  | N               | 1600                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |                     | lb <sub>f</sub> | 360                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | F <sub>2QMMax</sub> | N               | 1200                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |                     | lb <sub>f</sub> | 270                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | M <sub>2KMax</sub>  | Nm              | 54                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |                     | in.lb           | 478                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | η                   | %               | 95                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   | L <sub>h</sub>      | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | m                   | kg              | 3.7                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |                     | lb <sub>m</sub> | 8.2                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | L <sub>PA</sub>     | dB(A)           | ≤ 62                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |                     | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |                     | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |                     | °C              | −15 to +40                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |                     | °F              | +5 to +104                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |                     |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |                     |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |                     |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |                     |                 | ELC-0060BA020.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |                     | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E | 19                  | J <sub>i</sub>  | kgcm <sup>2</sup>                     | 0.66 | 1.4  | 1.6  | 0.98 | 1.1  | 0.82 | 1.2  | 2.1  | 1.4  | 0.88 | 1.4  | 1    | 0.58 | 0.71 | 0.54 |
|                                                                                                            |   |                     |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.58 | 1.2  | 1.4  | 0.87 | 0.97 | 0.73 | 1.1  | 1.9  | 1.2  | 0.78 | 1.2  | 0.89 | 0.51 | 0.63 | 0.48 |
|                                                                                                            | G | 24                  | J <sub>i</sub>  | kgcm <sup>2</sup>                     | 1.5  | 2.3  | 2.4  | 1.8  | 1.9  | 1.7  | 2    | 3    | 2.2  | 1.7  | 2.2  | 1.9  | 1.4  | 1.6  | 1.4  |
|                                                                                                            |   |                     |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.3  | 2    | 2.1  | 1.6  | 1.7  | 1.5  | 1.8  | 2.7  | 1.9  | 1.5  | 1.9  | 1.7  | 1.2  | 1.4  | 1.2  |

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<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

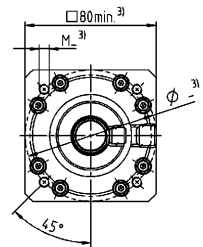
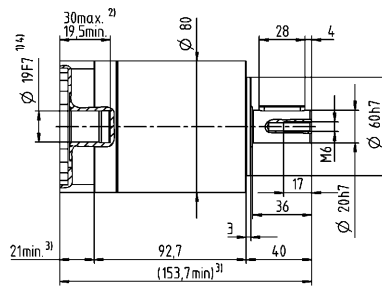
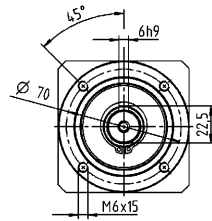
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

## 2-stage

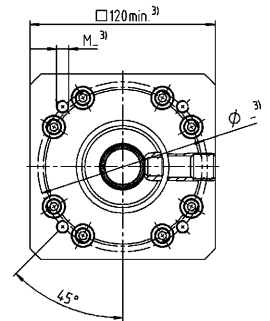
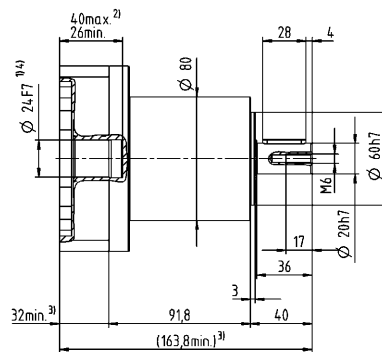
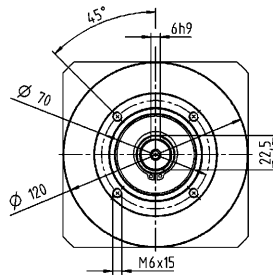
up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter



Planetary Gearboxes  
Basic Line

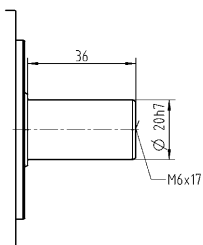
Motor shaft diameter [mm]

up to 24<sup>4)</sup> (G)  
clamping hub  
diameter



### Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CP 035 MF 1-stage

|                                                                                                            |   |              |                 | 1-stage                               |      |      |      |      |      |     |
|------------------------------------------------------------------------------------------------------------|---|--------------|-----------------|---------------------------------------|------|------|------|------|------|-----|
| Ratio                                                                                                      |   | i            |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |     |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     | Nm              | 272                                   | 272  | 272  | 272  | 272  | 272  |     |
|                                                                                                            |   |              | in.lb           | 2407                                  | 2407 | 2407 | 2407 | 2407 | 2407 |     |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     | Nm              | 175                                   | 255  | 250  | 250  | 220  | 220  |     |
|                                                                                                            |   |              | in.lb           | 1549                                  | 2257 | 2213 | 2213 | 1947 | 1947 |     |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   | Nm              | 460                                   | 480  | 480  | 480  | 470  | 480  |     |
|                                                                                                            |   |              | in.lb           | 4071                                  | 4248 | 4248 | 4248 | 4160 | 4248 |     |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$     | rpm             | 2300                                  | 2300 | 2300 | 2800 | 2800 | 2800 |     |
| Max. input speed                                                                                           |   | $n_{1Max}$   | rpm             | 5500                                  | 5500 | 5500 | 5500 | 5500 | 5500 |     |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$    | Nm              | 0.95                                  | 0.76 | 0.66 | 0.57 | 0.52 | 0.48 |     |
|                                                                                                            |   |              | in.lb           | 8.4                                   | 6.7  | 5.8  | 5    | 4.6  | 4.2  |     |
| Max. backlash                                                                                              |   | $j_t$        | arcmin          | ≤ 12                                  |      |      |      |      |      |     |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    | Nm/arcmin       | 16                                    | 16   | 16   | 16   | 14   | 14   |     |
|                                                                                                            |   |              | in.lb/arcmin    | 142                                   | 142  | 142  | 142  | 124  | 124  |     |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$  | N               | 2500                                  |      |      |      |      |      |     |
|                                                                                                            |   |              | lb <sub>f</sub> | 563                                   |      |      |      |      |      |     |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMMax}$ | N               | 1750                                  |      |      |      |      |      |     |
|                                                                                                            |   |              | lb <sub>f</sub> | 394                                   |      |      |      |      |      |     |
| Max. tilting moment                                                                                        |   | $M_{2KMMax}$ | Nm              | 98                                    |      |      |      |      |      |     |
|                                                                                                            |   |              | in.lb           | 867                                   |      |      |      |      |      |     |
| Efficiency at full load                                                                                    |   | $\eta$       | %               | 97                                    |      |      |      |      |      |     |
| Service life                                                                                               |   | $L_h$        | h               | > 20000                               |      |      |      |      |      |     |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          | kg              | 7.5                                   |      |      |      |      |      |     |
|                                                                                                            |   |              | lb <sub>m</sub> | 17                                    |      |      |      |      |      |     |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     | dB(A)           | ≤ 66                                  |      |      |      |      |      |     |
| Max. permitted housing temperature                                                                         |   |              | °C              | +90                                   |      |      |      |      |      |     |
|                                                                                                            |   |              | °F              | +194                                  |      |      |      |      |      |     |
| Ambient temperature                                                                                        |   |              | °C              | –15 to +40                            |      |      |      |      |      |     |
|                                                                                                            |   |              | °F              | +5 to +104                            |      |      |      |      |      |     |
| Lubrication                                                                                                |   |              |                 | Lubricated for life                   |      |      |      |      |      |     |
| Direction of rotation                                                                                      |   |              |                 | In- and output same direction         |      |      |      |      |      |     |
| Protection class                                                                                           |   |              |                 | IP 64                                 |      |      |      |      |      |     |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |              |                 | ELC-0150BA025.000-X                   |      |      |      |      |      |     |
| Bore diameter of coupling<br>on the application side                                                       |   |              | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |     |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | G | 24           | $J_1$           | kgcm <sup>2</sup>                     | 2.6  | 1.9  | 1.7  | 1.5  | 1.4  | 1.4 |
|                                                                                                            |   |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.3  | 1.7  | 1.5  | 1.3  | 1.2  | 1.2 |
|                                                                                                            | K | 38           | $J_1$           | kgcm <sup>2</sup>                     | 7.8  | 7.1  | 6.9  | 6.7  | 6.6  | 6.5 |
|                                                                                                            |   |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 6.9  | 6.3  | 6.1  | 5.9  | 5.8  | 5.8 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

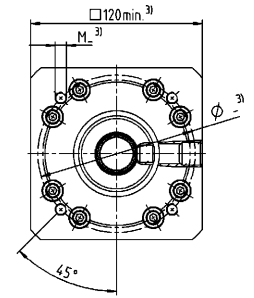
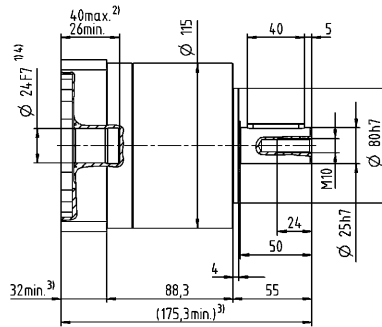
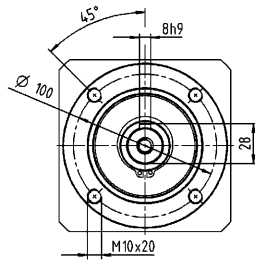
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

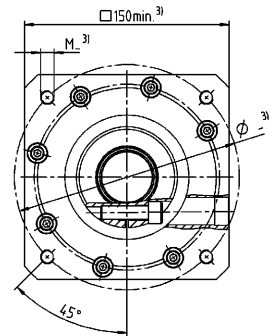
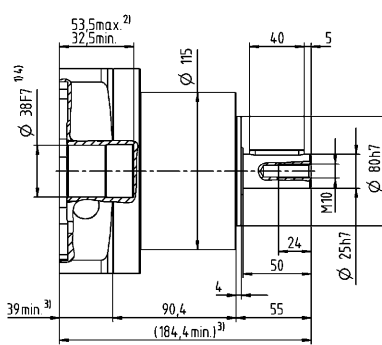
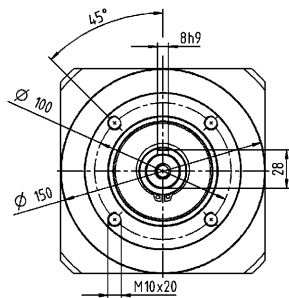
up to 24<sup>4)</sup> (G)<sup>5)</sup>  
clamping hub  
diameter



Planetary Gearboxes  
Basic Line

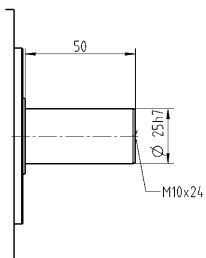
Motor shaft diameter [mm]

up to 38<sup>4)</sup> (K)  
clamping hub  
diameter



## Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter



# CP 035 MF 2-stage

|                                                                                                            |   |              |                | 2-stage                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|--------------|----------------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i            |                | 9                             | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     | $Nm$           | 272                           | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  |      |
|                                                                                                            |   |              | $in.lb$        | 2407                          | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     | $Nm$           | 175                           | 175  | 175  | 255  | 255  | 250  | 255  | 175  | 255  | 250  | 255  | 250  | 220  | 250  | 220  |      |
|                                                                                                            |   |              | $in.lb$        | 1549                          | 1549 | 1549 | 2257 | 2257 | 2213 | 2257 | 1549 | 2257 | 2213 | 2257 | 2213 | 1947 | 2213 | 1947 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   | $Nm$           | 480                           | 480  | 480  | 480  | 480  | 480  | 480  | 315  | 480  | 480  | 480  | 480  | 470  | 480  | 480  |      |
|                                                                                                            |   |              | $in.lb$        | 4248                          | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 2788 | 4248 | 4248 | 4248 | 4248 | 4160 | 4248 | 4248 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$     | $rpm$          | 2300                          | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2800 | 2800 | 2800 |      |
| Max. input speed                                                                                           |   | $n_{1Max}$   | $rpm$          | 5500                          | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$    | $Nm$           | 1.3                           | 1.1  | 0.98 | 0.95 | 0.85 | 0.8  | 0.76 | 0.79 | 0.71 | 0.7  | 0.66 | 0.61 | 0.59 | 0.56 | 0.52 |      |
|                                                                                                            |   |              | $in.lb$        | 12                            | 9.7  | 8.7  | 8.4  | 7.5  | 7.1  | 6.7  | 7    | 6.3  | 6.2  | 5.8  | 5.4  | 5.2  | 5    | 4.6  |      |
| Max. backlash                                                                                              |   | $j_t$        | $arcmin$       | ≤ 15                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    | $Nm/arcmin$    | 16                            | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 14   | 16   | 14   |
|                                                                                                            |   |              | $in.lb/arcmin$ | 142                           | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 124  | 142  | 124  |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$  | $N$            | 2500                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $lb_f$         | 563                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMMax}$ | $N$            | 1750                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $lb_f$         | 394                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$  | $Nm$           | 98                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $in.lb$        | 867                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$       | %              | 95                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$        | $h$            | > 20000                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          | $kg$           | 9.6                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $lb_m$         | 21                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     | $dB(A)$        | ≤ 66                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |              | °C             | +90                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F             | +194                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |              | °C             | –15 to +40                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F             | +5 to +104                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |              |                | Lubricated for life           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |              |                | In- and output same direction |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |              |                | IP 64                         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |              |                | ELC-0150BA025.000-X           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |              | $mm$           | X = 019.000 - 036.000         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | G | 24           | $J_1$          | $kgcm^2$                      | 2.7  | 2.5  | 2.5  | 2.3  | 2.3  | 2.1  | 2.4  | 3.1  | 2.4  | 2.2  | 2.6  | 2.2  | 1.8  | 1.9  | 1.7  |
|                                                                                                            |   |              |                | $10^{-3} in.lb.s^2$           | 2.4  | 2.2  | 2.2  | 2    | 2    | 1.9  | 2.1  | 2.7  | 2.1  | 1.9  | 2.3  | 1.9  | 1.6  | 1.7  | 1.5  |
|                                                                                                            | K | 38           | $J_1$          | $kgcm^2$                      | 7.9  | 7.7  | 7.8  | 7.5  | 7.5  | 7.3  | 7.5  | 8.3  | 7.6  | 7.4  | 7.8  | 7.4  | 7    | 7.1  | 6.9  |
|                                                                                                            |   |              |                | $10^{-3} in.lb.s^2$           | 7    | 6.8  | 6.9  | 6.6  | 6.6  | 6.5  | 6.6  | 7.3  | 6.7  | 6.5  | 6.9  | 6.5  | 6.2  | 6.3  | 6.1  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

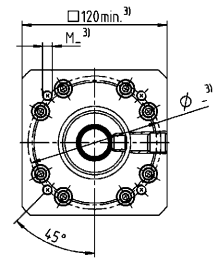
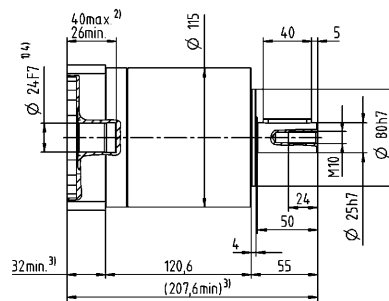
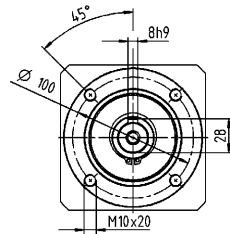
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

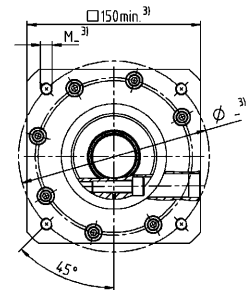
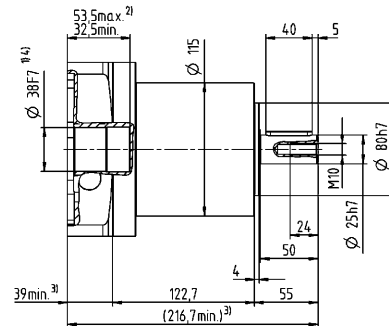
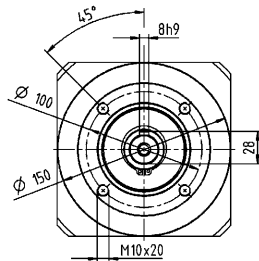
<sup>e)</sup> Valid for: Smooth shaft

## 2-stage

up to 24<sup>4)</sup> (G)<sup>5)</sup>  
clamping hub  
diameter



up to 38<sup>4)</sup> (K)  
clamping hub  
diameter

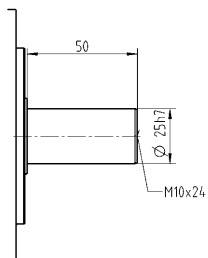


Motor shaft diameter [mm]

Planetary Gearboxes  
Basic Line

### Other output variants

#### Smooth shaft



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CP 045 MF 1- / 2-stage

|                                                                                                            |              |                 | 1-stage                       |                                       |      | 2-stage    |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|-------------------------------|---------------------------------------|------|------------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 5                             | 8                                     | 10   | 25         | 32   | 50   | 64   | 100  |      |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 800                           | 640                                   | 640  | 700        | 640  | 700  | 640  | 640  |      |      |
|                                                                                                            |              | in.lb           | 7081                          | 5665                                  | 5665 | 6196       | 5665 | 6196 | 5665 | 5665 |      |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 500                           | 400                                   | 400  | 500        | 400  | 500  | 400  | 400  |      |      |
|                                                                                                            |              | in.lb           | 4425                          | 3540                                  | 3540 | 4425       | 3540 | 4425 | 3540 | 3540 |      |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 1000                          | 1000                                  | 1000 | 1000       | 1000 | 1000 | 1000 | 1000 |      |      |
|                                                                                                            |              | in.lb           | 8851                          | 8851                                  | 8851 | 8851       | 8851 | 8851 | 8851 | 8851 |      |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 2000                          | 2200                                  | 2300 | 2600       | 2500 | 3000 | 2900 | 3000 |      |      |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 4000                          | 4000                                  | 4000 | 6000       | 6000 | 6000 | 6000 | 6000 |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$    | Nm              | 2.4                           | 2                                     | 1.9  | 0.8        | 0.68 | 0.6  | 0.6  | 0.55 |      |      |
|                                                                                                            |              | in.lb           | 21                            | 18                                    | 17   | 7.1        | 6    | 5.3  | 5.3  | 4.9  |      |      |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 12                          |                                       |      | ≤ 15       |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 55                            | 44                                    | 44   | 55         | 55   | 55   | 44   | 44   |      |      |
|                                                                                                            |              | in.lb/arcmin    | 487                           | 389                                   | 389  | 487        | 487  | 487  | 389  | 389  |      |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 6000                          |                                       |      | 6000       |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> |                               |                                       |      |            |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 8000                          |                                       |      | 8000       |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> |                               |                                       |      |            |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$  | Nm              | 704                           |                                       |      | 704        |      |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 6231                          |                                       |      | 6231       |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 97                            |                                       |      | 95         |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                       |                                       |      | > 20000    |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 20                            |                                       |      | 21         |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 44                            |                                       |      | 46         |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 68                          |                                       |      | ≤ 65       |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                           |                                       |      | +90        |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                          |                                       |      | +194       |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | –15 to +40                    |                                       |      | –15 to +40 |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +5 to +104                    |                                       |      | +5 to +104 |      |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life           |                                       |      |            |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction |                                       |      |            |      |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                         |                                       |      |            |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0300BA040.000-X           |                                       |      |            |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 020.000 - 045.000         |                                       |      |            |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E            | 19              | $J_1$                         | kgcm <sup>2</sup>                     | –    | –          | –    | 1.2  | 1.1  | 1.1  | 0.88 | 0.82 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –          | –    | 1,1  | 0,97 | 0,97 | 0,78 | 0,73 |
|                                                                                                            | G            | 24              | $J_1$                         | kgcm <sup>2</sup>                     | –    | –          | –    | 2    | 1,9  | 1,8  | 1,7  | 1,6  |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –          | –    | 1,8  | 1,7  | 1,6  | 1,5  | 1,4  |
|                                                                                                            | H            | 28              | $J_1$                         | kgcm <sup>2</sup>                     | –    | –          | –    | 1,7  | 1,6  | 1,5  | 1,4  | 1,3  |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –          | –    | 1,5  | 1,4  | 1,3  | 1,2  | 1,2  |
|                                                                                                            | I            | 32              | $J_1$                         | kgcm <sup>2</sup>                     | –    | –          | –    | 5,8  | 5,7  | 5,6  | 5,4  | 5,4  |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –          | –    | 5,1  | 5    | 5    | 4,8  | 4,8  |
|                                                                                                            | K            | 38              | $J_1$                         | kgcm <sup>2</sup>                     | 8.8  | 7.4        | 7.2  | 7    | 6,9  | 6,8  | 6,6  | 6,5  |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 7.8  | 6.5        | 6.4  | 6,2  | 6,1  | 6    | 5,8  | 5,8  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

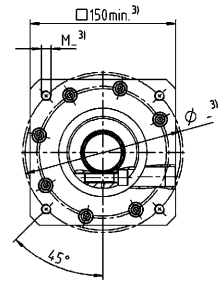
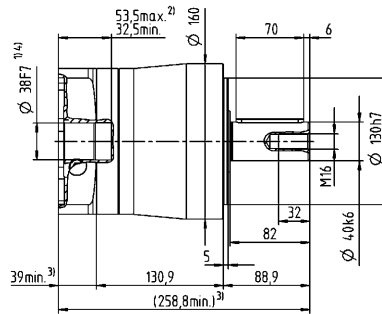
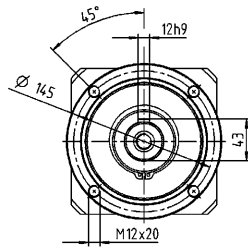
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

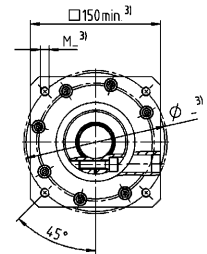
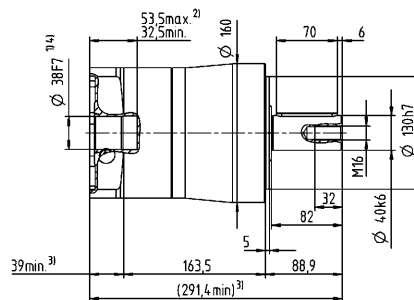
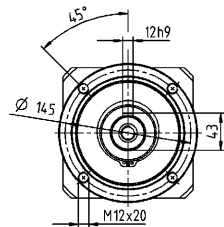
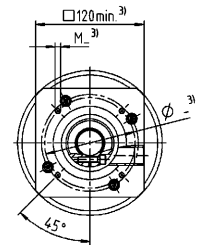
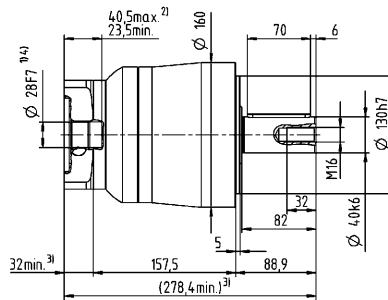
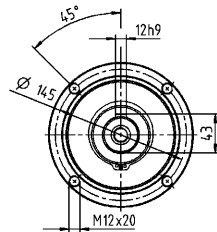
# 1-stage

up to 38<sup>4)</sup> (K)<sup>5)</sup>  
clamping hub  
diameter



# 2-stage

up to 19/24/28<sup>4)</sup>  
(E/G<sup>5)</sup>/H)  
clamping hub  
diameter

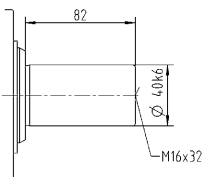


Motor shaft diameter [mm]

up to 32/38<sup>4)</sup>  
(I/K)  
clamping hub  
diameter

## Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPS 015 MF 1-stage

|                                                                                                            |   |             |                 | 1-stage                               |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|-------------|-----------------|---------------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$    | Nm              | 48                                    | 56   | 58   | 58   | 56   | 56   |      |
|                                                                                                            |   |             | in.lb           | 425                                   | 496  | 513  | 513  | 496  | 496  |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$    | Nm              | 30                                    | 35   | 40   | 40   | 35   | 35   |      |
|                                                                                                            |   |             | in.lb           | 266                                   | 310  | 354  | 354  | 310  | 310  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$  | Nm              | 75                                    | 75   | 75   | 75   | 75   | 75   |      |
|                                                                                                            |   |             | in.lb           | 664                                   | 664  | 664  | 664  | 664  | 664  |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$    | rpm             | 3300                                  | 3300 | 3300 | 4000 | 4000 | 4000 |      |
| Max. input speed                                                                                           |   | $n_{1Max}$  | rpm             | 7000                                  | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$   | Nm              | 0.25                                  | 0.2  | 0.17 | 0.15 | 0.14 | 0.13 |      |
|                                                                                                            |   |             | in.lb           | 2.2                                   | 1.8  | 1.5  | 1.3  | 1.2  | 1.2  |      |
| Max. backlash                                                                                              |   | $j_t$       | arcmin          | ≤ 12                                  |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$   | Nm/arcmin       | 2.1                                   | 2.1  | 2.1  | 2.1  | 1.9  | 1.9  |      |
|                                                                                                            |   |             | in.lb/arcmin    | 19                                    | 19   | 19   | 19   | 17   | 17   |      |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$ | N               | 750                                   |      |      |      |      |      |      |
|                                                                                                            |   |             | lb <sub>f</sub> | 169                                   |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMax}$ | N               | 500                                   |      |      |      |      |      |      |
|                                                                                                            |   |             | lb <sub>f</sub> | 113                                   |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$ | Nm              | 17                                    |      |      |      |      |      |      |
|                                                                                                            |   |             | in.lb           | 150                                   |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$      | %               | 97                                    |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$       | h               | > 20000                               |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$         | kg              | 1.4                                   |      |      |      |      |      |      |
|                                                                                                            |   |             | lb <sub>m</sub> | 3.1                                   |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$    | dB(A)           | ≤ 60                                  |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |             | °C              | +90                                   |      |      |      |      |      |      |
|                                                                                                            |   |             | °F              | +194                                  |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |             | °C              | –15 to +40                            |      |      |      |      |      |      |
|                                                                                                            |   |             | °F              | +5 to +104                            |      |      |      |      |      |      |
| Lubrication                                                                                                |   |             |                 | Lubricated for life                   |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |             |                 | In- and output same direction         |      |      |      |      |      |      |
| Protection class                                                                                           |   |             |                 | IP 64                                 |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |             |                 | ELC-0020BA014.000-X                   |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |             | mm              | X = 008.000 - 025.000                 |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C | 14          | $J_1$           | kgcm <sup>2</sup>                     | 0.23 | 0.2  | 0.18 | 0.15 | 0.15 | 0.15 |
|                                                                                                            |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.2  | 0.18 | 0.16 | 0.13 | 0.13 | 0.13 |
|                                                                                                            | E | 19          | $J_1$           | kgcm <sup>2</sup>                     | 0.43 | 0.4  | 0.39 | 0.38 | 0.38 | 0.37 |
|                                                                                                            |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.38 | 0.35 | 0.35 | 0.34 | 0.34 | 0.33 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

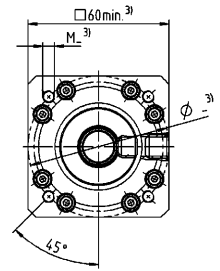
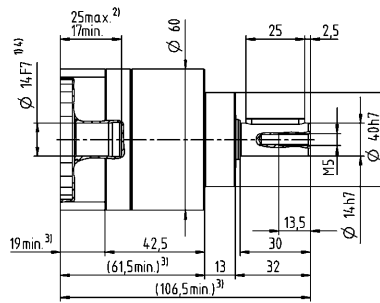
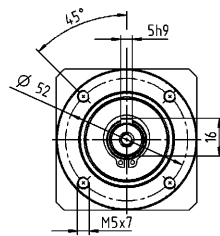
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

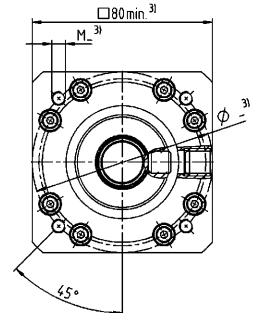
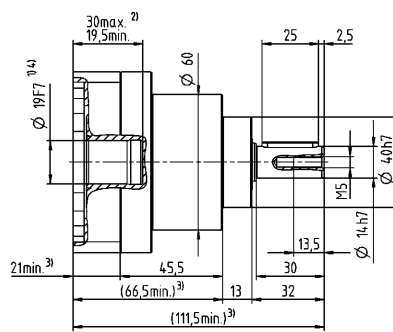
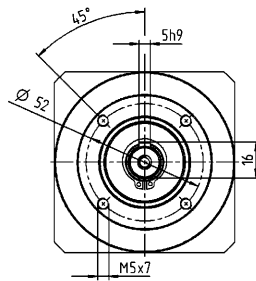
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



up to 19<sup>4)</sup> (E)  
clamping hub  
diameter

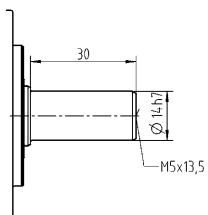


Motor shaft diameter [mm]

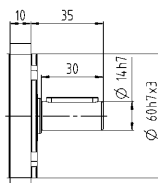
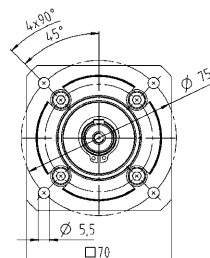
Planetary Gearboxes  
Basic Line

## Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPS 015 MF 2-stage

|                                                                                                            |   |              |                | 2-stage                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|--------------|----------------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i            |                | 9                             | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     | $Nm$           | 48                            | 48   | 48   | 56   | 56   | 58   | 56   | 48   | 56   | 58   | 56   | 58   | 56   | 58   | 56   |      |
|                                                                                                            |   |              | $in.lb$        | 425                           | 425  | 425  | 496  | 496  | 513  | 496  | 425  | 496  | 513  | 496  | 513  | 496  | 513  | 496  |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     | $Nm$           | 30                            | 30   | 30   | 35   | 35   | 40   | 35   | 30   | 35   | 40   | 35   | 40   | 35   | 40   | 35   |      |
|                                                                                                            |   |              | $in.lb$        | 266                           | 266  | 266  | 310  | 310  | 354  | 310  | 266  | 310  | 354  | 310  | 354  | 310  | 354  | 310  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   | $Nm$           | 75                            | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   |      |
|                                                                                                            |   |              | $in.lb$        | 664                           | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$     | $rpm$          | 3300                          | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 4000 | 4000 | 4000 |      |      |
| Max. input speed                                                                                           |   | $n_{1Max}$   | $rpm$          | 7000                          | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$    | $Nm$           | 0.33                          | 0.28 | 0.26 | 0.25 | 0.22 | 0.21 | 0.2  | 0.21 | 0.19 | 0.18 | 0.17 | 0.16 | 0.16 | 0.15 | 0.14 |      |
|                                                                                                            |   |              | $in.lb$        | 2.9                           | 2.5  | 2.3  | 2.2  | 1.9  | 1.9  | 1.8  | 1.9  | 1.7  | 1.6  | 1.5  | 1.4  | 1.4  | 1.3  | 1.2  |      |
| Max. backlash                                                                                              |   | $j_t$        | $arcmin$       | ≤ 15                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    | $Nm/arcmin$    | 2.1                           | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 1.9  | 2.1  | 1.9  |      |
|                                                                                                            |   |              | $in.lb/arcmin$ | 19                            | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 17   | 19   | 17   |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$  | $N$            | 750                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $lb_f$         | 169                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMMax}$ | $N$            | 500                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $lb_f$         | 113                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMMax}$ | $Nm$           | 17                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $in.lb$        | 150                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$       | %              | 95                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$        | $h$            | > 20000                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          | $kg$           | 1.8                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $lb_m$         | 4.0                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     | $dB(A)$        | ≤ 60                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |              | °C             | +90                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F             | +194                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |              | °C             | –15 to +40                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F             | +5 to +104                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |              |                | Lubricated for life           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |              |                | In- and output same direction |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |              |                | IP 64                         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |              |                | ELC-0020BA014.000-X           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |              | $mm$           | X = 008.000 - 025.000         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C | 14           | $J_i$          | $kgcm^2$                      | 0.22 | 0.22 | 0.21 | 0.2  | 0.19 | 0.18 | 0.17 | 0.19 | 0.16 | 0.16 | 0.17 | 0.16 | 0.15 | 0.15 | 0.15 |
|                                                                                                            |   |              |                | $10^{-3} in.lb.s^2$           | 0.19 | 0.19 | 0.19 | 0.18 | 0.17 | 0.16 | 0.15 | 0.17 | 0.14 | 0.14 | 0.15 | 0.14 | 0.13 | 0.13 | 0.13 |
|                                                                                                            | E | 19           | $J_i$          | $kgcm^2$                      | 0.43 | 0.42 | 0.42 | 0.4  | 0.4  | 0.39 | 0.39 | 0.41 | 0.39 | 0.39 | 0.39 | 0.38 | 0.37 | 0.38 | 0.37 |
|                                                                                                            |   |              |                | $10^{-3} in.lb.s^2$           | 0.38 | 0.37 | 0.37 | 0.35 | 0.35 | 0.35 | 0.35 | 0.36 | 0.35 | 0.35 | 0.35 | 0.34 | 0.33 | 0.34 | 0.33 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

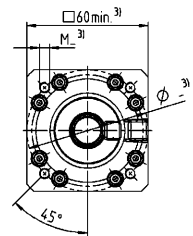
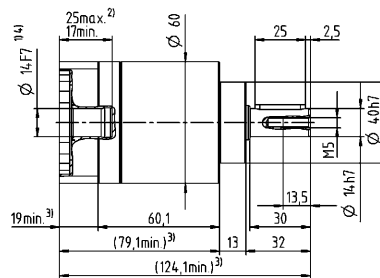
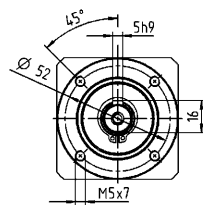
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

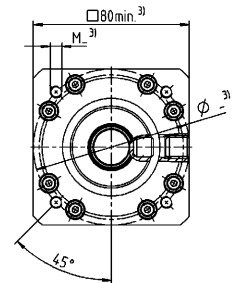
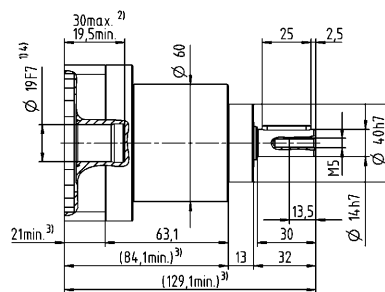
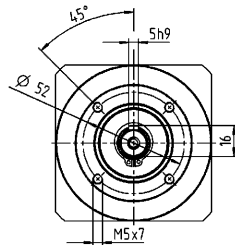


## 2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



up to 19<sup>4)</sup> (E)  
clamping hub  
diameter

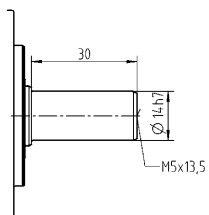


Motor shaft diameter [mm]

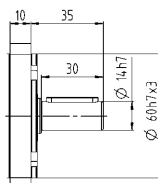
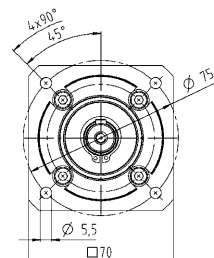
Planetary Gearboxes  
Basic Line

### Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPS 025 MF 1-stage

|                                                                                                            |   |             |                 | 1-stage                               |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|-------------|-----------------|---------------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$    | Nm              | 112                                   | 150  | 150  | 150  | 144  | 144  |      |
|                                                                                                            |   |             | in.lb           | 991                                   | 1328 | 1328 | 1328 | 1275 | 1275 |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$    | Nm              | 70                                    | 95   | 100  | 100  | 90   | 90   |      |
|                                                                                                            |   |             | in.lb           | 620                                   | 841  | 885  | 885  | 797  | 797  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$  | Nm              | 114                                   | 152  | 187  | 187  | 187  | 187  |      |
|                                                                                                            |   |             | in.lb           | 1009                                  | 1345 | 1655 | 1655 | 1655 | 1655 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$    | rpm             | 3100                                  | 3100 | 3100 | 3600 | 3600 | 3600 |      |
| Max. input speed                                                                                           |   | $n_{1Max}$  | rpm             | 7000                                  | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$   | Nm              | 0.38                                  | 0.3  | 0.26 | 0.23 | 0.21 | 0.19 |      |
|                                                                                                            |   |             | in.lb           | 3.4                                   | 2.7  | 2.3  | 2    | 1.9  | 1.7  |      |
| Max. backlash                                                                                              |   | $j_t$       | arcmin          | ≤ 12                                  |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$   | Nm/arcmin       | 6.1                                   | 6.1  | 6.1  | 6.1  | 5.5  | 5.5  |      |
|                                                                                                            |   |             | in.lb/arcmin    | 54                                    | 54   | 54   | 54   | 49   | 49   |      |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$ | N               | 1600                                  |      |      |      |      |      |      |
|                                                                                                            |   |             | lb <sub>f</sub> | 360                                   |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMax}$ | N               | 1200                                  |      |      |      |      |      |      |
|                                                                                                            |   |             | lb <sub>f</sub> | 270                                   |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$ | Nm              | 54                                    |      |      |      |      |      |      |
|                                                                                                            |   |             | in.lb           | 478                                   |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$      | %               | 97                                    |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$       | h               | > 20000                               |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$         | kg              | 2.9                                   |      |      |      |      |      |      |
|                                                                                                            |   |             | lb <sub>m</sub> | 6.4                                   |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$    | dB(A)           | ≤ 62                                  |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |             | °C              | +90                                   |      |      |      |      |      |      |
|                                                                                                            |   |             | °F              | +194                                  |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |             | °C              | –15 to +40                            |      |      |      |      |      |      |
|                                                                                                            |   |             | °F              | +5 to +104                            |      |      |      |      |      |      |
| Lubrication                                                                                                |   |             |                 | Lubricated for life                   |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |             |                 | In- and output same direction         |      |      |      |      |      |      |
| Protection class                                                                                           |   |             |                 | IP 64                                 |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |             |                 | ELC-0060BA020.000-X                   |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |             | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E | 19          | $J_1$           | kgcm <sup>2</sup>                     | 0.66 | 0.53 | 0.48 | 0.43 | 0.41 | 0.4  |
|                                                                                                            |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.58 | 0.47 | 0.42 | 0.38 | 0.36 | 0.35 |
|                                                                                                            | G | 24          | $J_1$           | kgcm <sup>2</sup>                     | 1.5  | 1.4  | 1.3  | 1.3  | 1.3  | 1.3  |
|                                                                                                            |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.3  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  |

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<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

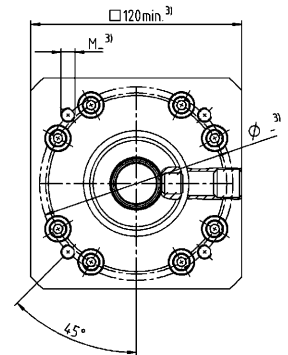
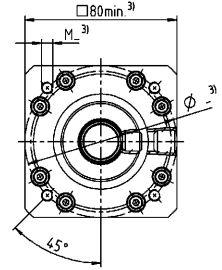
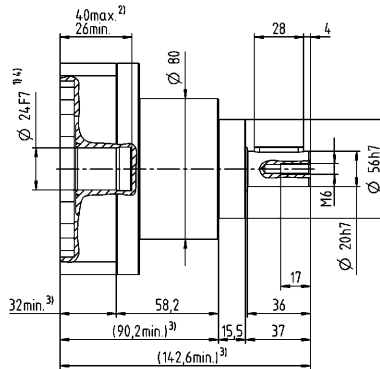
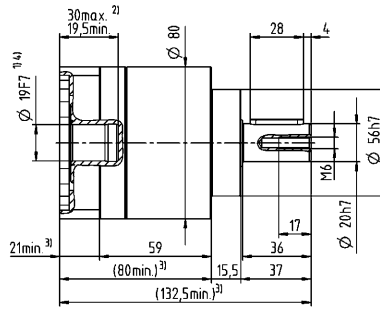
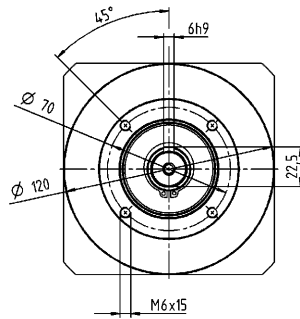
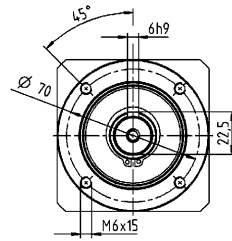
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter

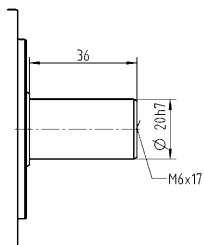


Motor shaft diameter [mm]

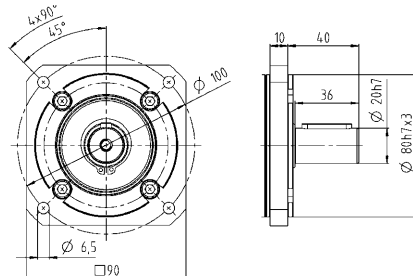
Planetary Gearboxes  
Basic Line

## Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPS 025 MF 2-stage

|                                                                                                            |   |              |                 | 2-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|--------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i            |                 | 9                                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     | Nm              | 112                                   | 112  | 112  | 150  | 150  | 150  | 150  | 112  | 150  | 150  | 150  | 150  | 144  | 150  | 144  |      |
|                                                                                                            |   |              | in.lb           | 991                                   | 991  | 991  | 1328 | 1328 | 1328 | 1328 | 991  | 1328 | 1328 | 1328 | 1328 | 1275 | 1328 | 1275 |      |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     | Nm              | 70                                    | 70   | 70   | 95   | 95   | 95   | 95   | 70   | 95   | 100  | 95   | 100  | 90   | 100  | 90   |      |
|                                                                                                            |   |              | in.lb           | 620                                   | 620  | 620  | 841  | 841  | 841  | 841  | 620  | 841  | 885  | 841  | 885  | 797  | 885  | 797  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   | Nm              | 187                                   | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  |      |
|                                                                                                            |   |              | in.lb           | 1655                                  | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$     | rpm             | 3100                                  | 3100 | 3100 | 3100 | 3100 | 3100 | 3100 | 3100 | 3100 | 3100 | 3100 | 3100 | 3600 | 3600 | 3600 |      |
| Max. input speed                                                                                           |   | $n_{1Max}$   | rpm             | 7000                                  | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$    | Nm              | 0.5                                   | 0.43 | 0.39 | 0.38 | 0.34 | 0.32 | 0.3  | 0.31 | 0.28 | 0.28 | 0.26 | 0.24 | 0.23 | 0.22 | 0.21 |      |
|                                                                                                            |   |              | in.lb           | 4.4                                   | 3.8  | 3.5  | 3.4  | 3    | 2.8  | 2.7  | 2.7  | 2.5  | 2.5  | 2.3  | 2.1  | 2    | 1.9  | 1.9  |      |
| Max. backlash                                                                                              |   | $j_t$        | arcmin          | ≤ 15                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    | Nm/arcmin       | 6.1                                   | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  | 5.5  | 6.1  | 5.5  |      |
|                                                                                                            |   |              | in.lb/arcmin    | 54                                    | 54   | 54   | 54   | 54   | 54   | 54   | 54   | 54   | 54   | 54   | 54   | 49   | 54   | 49   |      |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$  | N               | 1600                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 360                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMMax}$ | N               | 1200                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 270                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$  | Nm              | 54                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | in.lb           | 478                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$       | %               | 95                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$        | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          | kg              | 3.7                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>m</sub> | 8.2                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     | dB(A)           | ≤ 62                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |              | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |              | °C              | −15 to +40                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +5 to +104                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |              |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |              |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |              |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |              |                 | ELC-0060BA020.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |              | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E | 19           | $J_i$           | kgcm <sup>2</sup>                     | 0.66 | 1.4  | 1.6  | 0.98 | 1.1  | 0.82 | 1.2  | 2.1  | 1.4  | 0.88 | 1.4  | 1    | 0.58 | 0.71 | 0.54 |
|                                                                                                            |   |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.58 | 1.2  | 1.4  | 0.87 | 0.97 | 0.73 | 1.1  | 1.9  | 1.2  | 0.78 | 1.2  | 0.89 | 0.51 | 0.63 | 0.48 |
|                                                                                                            | G | 24           | $J_i$           | kgcm <sup>2</sup>                     | 1.5  | 2.3  | 2.4  | 1.8  | 1.9  | 1.7  | 2    | 3    | 2.2  | 1.7  | 2.2  | 1.9  | 1.4  | 1.6  | 1.4  |
|                                                                                                            |   |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.3  | 2    | 2.1  | 1.6  | 1.7  | 1.5  | 1.8  | 2.7  | 1.9  | 1.5  | 1.9  | 1.7  | 1.2  | 1.4  | 1.2  |

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<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

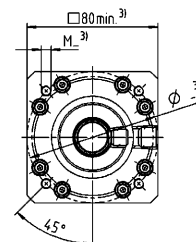
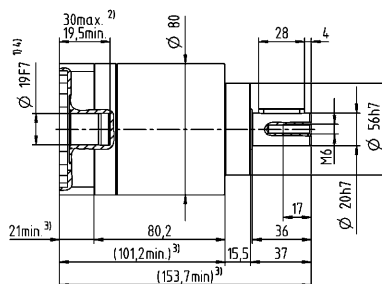
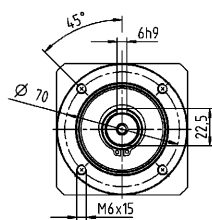
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

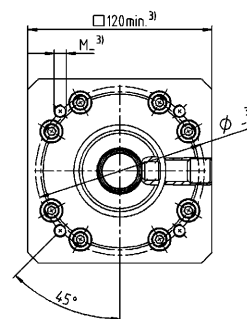
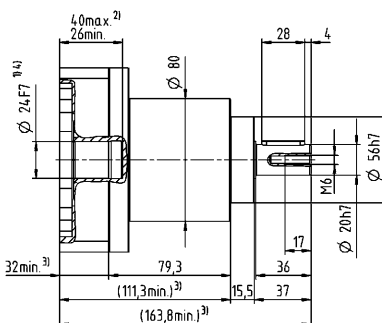
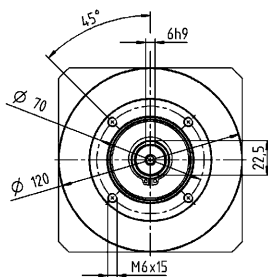
<sup>e)</sup> Valid for: Smooth shaft

## 2-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter



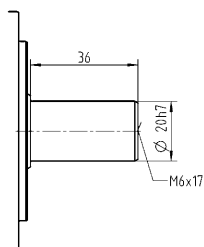
up to 24<sup>4)</sup> (G)  
clamping hub  
diameter



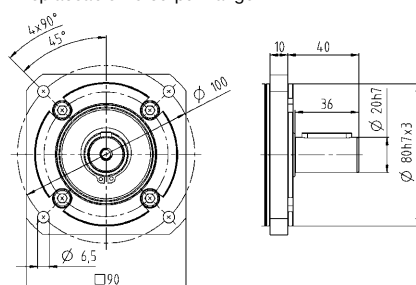
Motor shaft diameter [mm]

### Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPS 035 MF 1-stage

|                                                                                                            |   |             |                 | 1-stage                               |      |      |      |      |      |     |
|------------------------------------------------------------------------------------------------------------|---|-------------|-----------------|---------------------------------------|------|------|------|------|------|-----|
| Ratio                                                                                                      |   | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |     |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$    | Nm              | 272                                   | 272  | 272  | 272  | 272  | 272  |     |
|                                                                                                            |   |             | in.lb           | 2407                                  | 2407 | 2407 | 2407 | 2407 | 2407 |     |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$    | Nm              | 175                                   | 255  | 250  | 250  | 220  | 220  |     |
|                                                                                                            |   |             | in.lb           | 1549                                  | 2257 | 2213 | 2213 | 1947 | 1947 |     |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$  | Nm              | 460                                   | 480  | 480  | 480  | 470  | 480  |     |
|                                                                                                            |   |             | in.lb           | 4071                                  | 4248 | 4248 | 4248 | 4160 | 4248 |     |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$    | rpm             | 2300                                  | 2300 | 2300 | 2800 | 2800 | 2800 |     |
| Max. input speed                                                                                           |   | $n_{1Max}$  | rpm             | 5500                                  | 5500 | 5500 | 5500 | 5500 | 5500 |     |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$   | Nm              | 0.95                                  | 0.76 | 0.66 | 0.57 | 0.52 | 0.48 |     |
|                                                                                                            |   |             | in.lb           | 8.4                                   | 6.7  | 5.8  | 5    | 4.6  | 4.2  |     |
| Max. backlash                                                                                              |   | $j_t$       | arcmin          | ≤ 12                                  |      |      |      |      |      |     |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$   | Nm/arcmin       | 16                                    | 16   | 16   | 16   | 14   | 14   |     |
|                                                                                                            |   |             | in.lb/arcmin    | 142                                   | 142  | 142  | 142  | 124  | 124  |     |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$ | N               | 2500                                  |      |      |      |      |      |     |
|                                                                                                            |   |             | lb <sub>f</sub> | 563                                   |      |      |      |      |      |     |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMax}$ | N               | 1750                                  |      |      |      |      |      |     |
|                                                                                                            |   |             | lb <sub>f</sub> | 394                                   |      |      |      |      |      |     |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$ | Nm              | 98                                    |      |      |      |      |      |     |
|                                                                                                            |   |             | in.lb           | 867                                   |      |      |      |      |      |     |
| Efficiency at full load                                                                                    |   | $\eta$      | %               | 97                                    |      |      |      |      |      |     |
| Service life                                                                                               |   | $L_h$       | h               | > 20000                               |      |      |      |      |      |     |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$         | kg              | 7.5                                   |      |      |      |      |      |     |
|                                                                                                            |   |             | lb <sub>m</sub> | 17                                    |      |      |      |      |      |     |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$    | dB(A)           | ≤ 66                                  |      |      |      |      |      |     |
| Max. permitted housing temperature                                                                         |   |             | °C              | +90                                   |      |      |      |      |      |     |
|                                                                                                            |   |             | °F              | +194                                  |      |      |      |      |      |     |
| Ambient temperature                                                                                        |   |             | °C              | –15 to +40                            |      |      |      |      |      |     |
|                                                                                                            |   |             | °F              | +5 to +104                            |      |      |      |      |      |     |
| Lubrication                                                                                                |   |             |                 | Lubricated for life                   |      |      |      |      |      |     |
| Direction of rotation                                                                                      |   |             |                 | In- and output same direction         |      |      |      |      |      |     |
| Protection class                                                                                           |   |             |                 | IP 64                                 |      |      |      |      |      |     |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |             |                 | ELC-0150BA025.000-X                   |      |      |      |      |      |     |
| Bore diameter of coupling<br>on the application side                                                       |   |             | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |     |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | G | 24          | $J_1$           | kgcm <sup>2</sup>                     | 2.6  | 1.9  | 1.7  | 1.5  | 1.4  | 1.4 |
|                                                                                                            |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.3  | 1.7  | 1.5  | 1.3  | 1.2  | 1.2 |
|                                                                                                            | K | 38          | $J_1$           | kgcm <sup>2</sup>                     | 7.8  | 7.1  | 6.9  | 6.7  | 6.6  | 6.5 |
|                                                                                                            |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 6.9  | 6.3  | 6.1  | 5.9  | 5.8  | 5.8 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

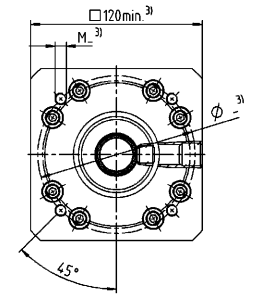
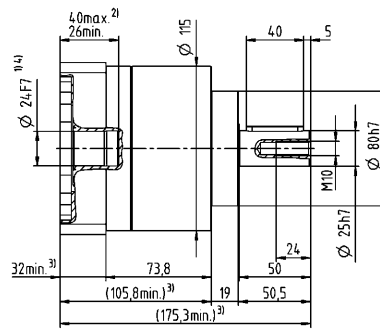
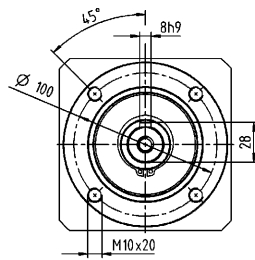
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

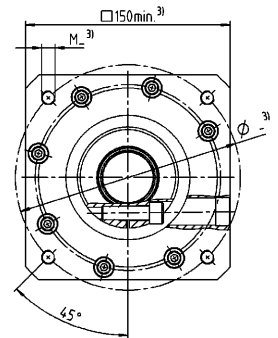
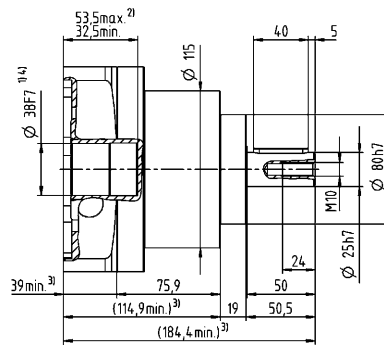
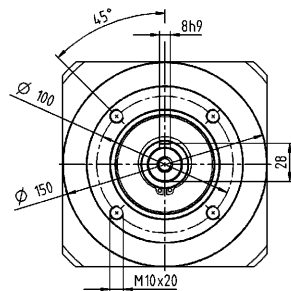
up to 24<sup>4)</sup> (G)<sup>5)</sup>  
clamping hub  
diameter



Planetary Gearboxes  
Basic Line

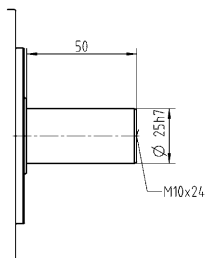
Motor shaft diameter [mm]

up to 38<sup>4)</sup> (K)  
clamping hub  
diameter

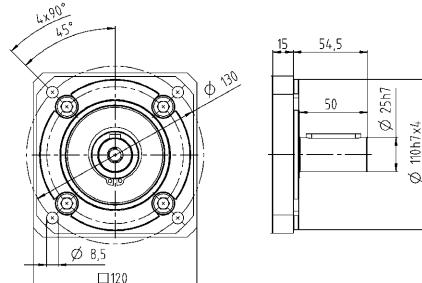


## Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPS 035 MF 2-stage

|                                                                                                            |   |              |                | 2-stage                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|--------------|----------------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i            |                | 9                             | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     | $Nm$           | 272                           | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  |      |
|                                                                                                            |   |              | $in.lb$        | 2407                          | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     | $Nm$           | 175                           | 175  | 175  | 255  | 255  | 250  | 255  | 175  | 255  | 250  | 255  | 250  | 220  | 250  | 220  |      |
|                                                                                                            |   |              | $in.lb$        | 1549                          | 1549 | 1549 | 2257 | 2257 | 2213 | 2257 | 1549 | 2257 | 2213 | 2257 | 2213 | 1947 | 2213 | 1947 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   | $Nm$           | 480                           | 480  | 480  | 480  | 480  | 480  | 480  | 315  | 480  | 480  | 480  | 480  | 470  | 480  | 480  |      |
|                                                                                                            |   |              | $in.lb$        | 4248                          | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 2788 | 4248 | 4248 | 4248 | 4248 | 4160 | 4248 | 4248 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$     | $rpm$          | 2300                          | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2800 | 2800 | 2800 |      |
| Max. input speed                                                                                           |   | $n_{1Max}$   | $rpm$          | 5500                          | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$    | $Nm$           | 1.3                           | 1.1  | 0.98 | 0.95 | 0.85 | 0.8  | 0.76 | 0.79 | 0.71 | 0.7  | 0.66 | 0.61 | 0.59 | 0.56 | 0.52 |      |
|                                                                                                            |   |              | $in.lb$        | 12                            | 9.7  | 8.7  | 8.4  | 7.5  | 7.1  | 6.7  | 7    | 6.3  | 6.2  | 5.8  | 5.4  | 5.2  | 5    | 4.6  |      |
| Max. backlash                                                                                              |   | $j_t$        | $arcmin$       | ≤ 15                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    | $Nm/arcmin$    | 16                            | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 14   | 16   | 14   |
|                                                                                                            |   |              | $in.lb/arcmin$ | 142                           | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 124  | 142  | 124  |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$  | $N$            | 2500                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $lb_f$         | 563                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMMax}$ | $N$            | 1750                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $lb_f$         | 394                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$  | $Nm$           | 98                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $in.lb$        | 867                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$       | %              | 95                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$        | $h$            | > 20000                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          | $kg$           | 9.6                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | $lb_m$         | 21                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     | $dB(A)$        | ≤ 66                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |              | °C             | +90                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F             | +194                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |              | °C             | –15 to +40                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F             | +5 to +104                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |              |                | Lubricated for life           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |              |                | In- and output same direction |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |              |                | IP 64                         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |              |                | ELC-0150BA025.000-X           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |              | $mm$           | X = 019.000 - 036.000         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | G | 24           | $J_1$          | $kgcm^2$                      | 2.7  | 2.5  | 2.5  | 2.3  | 2.3  | 2.1  | 2.4  | 3.1  | 2.4  | 2.2  | 2.6  | 2.2  | 1.8  | 1.9  | 1.7  |
|                                                                                                            |   |              |                | $10^{-3} in.lb.s^2$           | 2.4  | 2.2  | 2.2  | 2    | 2    | 1.9  | 2.1  | 2.7  | 2.1  | 1.9  | 2.3  | 1.9  | 1.6  | 1.7  | 1.5  |
|                                                                                                            | K | 38           | $J_1$          | $kgcm^2$                      | 7.9  | 7.7  | 7.8  | 7.5  | 7.5  | 7.3  | 7.5  | 8.3  | 7.6  | 7.4  | 7.8  | 7.4  | 7    | 7.1  | 6.9  |
|                                                                                                            |   |              |                | $10^{-3} in.lb.s^2$           | 7    | 6.8  | 6.9  | 6.6  | 6.6  | 6.5  | 6.6  | 7.3  | 6.7  | 6.5  | 6.9  | 6.5  | 6.2  | 6.3  | 6.1  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

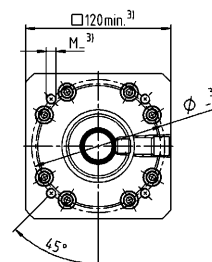
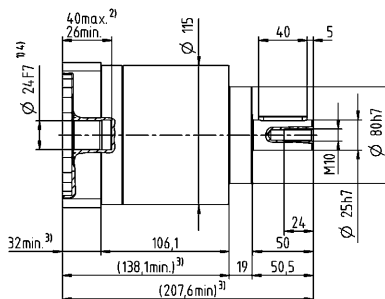
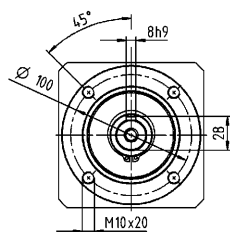
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

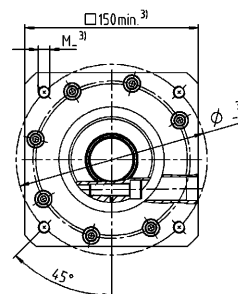
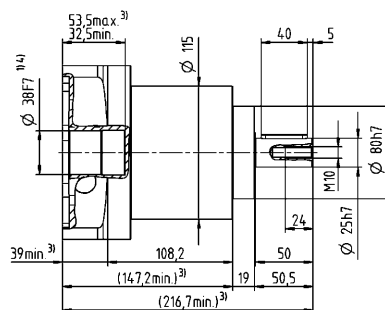
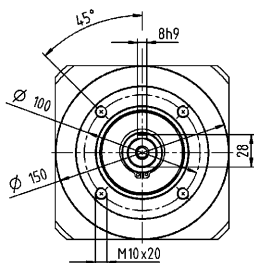


# 2-stage

up to 24<sup>4)</sup> (G)<sup>5)</sup>  
clamping hub  
diameter



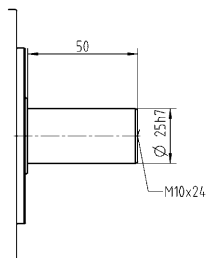
up to 38<sup>4)</sup> (K)  
clamping hub  
diameter



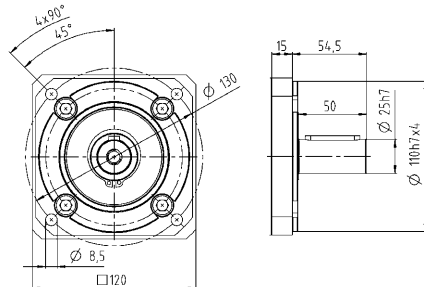
Motor shaft diameter [mm]

## Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

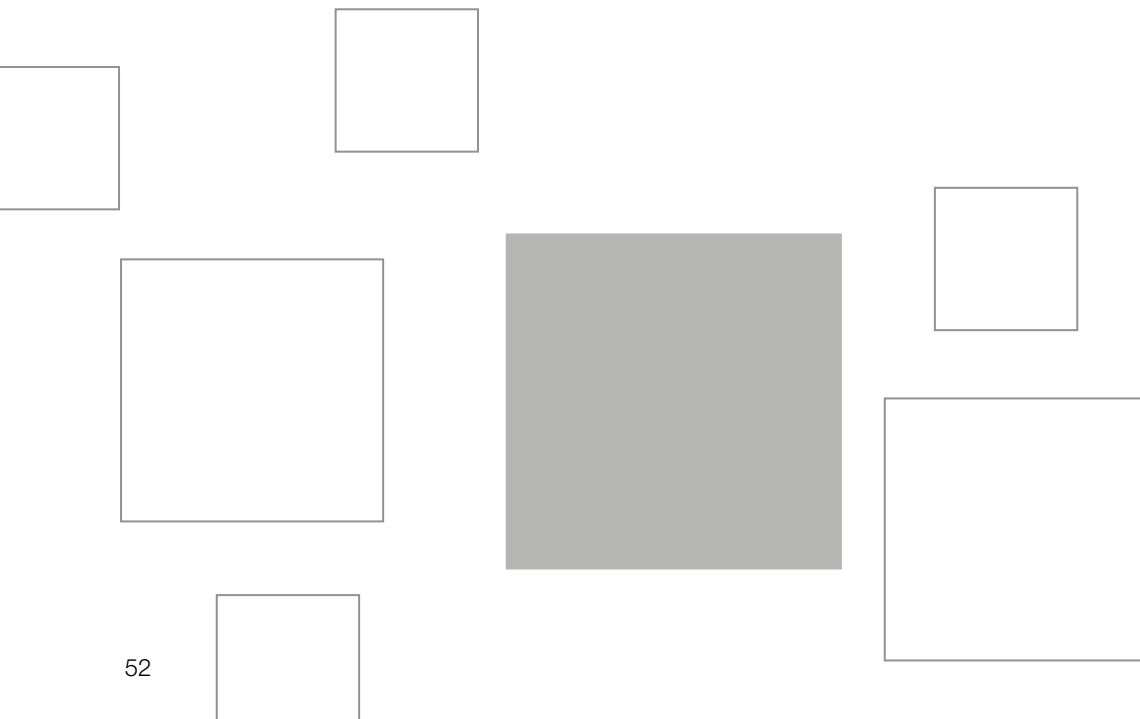
by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# alpha Basic Line

## BEVEL GEARBOXES CPK / CPSK

The bevel gearboxes of the alpha Basic Line achieve a high power density thanks to the specially designed toothing. Thus they can optimally combine the benefits of a planetary gearbox and an angle section. The extremely compact design also enables use in confined installation situations.



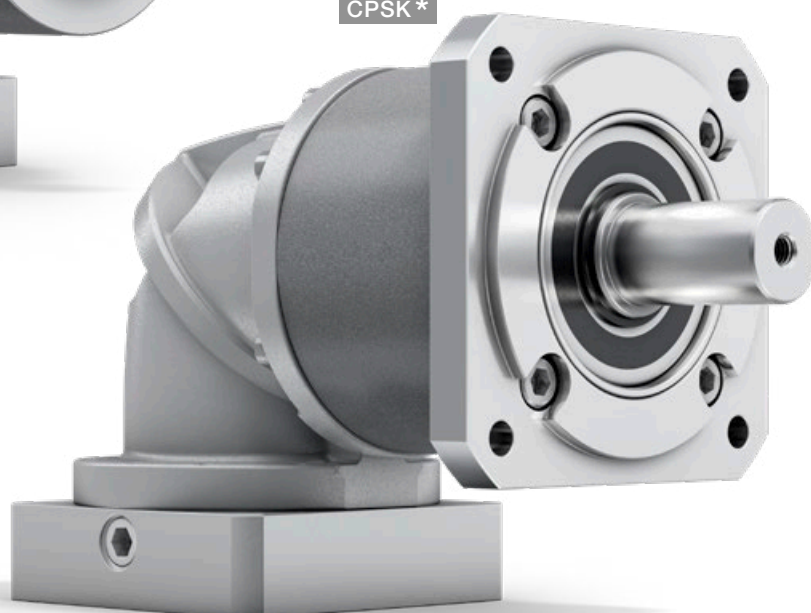
CPK



CPSK

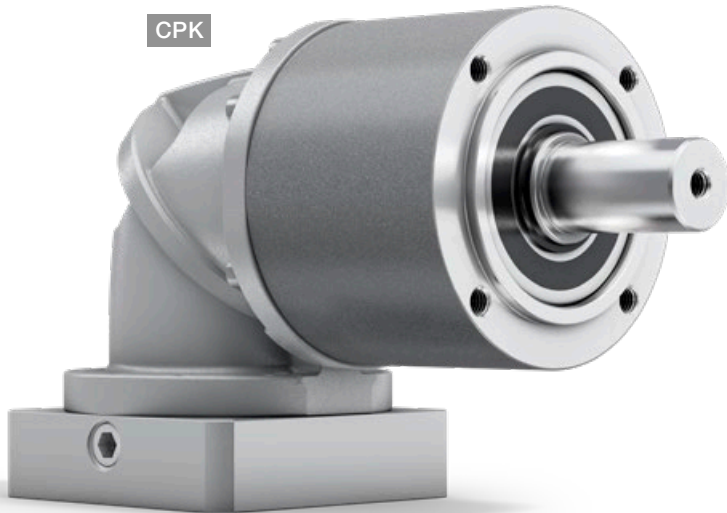


CPSK \*



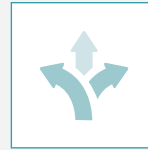
\* CPSK with replaceable B5 output flange

# CPK / CPSK – Geared up to Fit



Economically around the corner. The right-angle gearboxes of the alpha Basic Line are specially designed for applications with medium requirements for positioning accuracy. The extremely compact bevel gear stage enables use in applications with space constraints.

## PRODUCT HIGHLIGHTS



### High flexibility

Various output variants offer design freedom tailored to individual requirements.



### Maximum economy

The alpha Basic Line is extremely economical to purchase and highly efficient in operation.



### High power density

The gearboxes offer high power density in the smallest installation space.

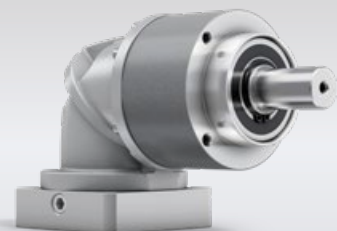


### Quick sizing

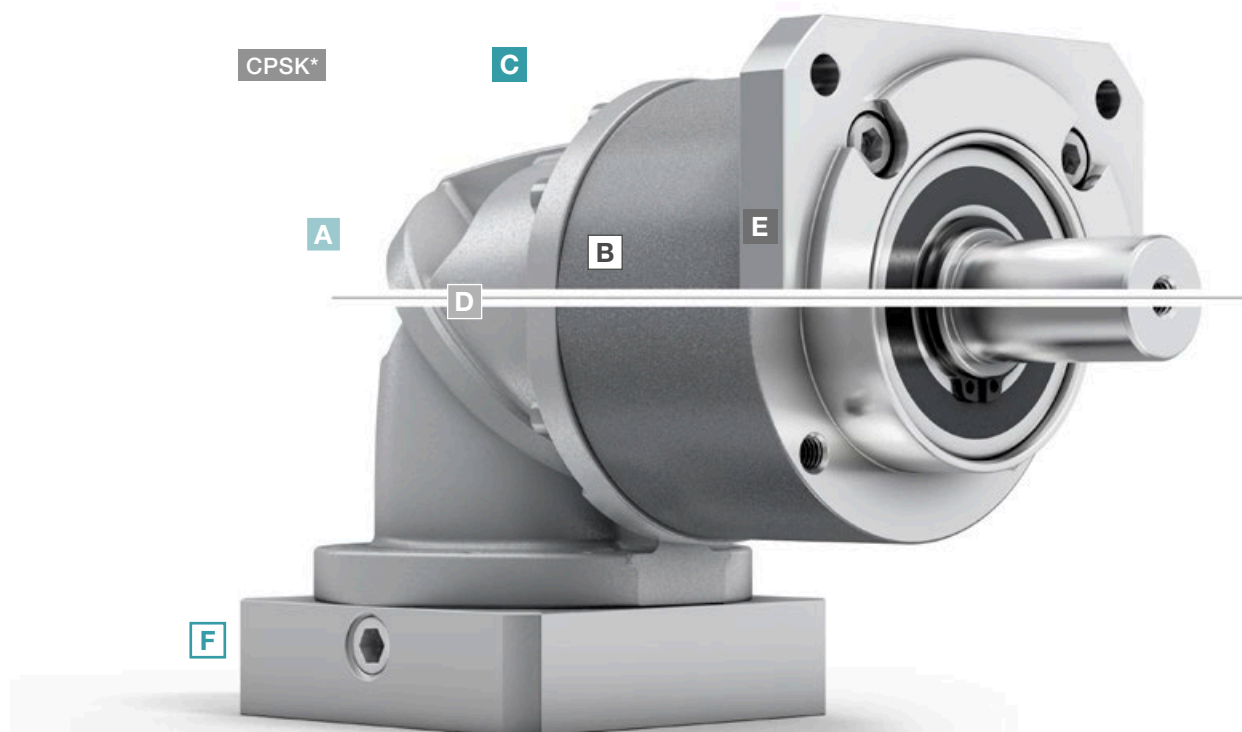
Efficient online sizing within seconds in the SIZING ASSISTANT on the basis of the application data or the motor.



CPSK – bevel gearbox with replaceable B5 output flange



CPSK – bevel gearbox with long centering



\* CPSK with replaceable B5 output flange

#### A Variety of sizes

- CPK available in five different sizes (005 – 045)
- CPSK available in three different sizes (015 – 035)

#### B High ratio variation

- Large number of ratios ( $i=3$  to  $i=100$ )
- Available in the common binary ratios

#### C Design

- The elegant design underlines the dynamics of the gearbox and sets new standards on the market

#### D Compactness

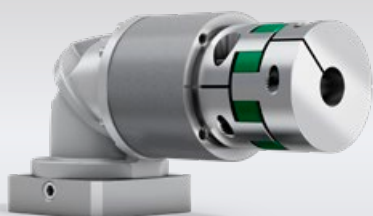
- The extremely compact design of the angle section enables use in very confined installation spaces

#### E Variable application connection

- Shortened installation space and maximum compactness thanks to a long centering
- Flange attachment for B5 mounting

#### F Flexible motor connection

- As with the planetary gearboxes of the alpha Basic Line, mounting of all common servo motors takes place by means of a flexible and screw-fastened adapter plate
- Large number of motor shaft diameters connectable



CPK – bevel gearbox with elastomer coupling



**SIZING ASSISTANT**  
YOUR GEARBOX WITHIN SECONDS

Efficient gearbox sizing within seconds – online and without login  
[www.sizing-assistant.com](http://www.sizing-assistant.com)

# CPK 005 MF 2-stage

|                                                                                                            |              |                 | 2-stage                               |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------------------------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 4                                     | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 14                                    | 17   | 21   | 20   | 20   |
|                                                                                                            |              | in.lb           | 124                                   | 150  | 186  | 177  | 177  |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 6.8                                   | 8.5  | 12   | 13   | 13   |
|                                                                                                            |              | in.lb           | 60                                    | 75   | 106  | 115  | 115  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 17                                    | 21   | 26   | 26   | 26   |
|                                                                                                            |              | in.lb           | 150                                   | 186  | 230  | 230  | 230  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 3800                                  | 3800 | 3800 | 3800 | 3800 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$    | Nm              | 0.25                                  | 0.25 | 0.25 | 0.25 | 0.25 |
|                                                                                                            |              | in.lb           | 2.2                                   | 2.2  | 2.2  | 2.2  | 2.2  |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 17                                  |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{21}$     | Nm/arcmin       | 0.5                                   | 0.5  | 0.5  | 0.5  | 0.5  |
|                                                                                                            |              | in.lb/arcmin    | 4.4                                   | 4.4  | 4.4  | 4.4  | 4.4  |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 240                                   |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 54                                    |      |      |      |      |
| Max. lateral force <sup>c) f)</sup>                                                                        | $F_{2QMMax}$ | N               | 170                                   |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 38                                    |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ | Nm              | 4                                     |      |      |      |      |
|                                                                                                            |              | in.lb           | 35                                    |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 95                                    |      |      |      |      |
| Service life                                                                                               | $L_n$        | h               | > 20000                               |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 0.86                                  |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 1.9                                   |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 68                                  |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                                   |      |      |      |      |
|                                                                                                            |              | °F              | +194                                  |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | 0 to +40                              |      |      |      |      |
|                                                                                                            |              | °F              | +32 to +104                           |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life                   |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction         |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                                 |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0005BA010.000-X                   |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 004.000 - 012.700                 |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | B 11         | $J_t$           | kgcm <sup>2</sup>                     | 0.13 | 0.13 | 0.13 | 0.13 |
|                                                                                                            |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.12 | 0.12 | 0.12 | 0.12 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximum permissible tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

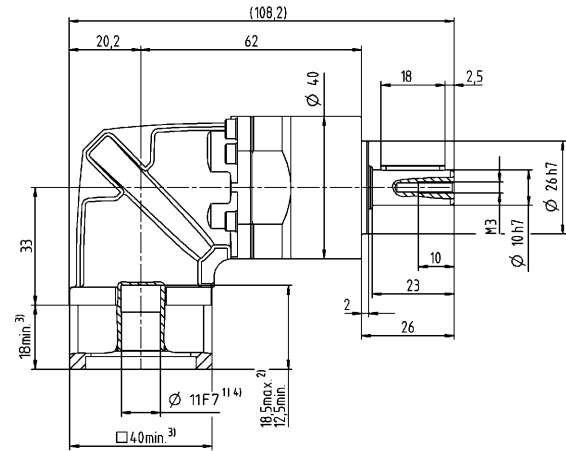
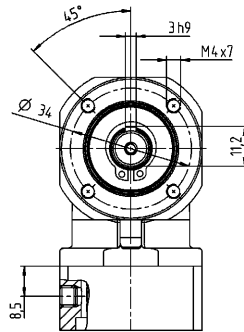
<sup>e)</sup> Valid for: Smooth shaft

<sup>f)</sup> At increased lateral forces – see glossary

Motor shaft diameter [mm]

2-stage

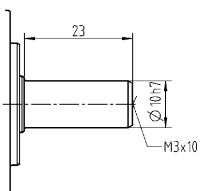
up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



Bevel Gearboxes  
Basic Line

## Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPK 005 MF 3-stage

|                                                                                                            |              |                 | 3-stage                               |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 16                                    | 20   | 25   | 28   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 17                                    | 17   | 21   | 17   | 17   | 21   | 17   | 21   | 20   | 21   | 20   |
|                                                                                                            |              | in.lb           | 150                                   | 150  | 186  | 150  | 150  | 186  | 150  | 186  | 177  | 186  | 177  |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 11                                    | 11   | 14   | 11   | 11   | 14   | 11   | 14   | 13   | 14   | 13   |
|                                                                                                            |              | in.lb           | 97                                    | 97   | 124  | 97   | 97   | 124  | 97   | 124  | 115  | 124  | 115  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 26                                    | 26   | 26   | 26   | 26   | 26   | 26   | 26   | 26   | 26   | 26   |
|                                                                                                            |              | in.lb           | 230                                   | 230  | 230  | 230  | 230  | 230  | 230  | 230  | 230  | 230  | 230  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 3800                                  | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$    | Nm              | 0.27                                  | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 |
|                                                                                                            |              | in.lb           | 2.4                                   | 2.4  | 2.4  | 2.4  | 2.4  | 2.4  | 2.4  | 2.4  | 2.4  | 2.4  | 2.4  |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 20                                  |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 0.57                                  | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 |
|                                                                                                            |              | in.lb/arcmin    | 5                                     | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 240                                   |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 54                                    |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c) f)</sup>                                                                        | $F_{2QMMax}$ | N               | 170                                   |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 38                                    |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ | Nm              | 4                                     |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 35                                    |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 94                                    |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 0.92                                  |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 2.0                                   |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 68                                  |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | 0 to +40                              |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +32 to +104                           |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0005BA010.000-X                   |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 004.000 - 012.700                 |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | B 11         | $J_t$           | kgcm <sup>2</sup>                     | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
|                                                                                                            |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximum permissible tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

<sup>f)</sup> At increased lateral forces – see glossary



up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter

<sup>5)</sup> Standard clamping hub diameter

# CPK 015 MF 2-stage

|                                                                                                            |             |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | Nm              | 33                                    | 44   | 55   | 58   | 56   | 56   |
|                                                                                                            |             | in.lb           | 292                                   | 389  | 487  | 513  | 496  | 496  |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | Nm              | 16                                    | 21   | 27   | 37   | 35   | 35   |
|                                                                                                            |             | in.lb           | 142                                   | 186  | 239  | 327  | 310  | 310  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 41                                    | 55   | 69   | 75   | 75   | 75   |
|                                                                                                            |             | in.lb           | 363                                   | 487  | 611  | 664  | 664  | 664  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 3300                                  | 3300 | 3300 | 3300 | 3300 | 3300 |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$   | Nm              | 0.55                                  | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 |
|                                                                                                            |             | in.lb           | 4.9                                   | 4.9  | 4.9  | 4.9  | 4.9  | 4.9  |
| Max. backlash                                                                                              | $j_t$       | arcmin          | ≤ 17                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 1.7                                   | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  |
|                                                                                                            |             | in.lb/arcmin    | 15                                    | 15   | 15   | 15   | 15   | 15   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 750                                   |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 169                                   |      |      |      |      |      |
| Max. lateral force <sup>c) f)</sup>                                                                        | $F_{2QMax}$ | N               | 500                                   |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 113                                   |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 17                                    |      |      |      |      |      |
|                                                                                                            |             | in.lb           | 150                                   |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 1.6                                   |      |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 3.5                                   |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | dB(A)           | ≤ 70                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |             | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |             | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |             | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |             |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 | ELC-0020BA014.000-X                   |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             | mm              | X = 008.000 - 025.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C 14        | $J_1$           | kgcm <sup>2</sup>                     | 0.3  | 0.3  | 0.3  | 0.3  | 0.3  |
|                                                                                                            |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 |

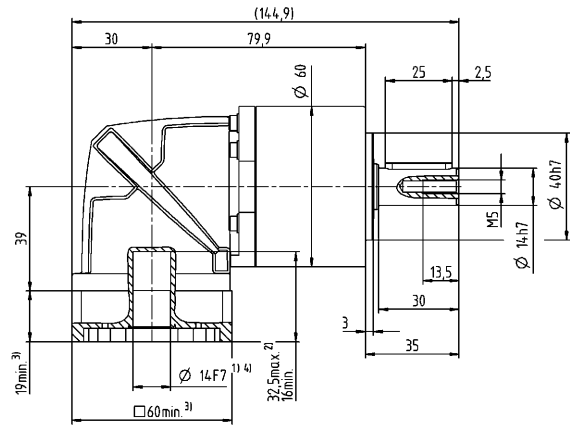
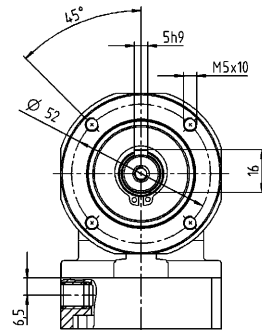
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Please consider the maximum permissible tilting moment caused by the motor  $M_{1KMot}$  – see sizing

- <sup>a)</sup> Valid for torque transmission only
- <sup>b)</sup> Valid for standard clamping hub diameter
- <sup>c)</sup> Refers to center of the output shaft or flange
- <sup>d)</sup> Please reduce input speed at higher ambient temperatures
- <sup>e)</sup> Valid for: Smooth shaft
- <sup>f)</sup> At increased lateral forces – see glossary

Motor shaft diameter [mm]

2-stage

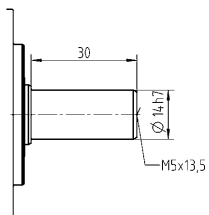
up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



Bevel Gearboxes  
Basic Line

## Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPK 015 MF 3-stage

|                                                                                                            |   |              |       | 3-stage                               |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|--------------|-------|---------------------------------------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i            |       |                                       | 9                             | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     |       | Nm                                    | 48                            | 48   | 48   | 56   | 56   | 58   | 56   | 48   | 56   | 58   | 56   | 58   | 56   | 58   | 56   |
|                                                                                                            |   |              |       | in.lb                                 | 425                           | 425  | 425  | 496  | 496  | 513  | 496  | 425  | 496  | 513  | 496  | 513  | 496  | 513  | 496  |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     |       | Nm                                    | 30                            | 30   | 30   | 35   | 35   | 40   | 35   | 30   | 35   | 40   | 35   | 40   | 35   | 40   | 35   |
|                                                                                                            |   |              |       | in.lb                                 | 266                           | 266  | 266  | 310  | 310  | 354  | 310  | 266  | 310  | 354  | 310  | 354  | 310  | 354  | 310  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   |       | Nm                                    | 75                            | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   |
|                                                                                                            |   |              |       | in.lb                                 | 664                           | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$     |       | rpm                                   | 3300                          | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 |
| Max. input speed                                                                                           |   | $n_{1Max}$   |       | rpm                                   | 5000                          | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           |   | $T_{012}$    |       | Nm                                    | 0.63                          | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 |
|                                                                                                            |   |              |       | in.lb                                 | 5.6                           | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  |
| Max. backlash                                                                                              |   | $j_t$        |       | arcmin                                | ≤ 17                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    |       | Nm/arcmin                             | 2.1                           | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  |
|                                                                                                            |   |              |       | in.lb/arcmin                          | 19                            | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$  |       | N                                     | 750                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              |       | lb <sub>f</sub>                       | 169                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c) f)</sup>                                                                        |   | $F_{2QMMax}$ |       | N                                     | 500                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              |       | lb <sub>f</sub>                       | 113                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMMax}$ |       | Nm                                    | 17                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              |       | in.lb                                 | 150                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$       |       | %                                     | 94                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$        |       | h                                     | > 20000                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          |       | kg                                    | 1.8                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              |       | lb <sub>m</sub>                       | 4.0                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     |       | dB(A)                                 | ≤ 70                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |              |       | °C                                    | +90                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              |       | °F                                    | +194                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature<br>(relates to the drive)                                                              |   |              |       | °C                                    | 0 to +40                      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              |       | °F                                    | +32 to +104                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |              |       |                                       | Lubricated for life           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |              |       |                                       | In- and output same direction |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |              |       |                                       | IP 64                         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |              |       |                                       | ELC-0020BA014.000-X           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |              |       | mm                                    | X = 008.000 - 025.000         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C | 14           | $J_1$ | kgcm <sup>2</sup>                     | 0.31                          | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 |
|                                                                                                            |   |              |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.27                          | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 |

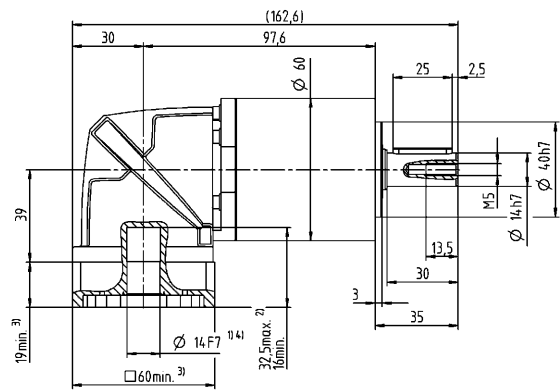
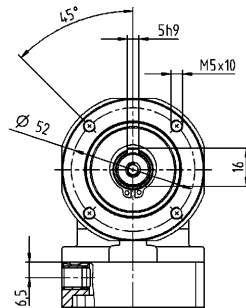
Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximum permissible tilting moment caused by the motor  $M_{1KMot}$  – see sizing

- <sup>a)</sup> Valid for torque transmission only
- <sup>b)</sup> Valid for standard clamping hub diameter
- <sup>c)</sup> Refers to center of the output shaft or flange
- <sup>d)</sup> Please reduce input speed at higher ambient temperatures
- <sup>e)</sup> Valid for: Smooth shaft
- <sup>f)</sup> At increased lateral forces – see glossary

Motor shaft diameter [mm]

3-stage

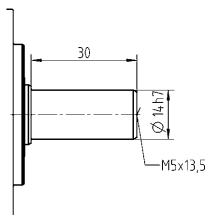
up to 14 <sup>4)</sup> (C) <sup>5)</sup>  
clamping hub  
diameter



Bevel Gearboxes  
Basic Line

## Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPK 025 MF 2-stage

|                                                                                                            |             |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | Nm              | 60                                    | 80   | 100  | 140  | 144  | 144  |
|                                                                                                            |             | in.lb           | 531                                   | 708  | 885  | 1239 | 1275 | 1275 |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | Nm              | 35                                    | 47   | 58   | 82   | 90   | 90   |
|                                                                                                            |             | in.lb           | 310                                   | 416  | 513  | 726  | 797  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 90                                    | 120  | 150  | 187  | 187  | 187  |
|                                                                                                            |             | in.lb           | 797                                   | 1062 | 1328 | 1655 | 1655 | 1655 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 3000                                  | 3000 | 3000 | 3000 | 3000 | 3000 |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$   | Nm              | 0.98                                  | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
|                                                                                                            |             | in.lb           | 8.7                                   | 8.7  | 8.7  | 8.7  | 8.7  | 8.7  |
| Max. backlash                                                                                              | $j_t$       | arcmin          | $\leq 17$                             |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 4.5                                   | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |
|                                                                                                            |             | in.lb/arcmin    | 40                                    | 40   | 40   | 40   | 40   | 40   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 1600                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 360                                   |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | N               | 1200                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 270                                   |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 54                                    |      |      |      |      |      |
|                                                                                                            |             | in.lb           | 478                                   |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 4.2                                   |      |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 9.3                                   |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | dB(A)           | $\leq 70$                             |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |             | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |             | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |             | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |             |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 | ELC-0060BA020.000-X                   |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E 19        | $J_1$           | kgcm <sup>2</sup>                     | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
|                                                                                                            |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximum permissible tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

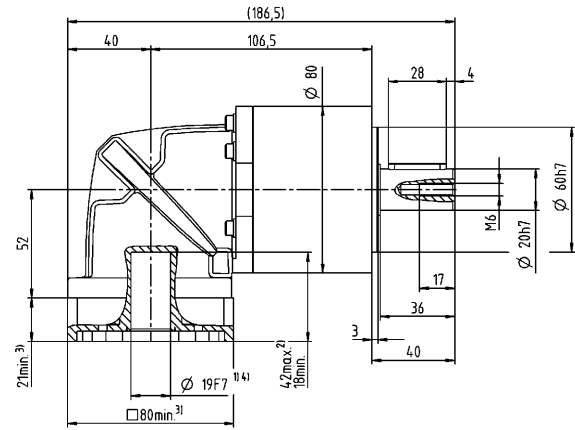
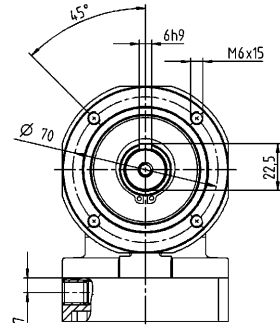
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

## 2-stage

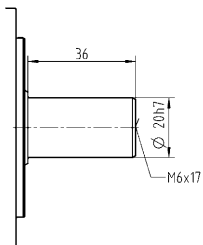
up to 19 <sup>4)</sup> (E) <sup>5)</sup>  
clamping hub  
diameter



## Bevel Gearboxes Basic Line

## Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

- 1) Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPK 025 MF 3-stage

|                                                                                                            |   |              |                 | 3-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|--------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i            |                 | 9                                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     | Nm              | 112                                   | 112  | 112  | 150  | 150  | 150  | 150  | 112  | 150  | 150  | 150  | 150  | 144  | 150  | 144  |
|                                                                                                            |   |              | in.lb           | 991                                   | 991  | 991  | 1328 | 1328 | 1328 | 1328 | 991  | 1328 | 1328 | 1328 | 1328 | 1275 | 1328 | 1275 |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     | Nm              | 70                                    | 70   | 70   | 95   | 95   | 95   | 95   | 70   | 95   | 100  | 95   | 100  | 90   | 100  | 90   |
|                                                                                                            |   |              | in.lb           | 620                                   | 620  | 620  | 841  | 841  | 841  | 841  | 620  | 841  | 885  | 841  | 885  | 797  | 885  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   | Nm              | 187                                   | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  |
|                                                                                                            |   |              | in.lb           | 1655                                  | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$     | rpm             | 3000                                  | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| Max. input speed                                                                                           |   | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$    | Nm              | 1.1                                   | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  |
|                                                                                                            |   |              | in.lb           | 9.7                                   | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  |
| Max. backlash                                                                                              |   | $j_t$        | arcmin          | ≤ 18                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    | Nm/arcmin       | 5.9                                   | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  |
|                                                                                                            |   |              | in.lb/arcmin    | 52                                    | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$  | N               | 1600                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 360                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMMax}$ | N               | 1200                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 270                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$  | Nm              | 54                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | in.lb           | 478                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$       | %               | 94                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$        | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          | kg              | 4.5                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>m</sub> | 9.9                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     | dB(A)           | ≤ 70                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |              | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |              | °C              | 0 to +40                              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +32 to +104                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |              |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |              |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |              |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |              |                 | ELC-0060BA020.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |              | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E | 19           | $J_1$           | kgcm <sup>2</sup>                     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
|                                                                                                            |   |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |

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Please consider the maximum permissible tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

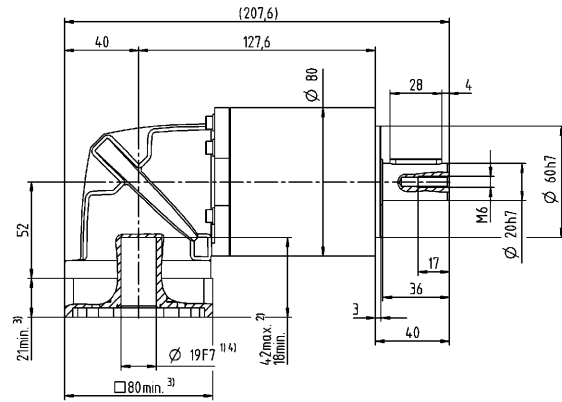
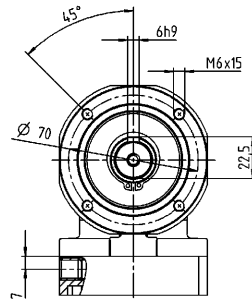
<sup>e)</sup> Valid for: Smooth shaft



Motor shaft diameter [mm]

## 3-stage

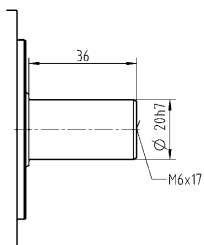
up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter



Bevel Gearboxes  
Basic Line

### Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPK 035 MF 2-stage

|                                                                                                            |             |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | Nm              | 150                                   | 200  | 250  | 272  | 272  | 272  |
|                                                                                                            |             | in.lb           | 1328                                  | 1770 | 2213 | 2407 | 2407 | 2407 |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | Nm              | 93                                    | 124  | 155  | 217  | 220  | 220  |
|                                                                                                            |             | in.lb           | 823                                   | 1097 | 1372 | 1921 | 1947 | 1947 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 238                                   | 318  | 397  | 480  | 477  | 480  |
|                                                                                                            |             | in.lb           | 2106                                  | 2815 | 3514 | 4248 | 4222 | 4248 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 2000                                  | 2000 | 2000 | 2000 | 2000 | 2000 |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 4500                                  | 4500 | 4500 | 4500 | 4500 | 4500 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$   | Nm              | 3.5                                   | 3.5  | 3.5  | 3.5  | 3.5  | 3.5  |
|                                                                                                            |             | in.lb           | 31                                    | 31   | 31   | 31   | 31   | 31   |
| Max. backlash                                                                                              | $j_t$       | arcmin          | ≤ 15                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 13                                    | 13   | 13   | 13   | 13   | 13   |
|                                                                                                            |             | in.lb/arcmin    | 115                                   | 115  | 115  | 115  | 115  | 115  |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 2500                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 563                                   |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | N               | 1750                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 394                                   |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 98                                    |      |      |      |      |      |
|                                                                                                            |             | in.lb           | 867                                   |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 8.8                                   |      |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 19                                    |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | dB(A)           | ≤ 74                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |             | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |             | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |             | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |             |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 | ELC-0150BA025.000-X                   |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | H 28        | $J_1$           | kgcm <sup>2</sup>                     | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  |
|                                                                                                            |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 5.4  | 5.4  | 5.4  | 5.4  | 5.4  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximum permissible tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

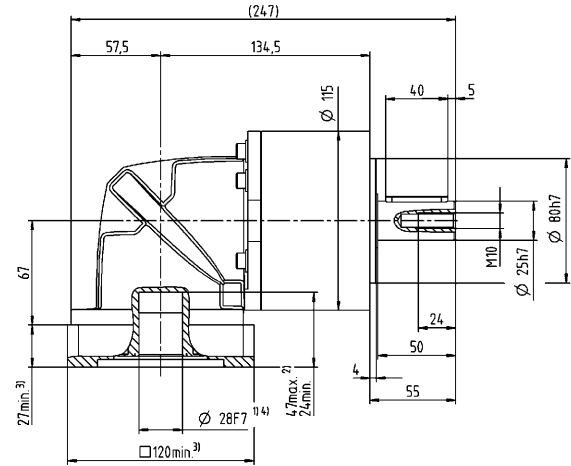
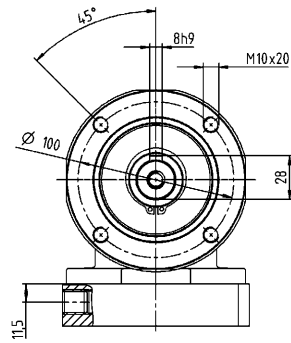
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

2-stage

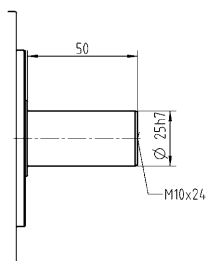
up to 28<sup>4)</sup> (H)<sup>5)</sup>  
clamping hub  
diameter



Bevel Gearboxes  
Basic Line

## Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPK 035 MF 3-stage

|                                                                                                            |   |              |                 | 3-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|--------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i            |                 | 9                                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     | Nm              | 272                                   | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  |
|                                                                                                            |   |              | in.lb           | 2407                                  | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     | Nm              | 175                                   | 175  | 175  | 255  | 255  | 250  | 255  | 175  | 255  | 250  | 255  | 250  | 220  | 250  | 220  |
|                                                                                                            |   |              | in.lb           | 1549                                  | 1549 | 1549 | 2257 | 2257 | 2213 | 2257 | 1549 | 2257 | 2213 | 2257 | 2213 | 1947 | 2213 | 1947 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   | Nm              | 480                                   | 480  | 480  | 480  | 480  | 480  | 480  | 315  | 480  | 480  | 480  | 480  | 477  | 480  | 480  |
|                                                                                                            |   |              | in.lb           | 4248                                  | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 2788 | 4248 | 4248 | 4248 | 4248 | 4222 | 4248 | 4248 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$     | rpm             | 2000                                  | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| Max. input speed                                                                                           |   | $n_{1Max}$   | rpm             | 4500                                  | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           |   | $T_{012}$    | Nm              | 3.8                                   | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  |
|                                                                                                            |   |              | in.lb           | 34                                    | 34   | 34   | 34   | 34   | 34   | 34   | 34   | 34   | 34   | 34   | 34   | 34   | 34   | 34   |
| Max. backlash                                                                                              |   | $j_t$        | arcmin          | ≤ 17                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    | Nm/arcmin       | 16                                    | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   |
|                                                                                                            |   |              | in.lb/arcmin    | 142                                   | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$  | N               | 2500                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 563                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMMax}$ | N               | 1750                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 394                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMMax}$ | Nm              | 98                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | in.lb           | 867                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$       | %               | 94                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$        | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          | kg              | 10                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>m</sub> | 22                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     | dB(A)           | ≤ 74                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |              | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |              | °C              | 0 to +40                              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +32 to +104                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |              |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |              |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |              |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |              |                 | ELC-0150BA025.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |              | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | H | 28           | $J_1$           | kgcm <sup>2</sup>                     | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  |
|                                                                                                            |   |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximum permissible tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

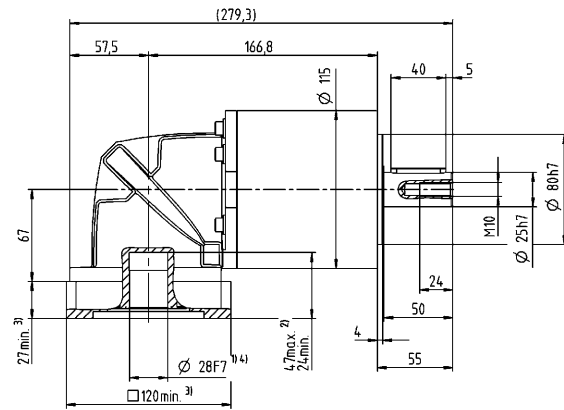
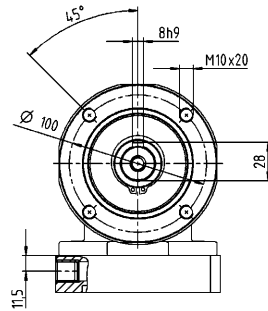
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

## 3-stage

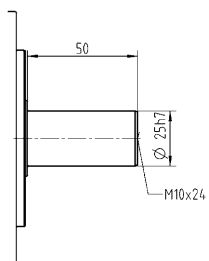
up to 28<sup>4)</sup> (H)<sup>5)</sup>  
clamping hub  
diameter



Bevel Gearboxes  
Basic Line

### Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPK 045 MF 2- / 3-stage

|                                                                                                            |   |             |                 | 2-stage                               |      |      | 3-stage     |      |      |      |      |     |
|------------------------------------------------------------------------------------------------------------|---|-------------|-----------------|---------------------------------------|------|------|-------------|------|------|------|------|-----|
| Ratio                                                                                                      |   | i           |                 | 5                                     | 8    | 10   | 25          | 32   | 50   | 64   | 100  |     |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$    | Nm              | 500                                   | 640  | 640  | 700         | 640  | 700  | 640  | 640  |     |
|                                                                                                            |   |             | in.lb           | 4425                                  | 5665 | 5665 | 6196        | 5665 | 6196 | 5665 | 5665 |     |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$    | Nm              | 399                                   | 400  | 400  | 500         | 400  | 500  | 400  | 400  |     |
|                                                                                                            |   |             | in.lb           | 3531                                  | 3540 | 3540 | 4425        | 3540 | 4425 | 3540 | 3540 |     |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$  | Nm              | 1000                                  | 1000 | 1000 | 1000        | 1000 | 1000 | 1000 | 1000 |     |
|                                                                                                            |   |             | in.lb           | 8851                                  | 8851 | 8851 | 8851        | 8851 | 8851 | 8851 | 8851 |     |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$    | rpm             | 1600                                  | 1600 | 1600 | 2000        | 2000 | 2000 | 2000 | 2000 |     |
| Max. input speed                                                                                           |   | $n_{1Max}$  | rpm             | 4000                                  | 4000 | 4000 | 4500        | 4500 | 4500 | 4500 | 4500 |     |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$   | Nm              | 6.9                                   | 6.9  | 6.9  | 3.6         | 3.6  | 3.6  | 3.6  | 3.6  |     |
|                                                                                                            |   |             | in.lb           | 61                                    | 61   | 61   | 32          | 32   | 32   | 32   | 32   |     |
| Max. backlash                                                                                              |   | $j_t$       | arcmin          | ≤ 13                                  |      |      | ≤ 16        |      |      |      |      |     |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$   | Nm/arcmin       | 48                                    | 48   | 48   | 54          | 54   | 54   | 54   | 54   |     |
|                                                                                                            |   |             | in.lb/arcmin    | 425                                   | 425  | 425  | 478         | 478  | 478  | 478  | 478  |     |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$ | N               | 6000                                  |      |      | 6000        |      |      |      |      |     |
|                                                                                                            |   |             | lb <sub>f</sub> | 1350                                  |      |      | 1350        |      |      |      |      |     |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMax}$ | N               | 8000                                  |      |      | 8000        |      |      |      |      |     |
|                                                                                                            |   |             | lb <sub>f</sub> | 1800                                  |      |      | 1800        |      |      |      |      |     |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$ | Nm              | 704                                   |      |      | 704         |      |      |      |      |     |
|                                                                                                            |   |             | in.lb           | 6231                                  |      |      | 6231        |      |      |      |      |     |
| Efficiency at full load                                                                                    |   | $\eta$      | %               | 95                                    |      |      | 94          |      |      |      |      |     |
| Service life                                                                                               |   | $L_h$       | h               | > 20000                               |      |      | > 20000     |      |      |      |      |     |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$         | kg              | 24                                    |      |      | 21          |      |      |      |      |     |
|                                                                                                            |   |             | lb <sub>m</sub> | 53                                    |      |      | 46          |      |      |      |      |     |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$    | dB(A)           | ≤ 74                                  |      |      | ≤ 78        |      |      |      |      |     |
| Max. permitted housing temperature                                                                         |   |             | °C              | +90                                   |      |      | +90         |      |      |      |      |     |
|                                                                                                            |   |             | °F              | +194                                  |      |      | +194        |      |      |      |      |     |
| Ambient temperature                                                                                        |   |             | °C              | 0 to +40                              |      |      | 0 to +40    |      |      |      |      |     |
|                                                                                                            |   |             | °F              | +32 to +104                           |      |      | +32 to +104 |      |      |      |      |     |
| Lubrication                                                                                                |   |             |                 | Lubricated for life                   |      |      |             |      |      |      |      |     |
| Direction of rotation                                                                                      |   |             |                 | In- and output same direction         |      |      |             |      |      |      |      |     |
| Protection class                                                                                           |   |             |                 | IP 64                                 |      |      |             |      |      |      |      |     |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |             |                 | ELC-0300BA040.000-X                   |      |      |             |      |      |      |      |     |
| Bore diameter of coupling<br>on the application side                                                       |   |             | mm              | X = 020.000 - 045.000                 |      |      |             |      |      |      |      |     |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | H | 28          | $J_1$           | kgcm <sup>2</sup>                     | –    | –    | –           | 6.8  | 6.8  | 6.8  | 6.8  | 6.8 |
|                                                                                                            |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –    | –           | 6    | 6    | 6    | 6    | 6   |
|                                                                                                            | K | 38          | $J_1$           | kgcm <sup>2</sup>                     | 17   | 17   | 17          | –    | –    | –    | –    | –   |
|                                                                                                            |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 15   | 15   | 15          | –    | –    | –    | –    | –   |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximum permissible tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

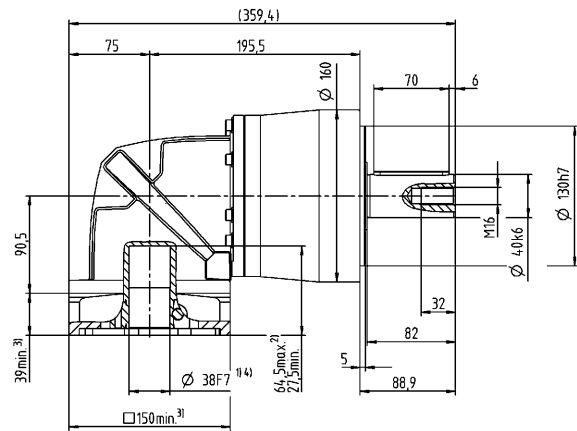
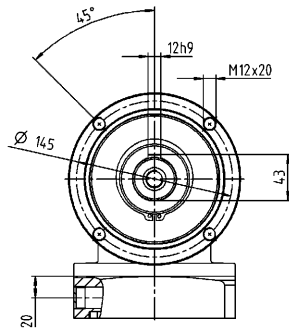
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

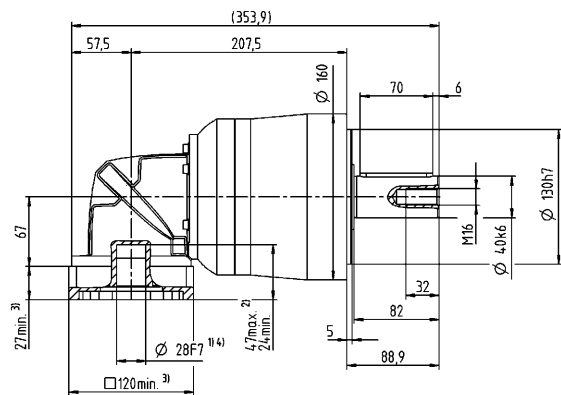
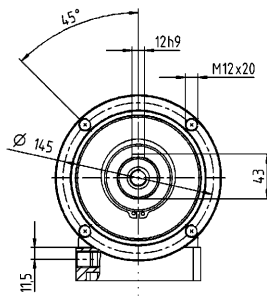
## 2-stage

up to 38<sup>4)</sup> (K)<sup>5)</sup>  
clamping hub  
diameter



## 3-stage

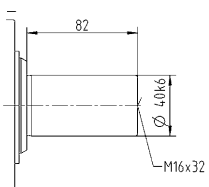
up to 28<sup>4)</sup> (H)<sup>5)</sup>  
clamping hub  
diameter



Motor shaft diameter [mm]

### Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPSK 015 MF 2-stage

|                                                                                                            |             |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | Nm              | 33                                    | 44   | 55   | 58   | 56   | 56   |
|                                                                                                            |             | in.lb           | 292                                   | 389  | 487  | 513  | 496  | 496  |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | Nm              | 16                                    | 21   | 27   | 37   | 35   | 35   |
|                                                                                                            |             | in.lb           | 142                                   | 186  | 239  | 327  | 310  | 310  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 41                                    | 55   | 69   | 75   | 75   | 75   |
|                                                                                                            |             | in.lb           | 363                                   | 487  | 611  | 664  | 664  | 664  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 3300                                  | 3300 | 3300 | 3300 | 3300 | 3300 |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$   | Nm              | 0.55                                  | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 |
|                                                                                                            |             | in.lb           | 4.9                                   | 4.9  | 4.9  | 4.9  | 4.9  | 4.9  |
| Max. backlash                                                                                              | $j_t$       | arcmin          | $\leq 17$                             |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 1.7                                   | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  |
|                                                                                                            |             | in.lb/arcmin    | 15                                    | 15   | 15   | 15   | 15   | 15   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 750                                   |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 169                                   |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | N               | 500                                   |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 113                                   |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 17                                    |      |      |      |      |      |
|                                                                                                            |             | in.lb           | 150                                   |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 1.6                                   |      |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 3.5                                   |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | dB(A)           | $\leq 70$                             |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |             | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |             | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |             | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |             |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 | ELC-0020BA014.000-X                   |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |             | mm              | X = 008.000 - 025.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C 14        | $J_1$           | kgcm <sup>2</sup>                     | 0.3  | 0.3  | 0.3  | 0.3  | 0.3  |
|                                                                                                            |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximum permissible tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

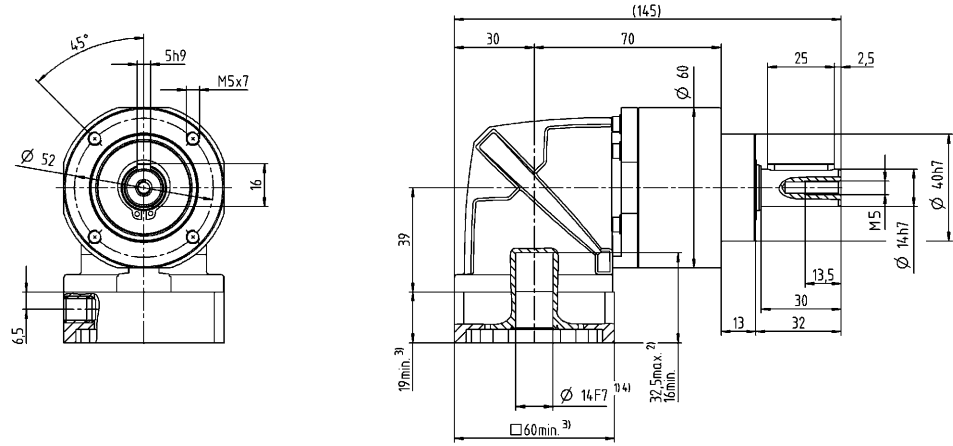
<sup>e)</sup> Valid for: Smooth shaft



Motor shaft diameter [mm]

2-stage

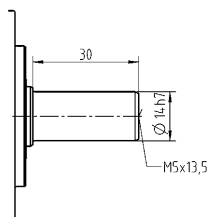
up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



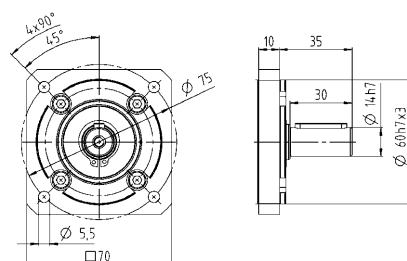
Bevel Gearboxes  
Basic Line

## Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPSK 015 MF 3-stage

|                                                                                                            |   |             |                 | 3-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|-------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i           |                 | 9                                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$    | Nm              | 48                                    | 48   | 48   | 56   | 56   | 58   | 56   | 48   | 56   | 58   | 56   | 58   | 56   | 58   | 56   |
|                                                                                                            |   |             | in.lb           | 425                                   | 425  | 425  | 496  | 496  | 513  | 496  | 425  | 496  | 513  | 496  | 513  | 496  | 513  | 496  |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$    | Nm              | 30                                    | 30   | 30   | 35   | 35   | 40   | 35   | 30   | 35   | 40   | 35   | 40   | 35   | 40   | 35   |
|                                                                                                            |   |             | in.lb           | 266                                   | 266  | 266  | 310  | 310  | 354  | 310  | 266  | 310  | 354  | 310  | 354  | 310  | 354  | 310  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$  | Nm              | 75                                    | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   |
|                                                                                                            |   |             | in.lb           | 664                                   | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$    | rpm             | 3300                                  | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 |
| Max. input speed                                                                                           |   | $n_{1Max}$  | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$   | Nm              | 0.63                                  | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 |
|                                                                                                            |   |             | in.lb           | 5.6                                   | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  |
| Max. backlash                                                                                              |   | $j_t$       | arcmin          | ≤ 17                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$   | Nm/arcmin       | 2.1                                   | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  |
|                                                                                                            |   |             | in.lb/arcmin    | 19                                    | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$ | N               | 750                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |             | lb <sub>f</sub> | 169                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMax}$ | N               | 500                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |             | lb <sub>f</sub> | 113                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$ | Nm              | 17                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |             | in.lb           | 150                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$      | %               | 94                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$       | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$         | kg              | 1.8                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |             | lb <sub>m</sub> | 4.0                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$    | dB(A)           | ≤ 70                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |             | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |             | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |             | °C              | 0 to +40                              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |             | °F              | +32 to +104                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |             |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |             |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |             |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |             |                 | ELC-0020BA014.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |   |             | mm              | X = 008.000 - 025.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C | 14          | $J_1$           | kgcm <sup>2</sup>                     | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 |
|                                                                                                            |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 |

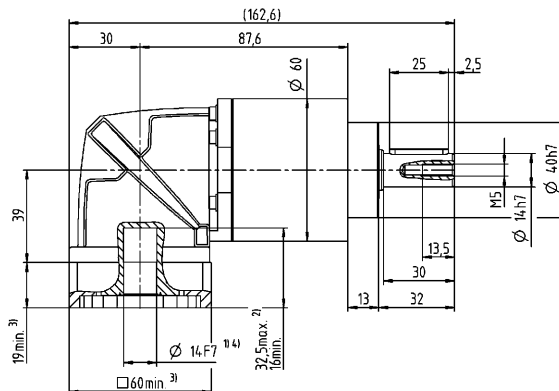
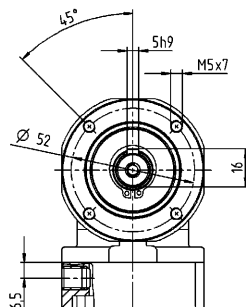
Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximum permissible tilting moment caused by the motor  $M_{1KMot}$  – see sizing

- <sup>a)</sup> Valid for torque transmission only
- <sup>b)</sup> Valid for standard clamping hub diameter
- <sup>c)</sup> Refers to center of the output shaft or flange
- <sup>d)</sup> Please reduce input speed at higher ambient temperatures
- <sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

## 3-stage

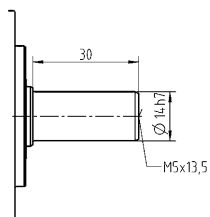
up to 14 <sup>4)</sup> (C) <sup>5)</sup>  
clamping hub  
diameter



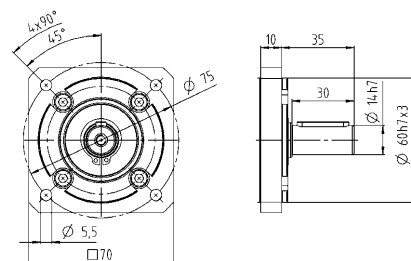
## Bevel Gearboxes Basic Line

## Other output variants

Smooth shaft



### Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

<sup>5)</sup> Standard clamping hub diameter

# CPSK 025 MF 2-stage

|                                                                                                            |              |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 60                                    | 80   | 100  | 140  | 144  | 144  |
|                                                                                                            |              | in.lb           | 531                                   | 708  | 885  | 1239 | 1275 | 1275 |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 35                                    | 47   | 58   | 82   | 90   | 90   |
|                                                                                                            |              | in.lb           | 310                                   | 416  | 513  | 726  | 797  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 90                                    | 120  | 150  | 187  | 187  | 187  |
|                                                                                                            |              | in.lb           | 797                                   | 1062 | 1328 | 1655 | 1655 | 1655 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 3000                                  | 3000 | 3000 | 3000 | 3000 | 3000 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$    | Nm              | 0.98                                  | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
|                                                                                                            |              | in.lb           | 8.7                                   | 8.7  | 8.7  | 8.7  | 8.7  | 8.7  |
| Max. backlash                                                                                              | $j_t$        | arcmin          | $\leq 17$                             |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 4.5                                   | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |
|                                                                                                            |              | in.lb/arcmin    | 40                                    | 40   | 40   | 40   | 40   | 40   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 1600                                  |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 360                                   |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 1200                                  |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 270                                   |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ | Nm              | 54                                    |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 478                                   |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 4.2                                   |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 9.3                                   |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | $\leq 70$                             |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |              | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA020.000-X                   |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |              | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E 19         | $J_1$           | kgcm <sup>2</sup>                     | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
|                                                                                                            |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximum permissible tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

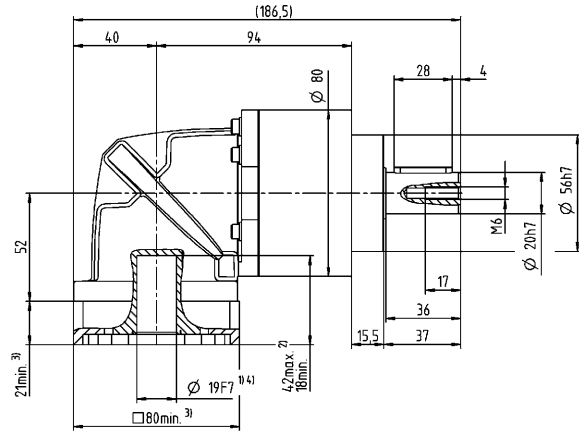
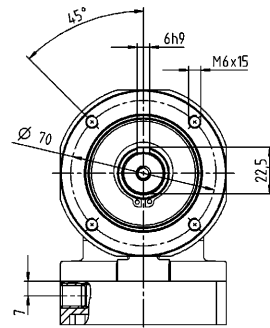
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

2-stage

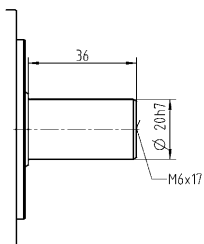
up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter



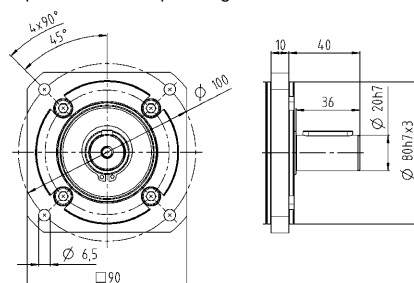
Bevel Gearboxes  
Basic Line

## Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPSK 025 MF 3-stage

|                                                                                                            |              |                 | 3-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 9                                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 112                                   | 112  | 112  | 150  | 150  | 150  | 150  | 112  | 150  | 150  | 150  | 150  | 144  | 150  | 144  |
|                                                                                                            |              | in.lb           | 991                                   | 991  | 991  | 1328 | 1328 | 1328 | 1328 | 991  | 1328 | 1328 | 1328 | 1328 | 1275 | 1328 | 1275 |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 70                                    | 70   | 70   | 95   | 95   | 95   | 95   | 70   | 95   | 100  | 95   | 100  | 90   | 100  | 90   |
|                                                                                                            |              | in.lb           | 620                                   | 620  | 620  | 841  | 841  | 841  | 841  | 620  | 841  | 885  | 841  | 885  | 797  | 885  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 187                                   | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  | 187  |
|                                                                                                            |              | in.lb           | 1655                                  | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 | 1655 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 3000                                  | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$    | Nm              | 1.1                                   | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  |
|                                                                                                            |              | in.lb           | 9.7                                   | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  | 9.7  |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 18                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 5.9                                   | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  |
|                                                                                                            |              | in.lb/arcmin    | 52                                    | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 1600                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 360                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 1200                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 270                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ | Nm              | 54                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 478                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 94                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 4.5                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 9.9                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 70                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | 0 to +40                              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +32 to +104                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA020.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E 19         | $J_t$           | kgcm <sup>2</sup>                     | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
|                                                                                                            |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximum permissible tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

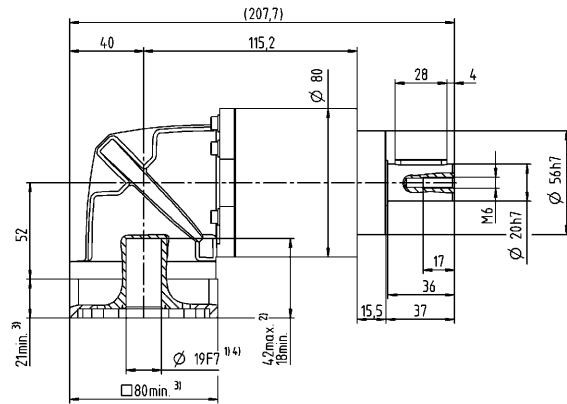
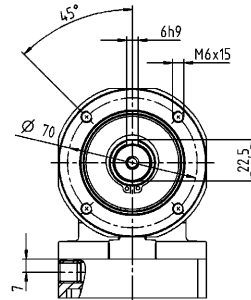
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

## 3-stage

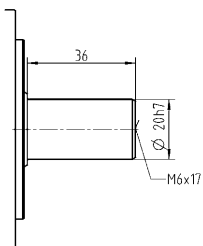
up to 19 <sup>4)</sup> (E) <sup>5)</sup>  
clamping hub  
diameter



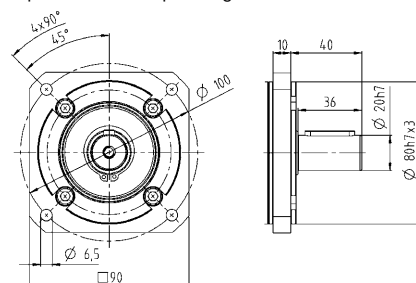
## Bevel Gearboxes Basic Line

## Other output variants

Smooth shaft



### Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

- 1) Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPSK 035 MF 2-stage

|                                                                                                            |             |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | Nm              | 150                                   | 200  | 250  | 272  | 272  | 272  |
|                                                                                                            |             | in.lb           | 1328                                  | 1770 | 2213 | 2407 | 2407 | 2407 |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | Nm              | 93                                    | 124  | 155  | 217  | 220  | 220  |
|                                                                                                            |             | in.lb           | 823                                   | 1097 | 1372 | 1921 | 1947 | 1947 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 238                                   | 318  | 397  | 480  | 477  | 480  |
|                                                                                                            |             | in.lb           | 2106                                  | 2815 | 3514 | 4248 | 4222 | 4248 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 2000                                  | 2000 | 2000 | 2000 | 2000 | 2000 |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 4500                                  | 4500 | 4500 | 4500 | 4500 | 4500 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$   | Nm              | 3.5                                   | 3.5  | 3.5  | 3.5  | 3.5  | 3.5  |
|                                                                                                            |             | in.lb           | 31                                    | 31   | 31   | 31   | 31   | 31   |
| Max. backlash                                                                                              | $j_t$       | arcmin          | ≤ 15                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 13                                    | 13   | 13   | 13   | 13   | 13   |
|                                                                                                            |             | in.lb/arcmin    | 115                                   | 115  | 115  | 115  | 115  | 115  |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 2500                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 563                                   |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | N               | 1750                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 394                                   |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 98                                    |      |      |      |      |      |
|                                                                                                            |             | in.lb           | 867                                   |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 8.8                                   |      |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 19                                    |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | dB(A)           | ≤ 74                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |             | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |             | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |             | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |             |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 | ELC-0150BA025.000-X                   |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | H 28        | $J_1$           | kgcm <sup>2</sup>                     | 6.1  | 6.1  | 6.1  | 6.1  | 6.1  |
|                                                                                                            |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 5.4  | 5.4  | 5.4  | 5.4  | 5.4  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximum permissible tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

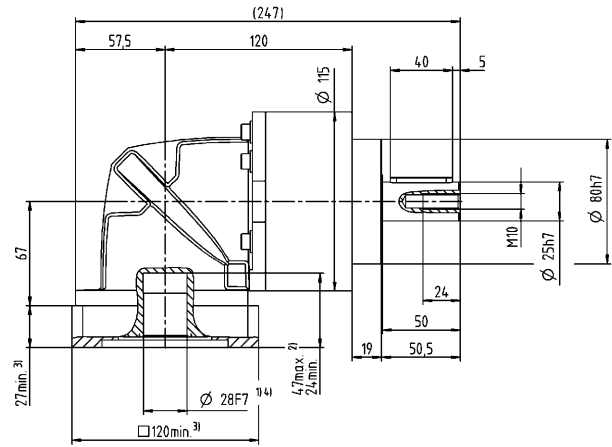
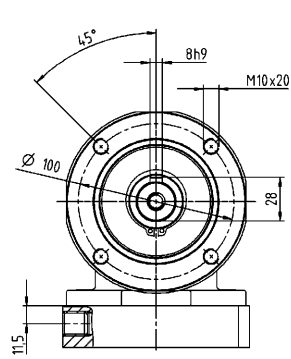
<sup>e)</sup> Valid for: Smooth shaft



Motor shaft diameter [mm]

2-stage

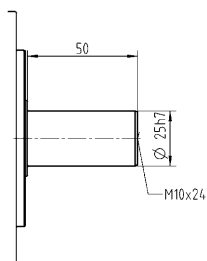
up to 28 <sup>4)</sup> (H) <sup>5)</sup>  
clamping hub  
diameter



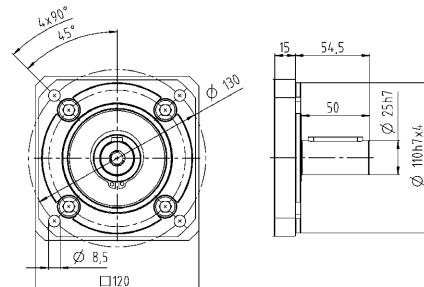
Bevel Gearboxes  
Basic Line

## Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# CPSK 035 MF 3-stage

|                                                                                                            |   |              |                 | 3-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|--------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i            |                 | 9                                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     | Nm              | 272                                   | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  | 272  |
|                                                                                                            |   |              | in.lb           | 2407                                  | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 | 2407 |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     | Nm              | 175                                   | 175  | 175  | 255  | 255  | 250  | 255  | 175  | 255  | 250  | 255  | 250  | 220  | 250  | 220  |
|                                                                                                            |   |              | in.lb           | 1549                                  | 1549 | 1549 | 2257 | 2257 | 2213 | 2257 | 1549 | 2257 | 2213 | 2257 | 2213 | 1947 | 2213 | 1947 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   | Nm              | 480                                   | 480  | 480  | 480  | 480  | 480  | 480  | 315  | 480  | 480  | 480  | 480  | 477  | 480  | 480  |
|                                                                                                            |   |              | in.lb           | 4248                                  | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 2788 | 4248 | 4248 | 4248 | 4248 | 4222 | 4248 | 4248 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$     | rpm             | 2000                                  | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| Max. input speed                                                                                           |   | $n_{1Max}$   | rpm             | 4500                                  | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$    | Nm              | 3.8                                   | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  |
|                                                                                                            |   |              | in.lb           | 34                                    | 34   | 34   | 34   | 34   | 34   | 34   | 34   | 34   | 34   | 34   | 34   | 34   | 34   | 34   |
| Max. backlash                                                                                              |   | $j_t$        | arcmin          | ≤ 17                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    | Nm/arcmin       | 16                                    | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   | 16   |
|                                                                                                            |   |              | in.lb/arcmin    | 142                                   | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  | 142  |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$  | N               | 2500                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 563                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMMax}$ | N               | 1750                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 394                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$  | Nm              | 98                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | in.lb           | 867                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$       | %               | 94                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$        | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          | kg              | 10                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>m</sub> | 22                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     | dB(A)           | ≤ 74                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |              | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |              | °C              | 0 to +40                              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +32 to +104                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |              |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |              |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |              |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |              |                 | ELC-0150BA025.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |              | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | H | 28           | $J_1$           | kgcm <sup>2</sup>                     | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  | 6.3  |
|                                                                                                            |   |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  | 5.6  |

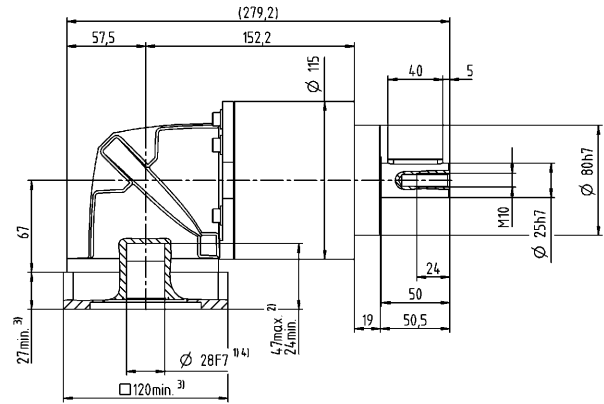
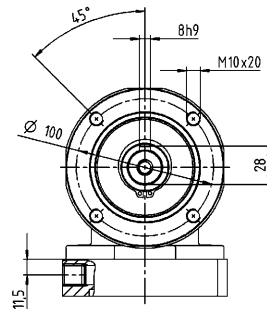
Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximum permissible tilting moment caused by the motor  $M_{1KMot}$  – see sizing

- <sup>a)</sup> Valid for torque transmission only
- <sup>b)</sup> Valid for standard clamping hub diameter
- <sup>c)</sup> Refers to center of the output shaft or flange
- <sup>d)</sup> Please reduce input speed at higher ambient temperatures
- <sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

3-stage

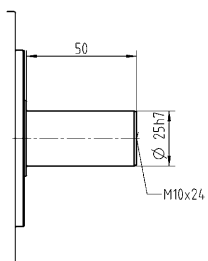
up to 28<sup>4)</sup> (H)<sup>5)</sup>  
clamping hub  
diameter



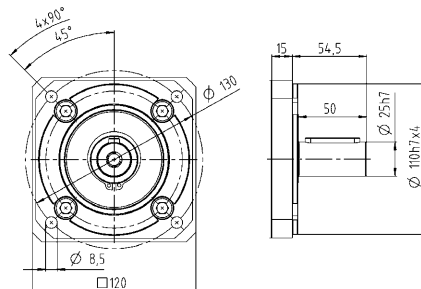
Bevel Gearboxes  
Basic Line

## Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

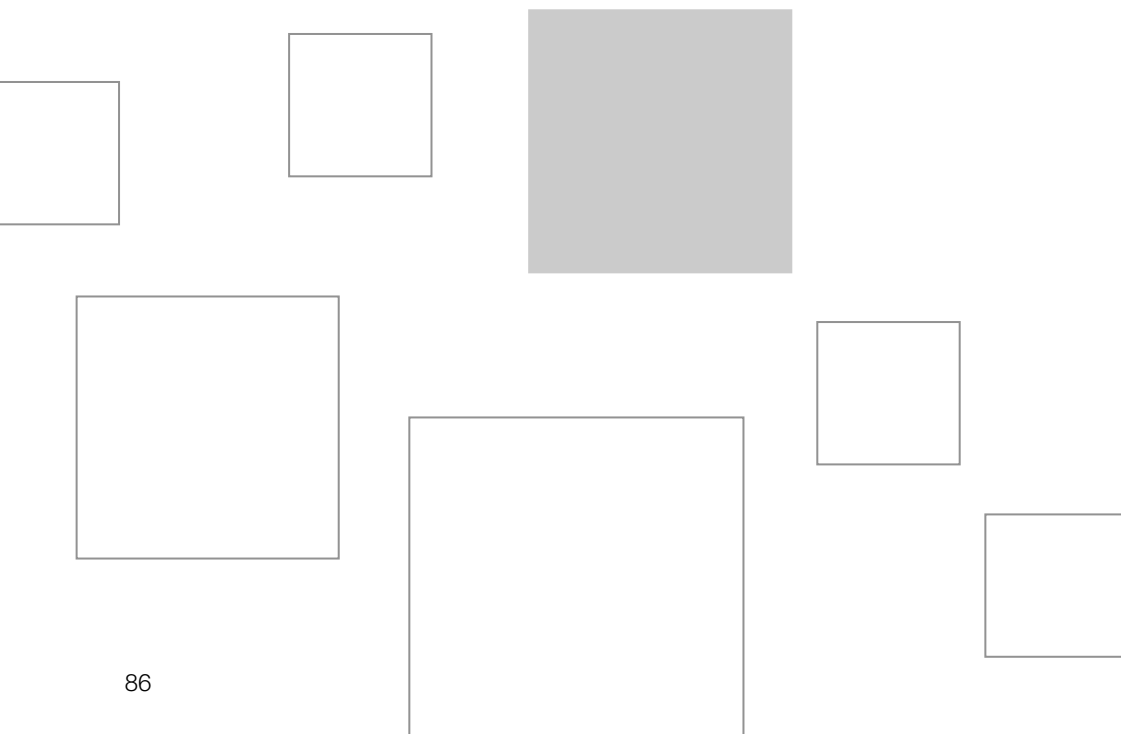
<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

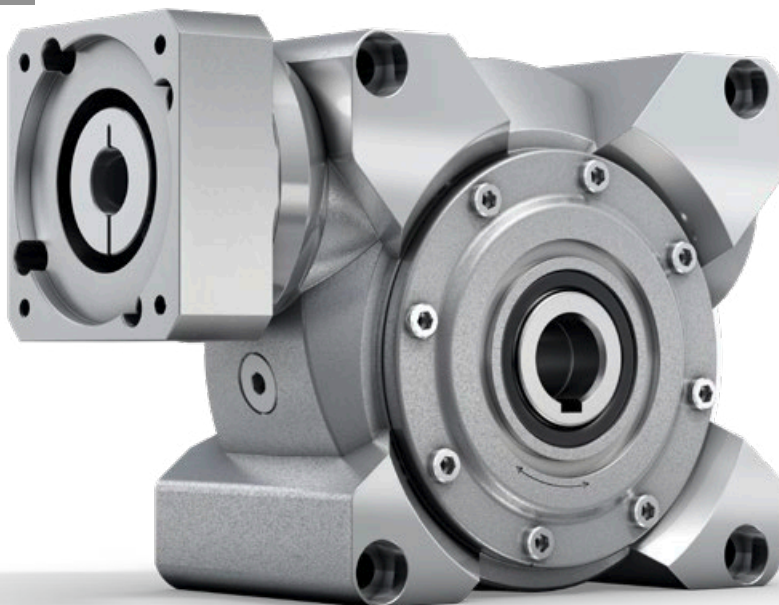
# alpha Basic Line

## WORM GEARBOXES CVH / CVS

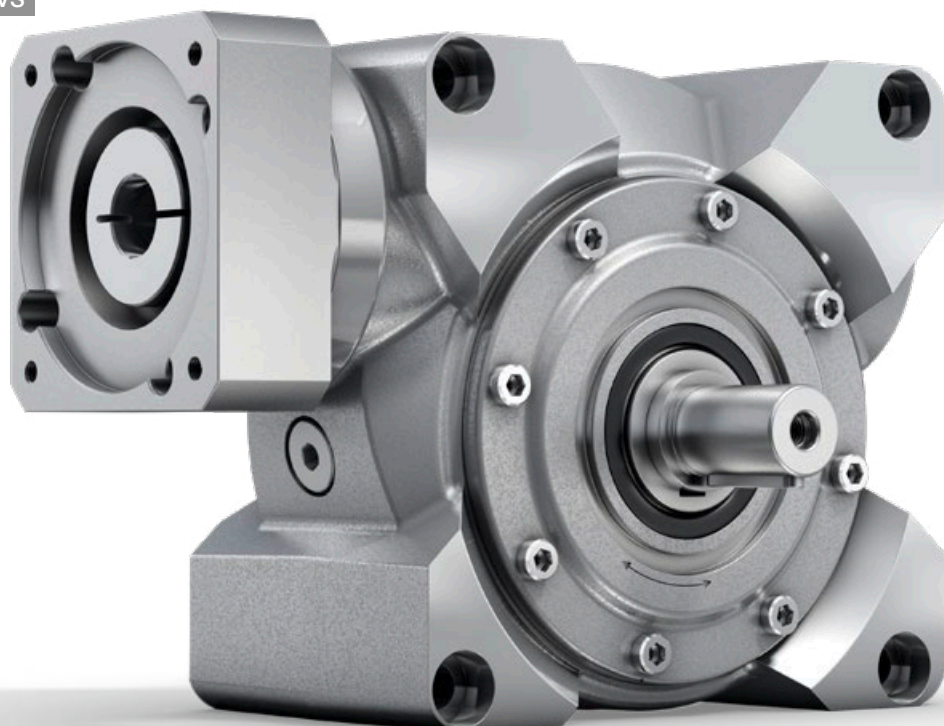
If the focus is on smooth running, smooth synchronization properties, and continuous operation, the V-Drive Basic is the right choice for you.



CVH



CVS



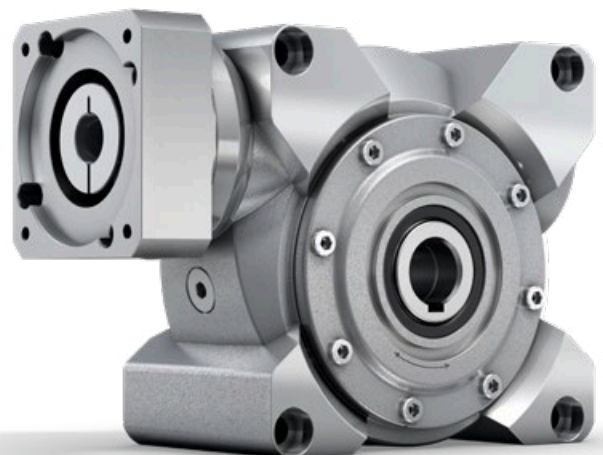
alpha Basic Line in action

# COMPACT AND HIGH-PERFORMANCE WORM GEARBOX in electronics production

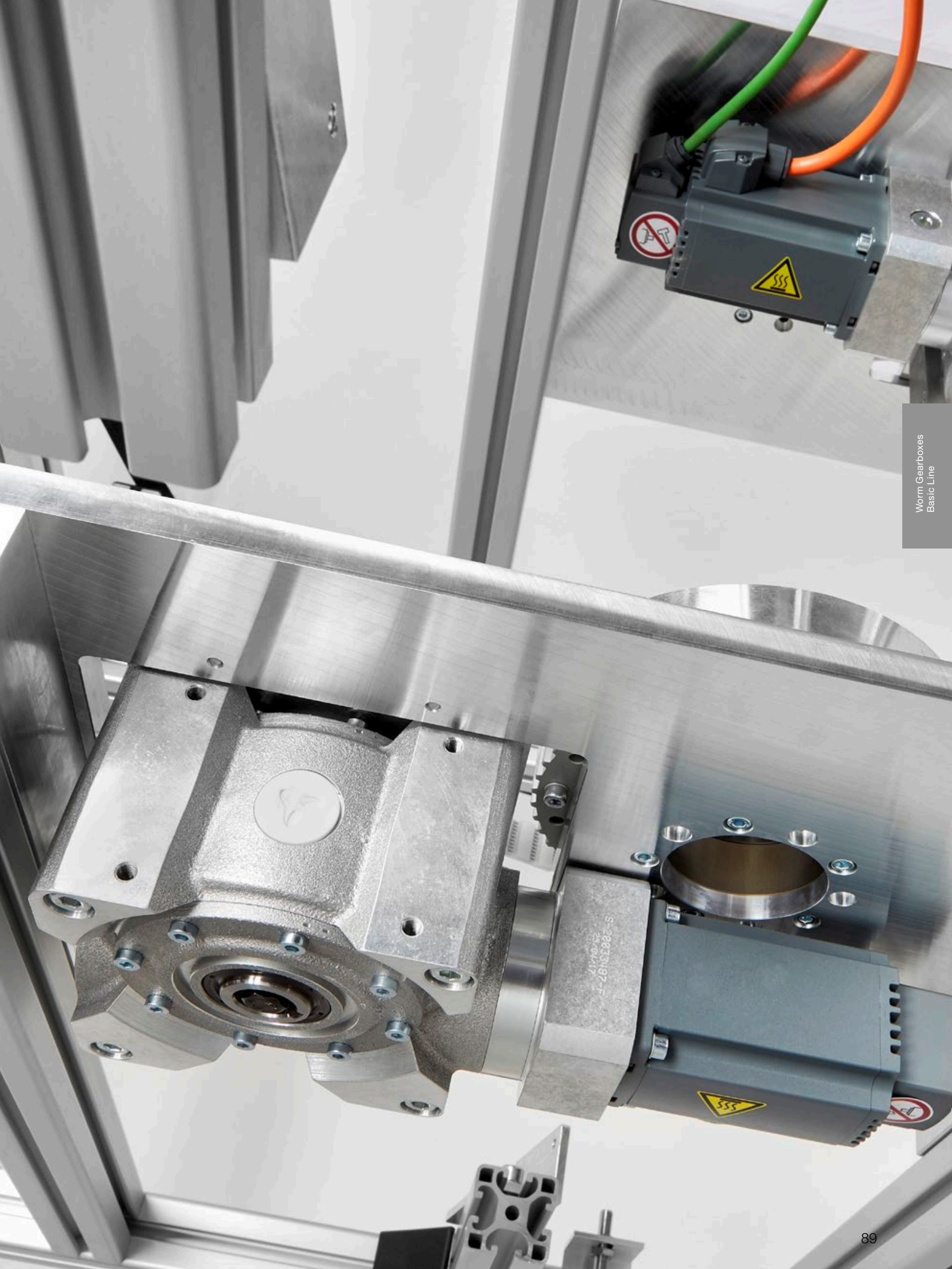
**When developing our customer's new rotary converter series, we had to meet three main objectives: offer the ability to dynamically adapt the conversion rate, minimize the cycle times, and improve the positioning accuracy.**

With the V-Drive Basic by WITTENSTEIN alpha, the decision was made in favor of a high-performance servo worm gearbox which can be perfectly integrated into the system thanks to its compact design form.

This is made possible by a newly developed involute gearing of the worm gear set, which delivers a significant improvement in positioning and repetition accuracy with increased efficiency and very good running characteristics compared to the other converters. This provides a reduction in cycle times and therefore an increase in throughput performance in the application for feeding workpiece carriers or masks into various assembly, production, and inspection processes.



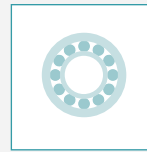
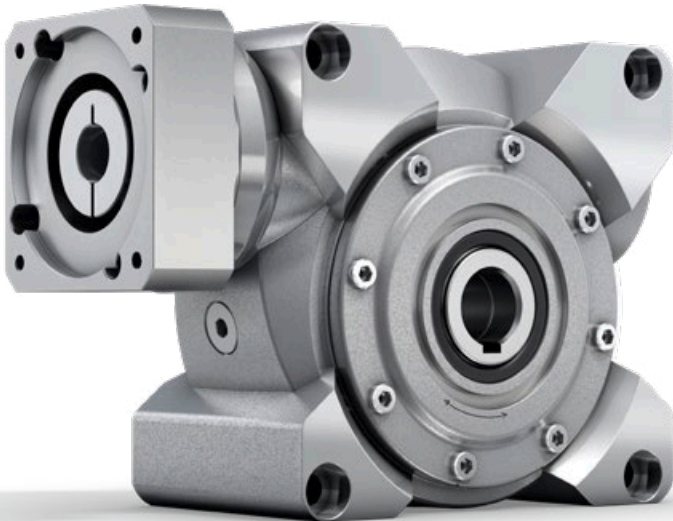




# CVH / CVS – We drive the Performance

## PRODUCT HIGHLIGHTS

CVH



### Optimized output bearings

The V-Drive Basic features an optimized output bearing tailored to the most diverse areas of application. For increased requirements for the absorption of external forces, the reinforced bearing option is used.



### Specially developed toothing

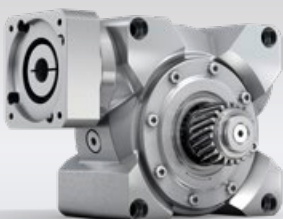
The operating noise during S1 operation has been minimized by means of a specially developed toothing featuring high torques, good synchronization, and very low operating noise.



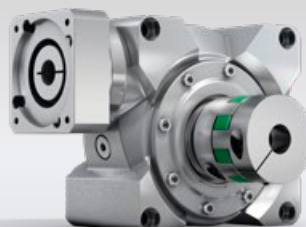
### Top price/performance ratio

A top price/performance ratio is achieved with short delivery times and "made in Germany" quality.

The V-Drive Basic is characterized by a specially developed toothing that minimizes operating noise during S1 operation and offers enormous power. And all with a top price/performance ratio.



CVS – worm gearbox with pinion



CVS – worm gearbox with elastomer coupling

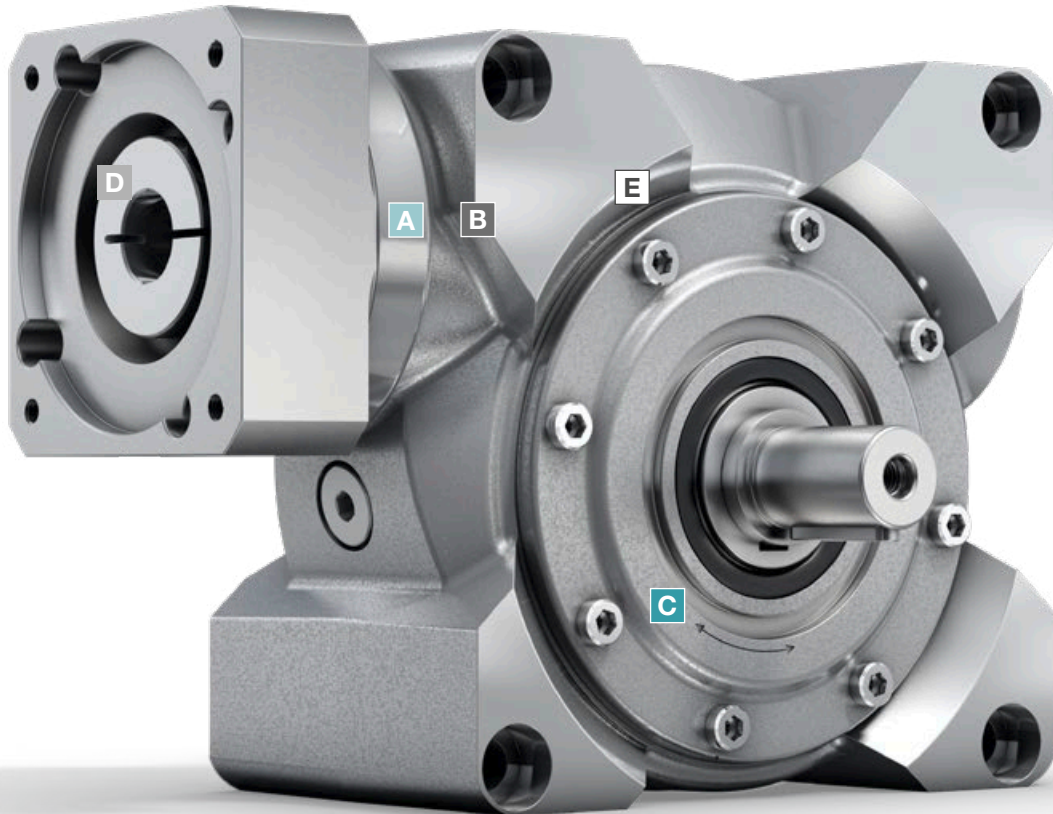


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CVS



- A Radial shaft seal**
- Very long service life
  - Optimized for continuous operation

- B Input bearing**
- Bearing package to absorb axial and radial forces
  - Very well suited to high input speeds

- C Output bearing**
- Tailored to the most diverse areas of application

- D Metal bellows coupling**
- Completely backlash free
  - Lifetime durable and maintenance free
  - Easy assembly
  - Protects the motor through thermal linear expansion compensation

- E Tothing**
- Specially developed tothing, for high torques, good synchronization, and low operating noise

# CVH 040 MF 1-stage

|                                                                                                           |                           |                 |                       | 1-stage                               |      |      |      |      |      |
|-----------------------------------------------------------------------------------------------------------|---------------------------|-----------------|-----------------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                     | <i>i</i>                  |                 | 7                     | 10                                    | 16   | 28   | 40   |      |      |
| Max. torque <sup>a) b)</sup><br>(at n <sub>1</sub> = 500 rpm)                                             | <i>T</i> <sub>2a</sub>    | Nm              | 68                    | 76                                    | 78   | 82   | 76   |      |      |
|                                                                                                           |                           | in.lb           | 602                   | 673                                   | 690  | 726  | 673  |      |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox)   | <i>T</i> <sub>2Not</sub>  | Nm              | 126                   | 125                                   | 129  | 134  | 122  |      |      |
|                                                                                                           |                           | in.lb           | 1115                  | 1106                                  | 1142 | 1186 | 1080 |      |      |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)                             | <i>n</i> <sub>1N</sub>    | rpm             | 4000                  |                                       |      |      |      |      |      |
| Max. input speed                                                                                          | <i>n</i> <sub>1Max</sub>  | rpm             | 6000                  |                                       |      |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at n <sub>1</sub> = 3000 rpm and 20 °C gearbox temperature) | <i>T</i> <sub>012</sub>   | Nm              | 0.7                   | 0.6                                   | 0.5  | 0.4  | 0.4  |      |      |
|                                                                                                           |                           | in.lb           | 6.2                   | 5.3                                   | 4.4  | 3.5  | 3.5  |      |      |
| Max. backlash                                                                                             | <i>j</i> <sub>t</sub>     | arcmin          | ≤ 15                  |                                       |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                          | <i>C</i> <sub>t21</sub>   | Nm/arcmin       | 3.5                   | 3.5                                   | 3.5  | 3.5  | 3.5  |      |      |
|                                                                                                           |                           | in.lb/arcmin    | 31                    | 31                                    | 31   | 31   | 31   |      |      |
| Max. axial force <sup>c)</sup><br>(Standard / HIGH FORCES)                                                | <i>F</i> <sub>2AMax</sub> | N               | 1200 / 3000           |                                       |      |      |      |      |      |
|                                                                                                           |                           | lb <sub>f</sub> | 270 / 675             |                                       |      |      |      |      |      |
| Max. lateral force <sup>b)</sup><br>(Standard / HIGH FORCES)                                              | <i>F</i> <sub>2QMax</sub> | N               | 1000 / 2400           |                                       |      |      |      |      |      |
|                                                                                                           |                           | lb <sub>f</sub> | 225 / 540             |                                       |      |      |      |      |      |
| Max. tilting moment<br>(Standard / HIGH FORCES)                                                           | <i>M</i> <sub>2KMax</sub> | Nm              | 97 / 205              |                                       |      |      |      |      |      |
|                                                                                                           |                           | in.lb           | 858 / 1814            |                                       |      |      |      |      |      |
| Efficiency at full load<br>(at n <sub>1</sub> = 500 rpm)                                                  | <i>η</i>                  | %               | 89                    | 87                                    | 81   | 72   | 66   |      |      |
| Service life                                                                                              | <i>L</i> <sub>h</sub>     | h               | > 15000               |                                       |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                  | <i>m</i>                  | kg              | 4.5                   |                                       |      |      |      |      |      |
|                                                                                                           |                           | lb <sub>m</sub> | 10.0                  |                                       |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)   | <i>L</i> <sub>PA</sub>    | dB(A)           | ≤ 54                  |                                       |      |      |      |      |      |
| Max. permitted housing temperature                                                                        |                           | °C              | +90                   |                                       |      |      |      |      |      |
|                                                                                                           |                           | °F              | +194                  |                                       |      |      |      |      |      |
| Ambient temperature                                                                                       |                           | °C              | –15 to +40            |                                       |      |      |      |      |      |
|                                                                                                           |                           | °F              | +5 to +104            |                                       |      |      |      |      |      |
| Lubrication                                                                                               |                           |                 | Lubricated for life   |                                       |      |      |      |      |      |
| Direction of rotation                                                                                     |                           |                 | See drawing           |                                       |      |      |      |      |      |
| Protection class                                                                                          |                           |                 | IP 65                 |                                       |      |      |      |      |      |
| Shrink disc<br>(Standard Version)                                                                         |                           |                 | SD 024x050 S2         |                                       |      |      |      |      |      |
| Max. torque<br>(without axial force)                                                                      | <i>T</i> <sub>max</sub>   | Nm              | 250                   |                                       |      |      |      |      |      |
|                                                                                                           |                           | in.lb           | 2213                  |                                       |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                            | C                         | 14              | <i>J</i> <sub>I</sub> | kgcm <sup>2</sup>                     | 0.38 | 0.38 | 0.34 | 0.32 | 0.31 |
|                                                                                                           |                           |                 |                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.34 | 0.34 | 0.30 | 0.28 | 0.27 |
|                                                                                                           | E                         | 19              | <i>J</i> <sub>I</sub> | kgcm <sup>2</sup>                     | 0.40 | 0.37 | 0.35 | 0.34 | 0.33 |
|                                                                                                           |                           |                 |                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.35 | 0.33 | 0.31 | 0.30 | 0.29 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> At max. 10 %  $F_{2QMax}$

<sup>b)</sup> Valid for standard clamping hub diameter

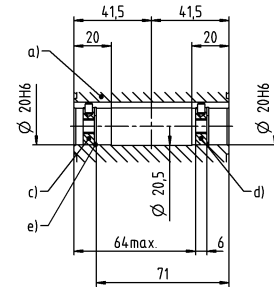
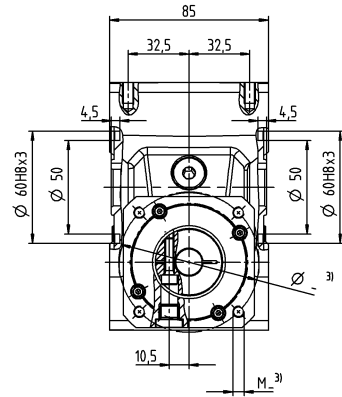
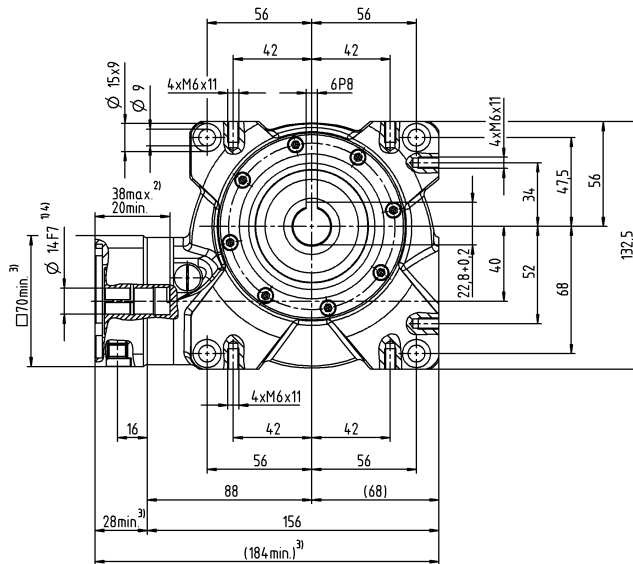
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

Motor shaft diameter [mm]

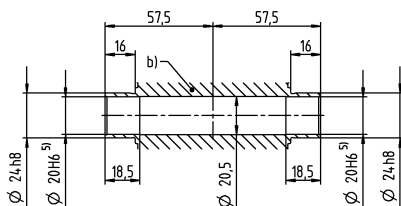
1-stage

up to 14/19 <sup>4)</sup> (C <sup>6)</sup> /E)  
clamping hub  
diameter



## Other output variants

Hollow shaft interfaces on both sides



- a) Hollow shaft, keyed on both sides
- b) Hollow shaft interfaces on both sides
- c) End disc for screw M6 (on request)
- d) End disc as forcing washer for screw M8 (on request)
- e) Locking ring – DIN 472 (on request)

See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

- <sup>1)</sup> Check motor shaft fit
- <sup>2)</sup> Min./Max. permissible motor shaft length  
Longer motor shafts are adaptable, please contact us
- <sup>3)</sup> The dimensions depend on the motor
- <sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
- <sup>5)</sup> Tolerance h6 for mounted shaft
- <sup>6)</sup> Standard clamping hub diameter

# CVH 050 MF 1- stage

|                                                                                                            |             |                                       | 1-stage             |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------|---------------------|------|------|------|------|
| Ratio                                                                                                      | $i$         |                                       | 7                   | 10   | 16   | 28   | 40   |
| Max. torque <sup>a) b)</sup><br>(at $n_1 = 500$ rpm)                                                       | $T_{2a}$    | Nm                                    | 125                 | 127  | 131  | 140  | 116  |
|                                                                                                            |             | in.lb                                 | 1106                | 1124 | 1159 | 1239 | 1027 |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox)    | $T_{2Not}$  | Nm                                    | 242                 | 242  | 250  | 262  | 236  |
|                                                                                                            |             | in.lb                                 | 2142                | 2142 | 2213 | 2319 | 2089 |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)                              | $n_{1N}$    | rpm                                   | 4000                |      |      |      |      |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm                                   | 6000                |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1 = 3000$ rpm and 20 °C gearbox temperature)           | $T_{012}$   | Nm                                    | 2.2                 | 1.6  | 1.5  | 1.2  | 1.1  |
|                                                                                                            |             | in.lb                                 | 19.5                | 14.2 | 13.3 | 10.6 | 9.7  |
| Max. backlash                                                                                              | $j_t$       | arcmin                                | ≤ 15                |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin                             | 5.5                 | 5.5  | 5.5  | 5.5  | 5.5  |
|                                                                                                            |             | in.lb/arcmin                          | 49                  | 49   | 49   | 49   | 49   |
| Max. axial force <sup>c)</sup><br>(Standard / HIGH FORCES)                                                 | $F_{2AMax}$ | N                                     | 1500 / 5000         |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub>                       | 337.5 / 1125        |      |      |      |      |
| Max. lateral force <sup>b)</sup><br>(Standard / HIGH FORCES)                                               | $F_{2QMax}$ | N                                     | 1200 / 3800         |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub>                       | 270 / 855           |      |      |      |      |
| Max. tilting moment<br>(Standard / HIGH FORCES)                                                            | $M_{2KMax}$ | Nm                                    | 130 / 409           |      |      |      |      |
|                                                                                                            |             | in.lb                                 | 1150 / 3620         |      |      |      |      |
| Efficiency at full load<br>(at $n_1 = 500$ rpm)                                                            | $\eta$      | %                                     | 89                  | 85   | 80   | 70   | 63   |
| Service life                                                                                               | $L_h$       | h                                     | > 15000             |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg                                    | 8.0                 |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub>                       | 18.0                |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed –<br>ratio-specific values available in cymex®) | $L_{PA}$    | dB(A)                                 | ≤ 62                |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C                                    | +90                 |      |      |      |      |
|                                                                                                            |             | °F                                    | +194                |      |      |      |      |
| Ambient temperature                                                                                        |             | °C                                    | -15 to +40          |      |      |      |      |
|                                                                                                            |             | °F                                    | +5 to +104          |      |      |      |      |
| Lubrication                                                                                                |             |                                       | Lubricated for life |      |      |      |      |
| Direction of rotation                                                                                      |             |                                       | See drawing         |      |      |      |      |
| Protection class                                                                                           |             |                                       | IP 65               |      |      |      |      |
| Shrink disc<br>(Standard Version)                                                                          |             |                                       | SD 030x060 S2V      |      |      |      |      |
| Max. torque<br>(without axial force)                                                                       | $T_{max}$   | Nm                                    | 550                 |      |      |      |      |
|                                                                                                            |             | in.lb                                 | 4868                |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E 19 $J_1$  | kgcm <sup>2</sup>                     | 1.22                | 1.17 | 1.06 | 1.05 | 1.01 |
|                                                                                                            |             | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.08                | 1.04 | 0.94 | 0.93 | 0.89 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> At max. 10 %  $F_{2QMax}$

<sup>b)</sup> Valid for standard clamping hub diameter

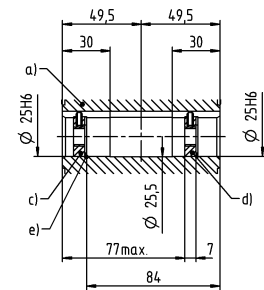
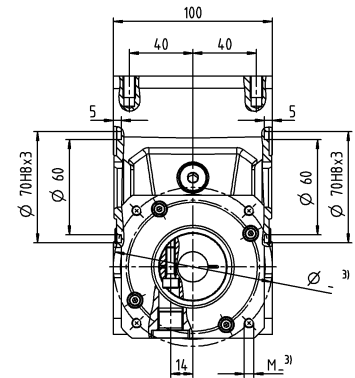
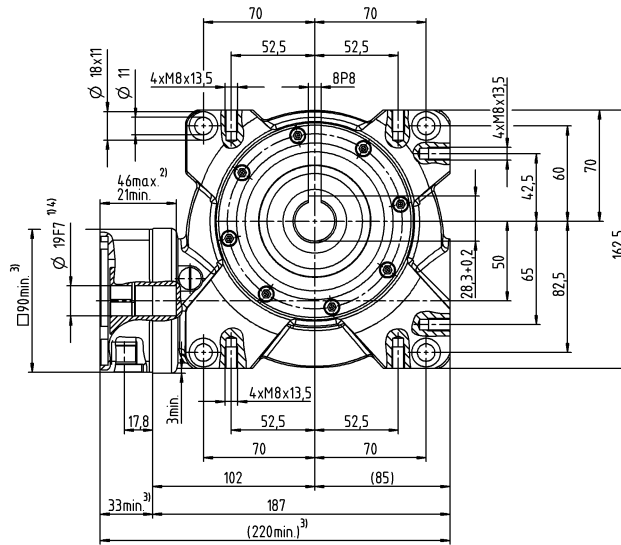
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

Motor shaft diameter [mm]

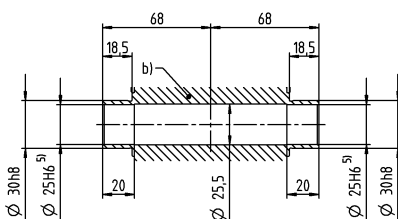
1-stage

up to 19 <sup>4)</sup> (E) <sup>6)</sup>  
clamping hub  
diameter



## Other output variants

Hollow shaft interfaces on both sides



- a) Hollow shaft, keyed on both sides
- b) Hollow shaft interfaces on both sides
- c) End disc for screw M10 (on request)
- d) End disc as forcing washer for screw M12 (on request)
- e) Locking ring – DIN 472 (on request)

See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

- <sup>1)</sup> Check motor shaft fit
- <sup>2)</sup> Min. /Max. permissible motor shaft length  
Longer motor shafts are adaptable, please contact us
- <sup>3)</sup> The dimensions depend on the motor
- <sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
- <sup>5)</sup> Tolerance h6 for mounted shaft
- <sup>6)</sup> Standard clamping hub diameter

# CVH 063 MF 1- stage

|                                                                                                            |             |                                       | 1-stage             |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------|---------------------|------|------|------|------|
| Ratio                                                                                                      | <i>i</i>    |                                       | 7                   | 10   | 16   | 28   | 40   |
| Max. torque <sup>a) b)</sup><br>(at $n_1 = 500$ rpm)                                                       | $T_{2a}$    | Nm                                    | 265                 | 270  | 280  | 301  | 282  |
|                                                                                                            |             | in.lb                                 | 2345                | 2390 | 2478 | 2664 | 2496 |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox)    | $T_{2Not}$  | Nm                                    | 484                 | 491  | 494  | 518  | 447  |
|                                                                                                            |             | in.lb                                 | 4283                | 4345 | 4372 | 4584 | 3956 |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)                              | $n_{1N}$    | rpm                                   | 4000                |      |      |      |      |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm                                   | 4500                |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1 = 3000$ rpm and 20 °C gearbox temperature)           | $T_{012}$   | Nm                                    | 3.1                 | 3    | 2.4  | 2.3  | 2.2  |
|                                                                                                            |             | in.lb                                 | 27.4                | 26.6 | 21.2 | 20.4 | 19.5 |
| Max. backlash                                                                                              | $j_t$       | arcmin                                | ≤ 15                |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin                             | 23                  | 23   | 23   | 23   | 23   |
|                                                                                                            |             | in.lb/arcmin                          | 204                 | 204  | 204  | 204  | 204  |
| Max. axial force <sup>c)</sup><br>(Standard / HIGH FORCES)                                                 | $F_{2AMax}$ | N                                     | 2000 / 8250         |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub>                       | 450 / 1856          |      |      |      |      |
| Max. lateral force <sup>b)</sup><br>(Standard / HIGH FORCES)                                               | $F_{2QMax}$ | N                                     | 2000 / 6000         |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub>                       | 450 / 1350          |      |      |      |      |
| Max. tilting moment<br>(Standard / HIGH FORCES)                                                            | $M_{2KMax}$ | Nm                                    | 281 / 843           |      |      |      |      |
|                                                                                                            |             | in.lb                                 | 2487 / 7461         |      |      |      |      |
| Efficiency at full load<br>(at $n_1 = 500$ rpm)                                                            | $\eta$      | %                                     | 90                  | 87   | 82   | 73   | 67   |
| Service life                                                                                               | $L_h$       | h                                     | > 15000             |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg                                    | 13.0                |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub>                       | 29.0                |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed –<br>ratio-specific values available in cymex®) | $L_{PA}$    | dB(A)                                 | ≤ 64                |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C                                    | +90                 |      |      |      |      |
|                                                                                                            |             | °F                                    | +194                |      |      |      |      |
| Ambient temperature                                                                                        |             | °C                                    | -15 to +40          |      |      |      |      |
|                                                                                                            |             | °F                                    | +5 to +104          |      |      |      |      |
| Lubrication                                                                                                |             |                                       | Lubricated for life |      |      |      |      |
| Direction of rotation                                                                                      |             |                                       | See drawing         |      |      |      |      |
| Protection class                                                                                           |             |                                       | IP 65               |      |      |      |      |
| Shrink disc<br>(Standard Version)                                                                          |             |                                       | SD 036x072 S2V      |      |      |      |      |
| Max. torque<br>(without axial force)                                                                       | $T_{max}$   | Nm                                    | 640                 |      |      |      |      |
|                                                                                                            |             | in.lb                                 | 5664                |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | H 28 $J_1$  | kgcm <sup>2</sup>                     | 3.75                | 3.61 | 3.52 | 3.48 | 3.36 |
|                                                                                                            |             | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 3.32                | 3.19 | 3.12 | 3.08 | 2.97 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> At max. 10 %  $F_{2QMax}$

<sup>b)</sup> Valid for standard clamping hub diameter

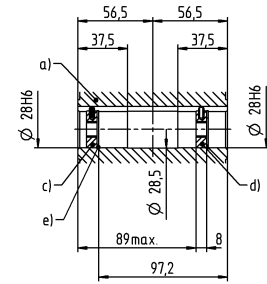
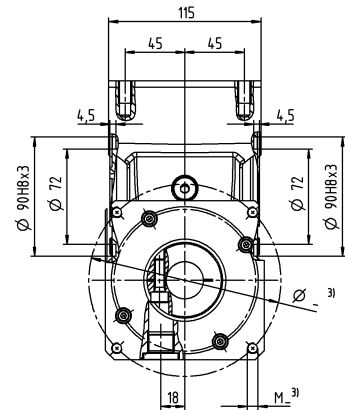
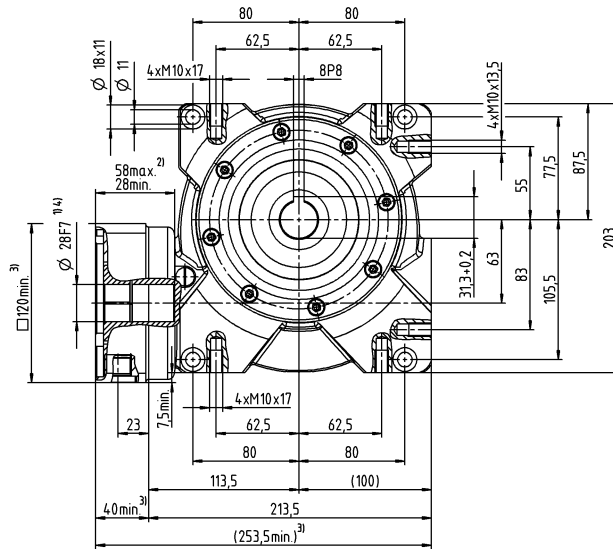
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

Motor shaft diameter [mm]

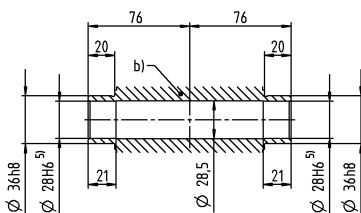
1-stage

up to 28 <sup>4)</sup> (H) <sup>6)</sup>  
clamping hub  
diameter



## Other output variants

Hollow shaft interfaces on both sides



- a) Hollow shaft, keyed on both sides
- b) Hollow shaft interfaces on both sides
- c) End disc for screw M10 (on request)
- d) End disc as forcing washer for screw M12 (on request)
- e) Locking ring – DIN 472 (on request)

See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

- <sup>1)</sup> Check motor shaft fit
- <sup>2)</sup> Min./Max. permissible motor shaft length  
Longer motor shafts are adaptable, please contact us
- <sup>3)</sup> The dimensions depend on the motor
- <sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
- <sup>5)</sup> Tolerance h6 for mounted shaft
- <sup>6)</sup> Standard clamping hub diameter

# CVS 040 MF 1-stage

|                                                                                                            |             |                 |       | 1-stage                               |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|-------|---------------------------------------|------|------|------|------|
| Ratio                                                                                                      | <i>i</i>    |                 |       | 7                                     | 10   | 16   | 28   | 40   |
| Max. torque <sup>a) b) e)</sup><br>(at $n_1 = 500$ rpm)                                                    | $T_{2a}$    | Nm              |       | 68                                    | 76   | 78   | 82   | 76   |
|                                                                                                            |             | in.lb           |       | 602                                   | 673  | 690  | 726  | 673  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              |       | 126                                   | 125  | 129  | 134  | 122  |
|                                                                                                            |             | in.lb           |       | 1115                                  | 1106 | 1142 | 1186 | 1080 |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)                              | $n_{1N}$    | rpm             |       | 4000                                  |      |      |      |      |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             |       | 6000                                  |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1 = 3000$ rpm and 20 °C gearbox temperature)           | $T_{012}$   | Nm              |       | 0.7                                   | 0.6  | 0.5  | 0.4  | 0.4  |
|                                                                                                            |             | in.lb           |       | 6.2                                   | 5.3  | 4.4  | 3.5  | 3.5  |
| Max. backlash                                                                                              | $j_t$       | arcmin          |       | ≤ 15                                  |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       |       | 3.5                                   | 3.5  | 3.5  | 3.5  | 3.5  |
|                                                                                                            |             | in.lb/arcmin    |       | 31                                    | 31   | 31   | 31   | 31   |
| Max. axial force <sup>c)</sup><br>(Standard / HIGH FORCES)                                                 | $F_{2AMax}$ | N               |       | 1200 / 3000                           |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> |       | 270 / 675                             |      |      |      |      |
| Max. lateral force <sup>b)</sup><br>(Standard / HIGH FORCES)                                               | $F_{2QMax}$ | N               |       | 1000 / 2400                           |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> |       | 225 / 540                             |      |      |      |      |
| Max. tilting moment<br>(Standard / HIGH FORCES)                                                            | $M_{2KMax}$ | Nm              |       | 97 / 205                              |      |      |      |      |
|                                                                                                            |             | in.lb           |       | 858 / 1814                            |      |      |      |      |
| Efficiency at full load<br>(at $n_1 = 500$ rpm)                                                            | $\eta$      | %               |       | 89                                    | 87   | 81   | 72   | 66   |
| Service life                                                                                               | $L_h$       | h               |       | > 15000                               |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              |       | 4.5                                   |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub> |       | 10.0                                  |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed –<br>ratio-specific values available in cymex®) | $L_{PA}$    | dB(A)           |       | ≤ 54                                  |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C              |       | +90                                   |      |      |      |      |
|                                                                                                            |             | °F              |       | +194                                  |      |      |      |      |
| Ambient temperature                                                                                        |             | °C              |       | -15 to +40                            |      |      |      |      |
|                                                                                                            |             | °F              |       | +5 to +104                            |      |      |      |      |
| Lubrication                                                                                                |             |                 |       | Lubricated for life                   |      |      |      |      |
| Direction of rotation                                                                                      |             |                 |       | See drawing                           |      |      |      |      |
| Protection class                                                                                           |             |                 |       | IP 65                                 |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 |       | ELC - 00060B - 016.000 - X            |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             | mm              |       | X = 016.000 - 032.000                 |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C           | 14              | $J_1$ | kgcm <sup>2</sup>                     | 0.38 | 0.38 | 0.34 | 0.32 |
|                                                                                                            |             |                 |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.34 | 0.34 | 0.30 | 0.28 |
|                                                                                                            | E           | 19              | $J_1$ | kgcm <sup>2</sup>                     | 0.40 | 0.37 | 0.35 | 0.34 |
|                                                                                                            |             |                 |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.35 | 0.33 | 0.31 | 0.30 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> At max. 10 %  $F_{2QMax}$

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

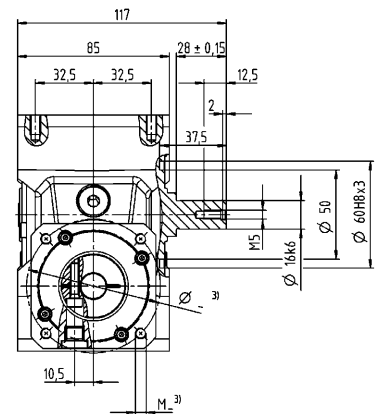
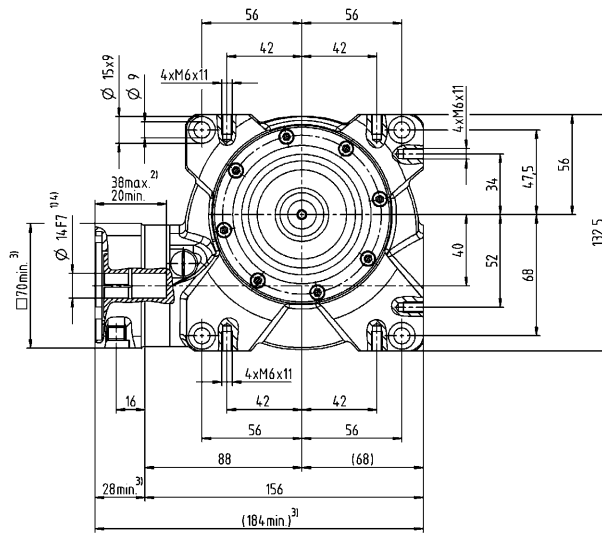
<sup>e)</sup> Valid for: Smooth shaft



Motor shaft diameter [mm]

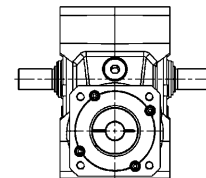
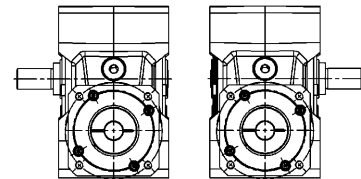
1-stage

up to 14/19 <sup>4)</sup> (C <sup>6)</sup>/E)  
clamping hub  
diameter



A <sup>5)</sup>

B <sup>5)</sup>

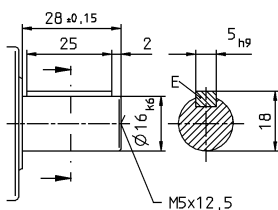


Worm Gearboxes  
Basic Line

Optional dual-shaft output. Drawings available on request.  
Involute gearing is not possible.

## Other output variants

Shaft with key



See technical data sheet for available clamping hub diameters  
(mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length

Longer motor shafts are adaptable, please contact us

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a  
bushing with a minimum thickness of 1 mm

<sup>5)</sup> Output side

<sup>6)</sup> Standard clamping hub diameter

# CVS 050 MF 1-stage

|                                                                                                            |              |                 |                                       | 1-stage |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------------------------|---------|------|------|------|------|
| Ratio                                                                                                      | $i$          |                 | 7                                     | 10      | 16   | 28   | 40   |      |
| Max. torque <sup>a) b) e)</sup><br>(at $n_1$ = 500 rpm)                                                    | $T_{2a}$     | Nm              | 125                                   | 127     | 131  | 140  | 116  |      |
|                                                                                                            |              | in.lb           | 1106                                  | 1124    | 1159 | 1239 | 1027 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 242                                   | 242     | 250  | 262  | 236  |      |
|                                                                                                            |              | in.lb           | 2142                                  | 2142    | 2213 | 2319 | 2089 |      |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)                              | $n_{1N}$     | rpm             | 4000                                  |         |      |      |      |      |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 6000                                  |         |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$    | Nm              | 2.2                                   | 1.6     | 1.5  | 1.2  | 1.1  |      |
|                                                                                                            |              | in.lb           | 19.5                                  | 14.2    | 13.3 | 10.6 | 9.7  |      |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 15                                  |         |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 5.5                                   | 5.5     | 5.5  | 5.5  | 5.5  |      |
|                                                                                                            |              | in.lb/arcmin    | 49                                    | 49      | 49   | 49   | 49   |      |
| Max. axial force <sup>c)</sup><br>(Standard / HIGH FORCES)                                                 | $F_{2AMax}$  | N               | 1500 / 5000                           |         |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 337.5 / 1125                          |         |      |      |      |      |
| Max. lateral force <sup>b)</sup><br>(Standard / HIGH FORCES)                                               | $F_{2QMax}$  | N               | 1200 / 3800                           |         |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 270 / 855                             |         |      |      |      |      |
| Max. tilting moment<br>(Standard / HIGH FORCES)                                                            | $M_{2KMMax}$ | Nm              | 130 / 409                             |         |      |      |      |      |
|                                                                                                            |              | in.lb           | 1150 / 3620                           |         |      |      |      |      |
| Efficiency at full load<br>(at $n_1$ = 500 rpm)                                                            | $\eta$       | %               | 89                                    | 85      | 80   | 70   | 63   |      |
| Service life                                                                                               | $L_h$        | h               | > 15000                               |         |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 8.0                                   |         |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 18.0                                  |         |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed –<br>ratio-specific values available in cymex®) | $L_{PA}$     | dB(A)           | ≤ 62                                  |         |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                                   |         |      |      |      |      |
|                                                                                                            |              | °F              | +194                                  |         |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | –15 to +40                            |         |      |      |      |      |
|                                                                                                            |              | °F              | +5 to +104                            |         |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life                   |         |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | See drawing                           |         |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 65                                 |         |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC - 00150B - 022.000 - X            |         |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 022.000 - 036.000                 |         |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E 19         | $J_i$           | kgcm <sup>2</sup>                     | 1.22    | 1.17 | 1.06 | 1.05 | 1.01 |
|                                                                                                            |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.08    | 1.04 | 0.94 | 0.93 | 0.89 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> At max. 10 %  $F_{2QMax}$

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

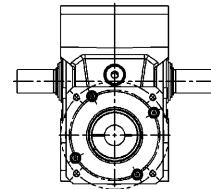
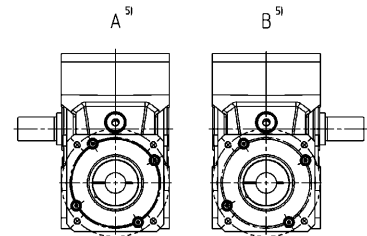
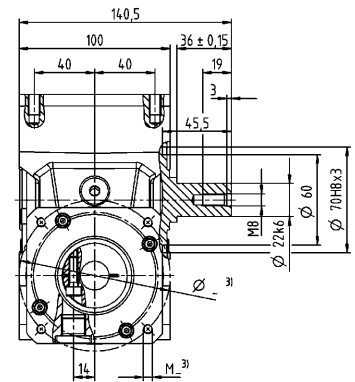
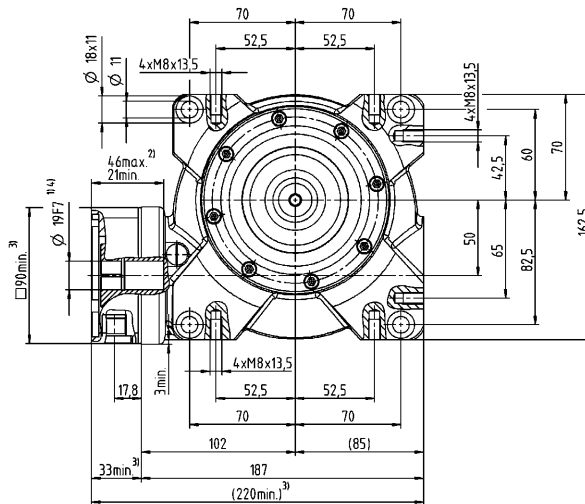
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

1-stage

up to 19<sup>4)</sup> (E)<sup>6)</sup>  
clamping hub  
diameter

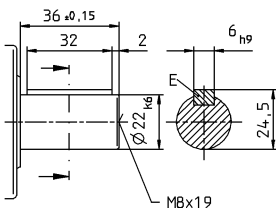


Worm Gearboxes  
Basic Line

Optional dual-shaft output. Drawings available on request.  
Involute gearing is not possible.

## Other output variants

Shaft with key



See technical data sheet for available clamping hub diameters  
(mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length

Longer motor shafts are adaptable, please contact us

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a  
bushing with a minimum thickness of 1 mm

<sup>5)</sup> Output side

<sup>6)</sup> Standard clamping hub diameter

# CVS 063 MF 1-stage

|                                                                                                            |                           |                       |                                       | 1-stage |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------|---------------------------------------|---------|------|------|------|------|
| Ratio                                                                                                      | <i>i</i>                  |                       | 7                                     | 10      | 16   | 28   | 40   |      |
| Max. torque <sup>a) b) e)</sup><br>(at n <sub>1</sub> = 500 rpm)                                           | <i>T</i> <sub>2a</sub>    | Nm                    | 265                                   | 270     | 280  | 301  | 282  |      |
|                                                                                                            |                           | in.lb                 | 2345                                  | 2390    | 2478 | 2664 | 2496 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | <i>T</i> <sub>2Not</sub>  | Nm                    | 484                                   | 491     | 494  | 518  | 447  |      |
|                                                                                                            |                           | in.lb                 | 4283                                  | 4345    | 4372 | 4584 | 3956 |      |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)                              | <i>n</i> <sub>1N</sub>    | rpm                   | 4000                                  |         |      |      |      |      |
| Max. input speed                                                                                           | <i>n</i> <sub>1Max</sub>  | rpm                   | 4500                                  |         |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at n <sub>1</sub> = 3000 rpm and 20 °C gearbox temperature)  | <i>T</i> <sub>012</sub>   | Nm                    | 3.1                                   | 3       | 2.4  | 2.3  | 2.2  |      |
|                                                                                                            |                           | in.lb                 | 27.4                                  | 26.6    | 21.2 | 20.4 | 19.5 |      |
| Max. backlash                                                                                              | <i>j</i> <sub>t</sub>     | arcmin                | ≤ 15                                  |         |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | <i>C</i> <sub>t21</sub>   | Nm/arcmin             | 23                                    | 23      | 23   | 23   | 23   |      |
|                                                                                                            |                           | in.lb/arcmin          | 204                                   | 204     | 204  | 204  | 204  |      |
| Max. axial force <sup>c)</sup><br>(Standard / HIGH FORCES)                                                 | <i>F</i> <sub>2AMax</sub> | N                     | 2000 / 8250                           |         |      |      |      |      |
|                                                                                                            |                           | lb <sub>f</sub>       | 450 / 1856                            |         |      |      |      |      |
| Max. lateral force <sup>b)</sup><br>(Standard / HIGH FORCES)                                               | <i>F</i> <sub>2QMax</sub> | N                     | 2000 / 6000                           |         |      |      |      |      |
|                                                                                                            |                           | lb <sub>f</sub>       | 450 / 1350                            |         |      |      |      |      |
| Max. tilting moment<br>(Standard / HIGH FORCES)                                                            | <i>M</i> <sub>2KMax</sub> | Nm                    | 281 / 843                             |         |      |      |      |      |
|                                                                                                            |                           | in.lb                 | 2487 / 7461                           |         |      |      |      |      |
| Efficiency at full load<br>(at n <sub>1</sub> = 500 rpm)                                                   | <i>η</i>                  | %                     | 90                                    | 87      | 82   | 73   | 67   |      |
| Service life                                                                                               | <i>L</i> <sub>h</sub>     | h                     | > 15000                               |         |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | <i>m</i>                  | kg                    | 13.0                                  |         |      |      |      |      |
|                                                                                                            |                           | lb <sub>m</sub>       | 29.0                                  |         |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed –<br>ratio-specific values available in cymex®) | <i>L</i> <sub>PA</sub>    | dB(A)                 | ≤ 64                                  |         |      |      |      |      |
| Max. permitted housing temperature                                                                         |                           | °C                    | +90                                   |         |      |      |      |      |
|                                                                                                            |                           | °F                    | +194                                  |         |      |      |      |      |
| Ambient temperature                                                                                        |                           | °C                    | –15 to +40                            |         |      |      |      |      |
|                                                                                                            |                           | °F                    | +5 to +104                            |         |      |      |      |      |
| Lubrication                                                                                                |                           |                       | Lubricated for life                   |         |      |      |      |      |
| Direction of rotation                                                                                      |                           |                       | See drawing                           |         |      |      |      |      |
| Protection class                                                                                           |                           |                       | IP 65                                 |         |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |                           |                       | ELC - 00150B - 032.000 - X            |         |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |                           | mm                    | X = 032.000 - 036.000                 |         |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | H 28                      | <i>J</i> <sub>i</sub> | kgcm <sup>2</sup>                     | 3.75    | 3.61 | 3.52 | 3.48 | 3.36 |
|                                                                                                            |                           |                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 3.32    | 3.19 | 3.12 | 3.08 | 2.97 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> At max. 10 %  $F_{2QMax}$

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

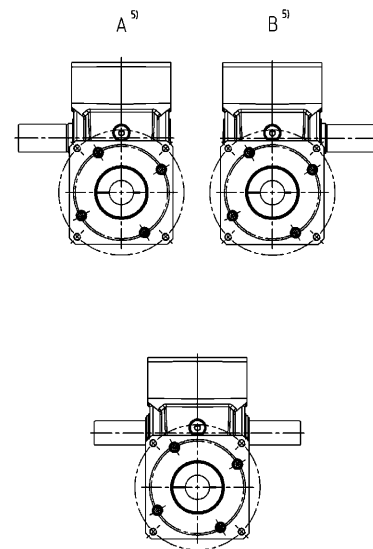
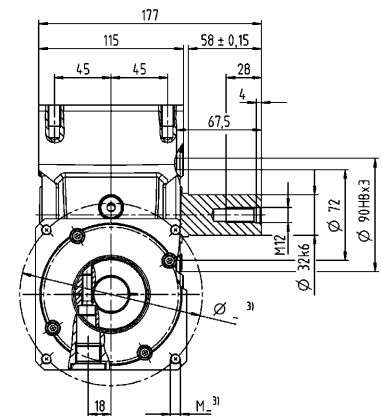
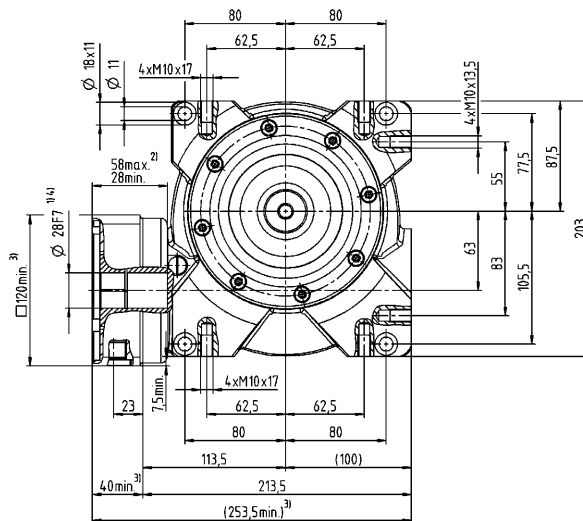
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

1-stage

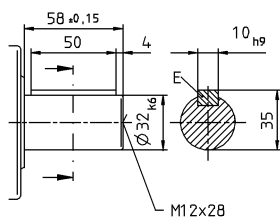
up to 28 <sup>4)</sup> (H) <sup>6)</sup>  
clamping hub  
diameter



Optional dual-shaft output. Drawings available on request.  
Involute gearing is not possible.

## Other output variants

Shaft with key



See technical data sheet for available clamping hub diameters  
(mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length

Longer motor shafts are adaptable, please contact us

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a  
bushing with a minimum thickness of 1 mm

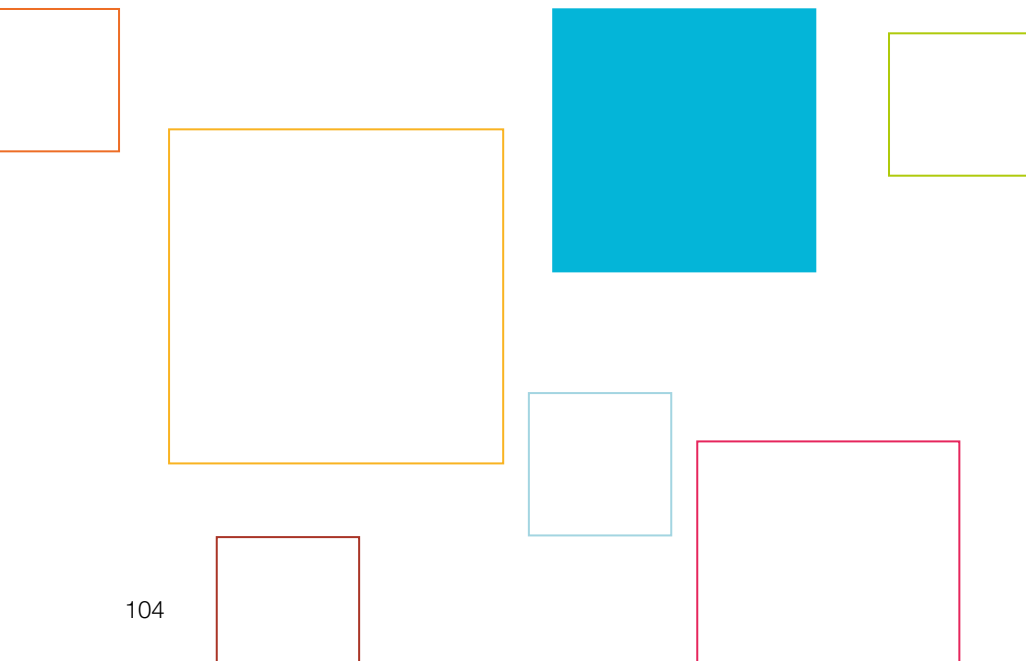
<sup>5)</sup> Output side

<sup>6)</sup> Standard clamping hub diameter

# alpha Value Line

## PLANETARY GEARBOXES NP / NPL / NPS / NPT / NPR

The strength of the planetary gearboxes of the alpha Value Line lies in the combination of economy and variety of output variants. Additionally, the gearboxes are suitable for very diverse applications – thanks to the range of ratios and the optimal positioning accuracy.



NP



NPL



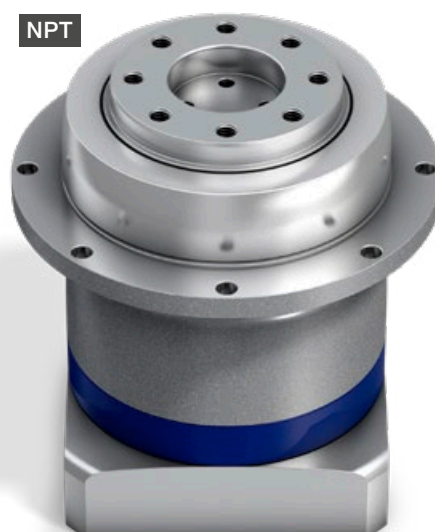
NPS



NPR



NPT



alpha Value Line in action

## INDIVIDUAL TALENTS – for trend-setting research

**The planetary gearboxes of the alpha Value Line are suitable for universal application and offer the best economical solution for almost every requirement – on each axis and for all industries.**

But the NP servo gearbox is also used outside the typical industrial environment: For research purposes, the planetary gearboxes are used in installations for the simulation of tides or tsunamis as well as for coastline and port basin optimization. With the wave simulators, shipyards or research centers can simulate and investigate the behavior of ships at sea or in a port, in ordinary but also in extreme situations.

The low-backlash NP planetary gearboxes of the alpha Value Line drive axes optimally in installations of multi-servo axes in wave tanks worldwide – for example in Great Britain, the USA, China and Italy.

Each wave simulator has a certain number of paddles for generating very special wave types and frequencies. Depending on the size of the simulator and the type of wave to be simulated – deep and shallow water, sea, current and storm conditions or river mouths – a belt drive, ball screw or rack and pinion drive are used. The size of the individual paddles can vary from a few centimeters to several meters.

Technical support, quality and flexibility were the decisive factors for the decision to cooperate with WITTENSTEIN in the simulation system. The NP gearboxes of the alpha Value Line offer the customer the ideal mix of precision, dynamic performance and price.







# NP / NPL / NPS / NPT / NPR

## – Individual Talents

NP



The planetary gearboxes of the NP series are universally applicable and offer the best economical solution for almost every requirement, in each axis in every sector. The various drives and output interfaces are offered as a compatible extension to the existing portfolio of WITTENSTEIN alpha – for maximum flexibility in design, assembly, and use.

### PRODUCT HIGHLIGHTS



#### Unique modularity in this segment

With five series including five different output interfaces, the NP series offers maximum flexibility. From a simple machine connection using a B5 or B14 output flange to a flange connection or adjustment via slotted holes – the suitable solution for your machine requirements.



#### High economy

The gearboxes of the alpha Value Line are very economical to purchase, unbeatably efficient in operation, and maintenance free over their entire service life.



#### High flexibility

Modular configuration of the interfaces to the motor and to the application. The gearboxes are available with different clamping hub diameters, drive stages, design and mounting options.



#### Highest power density

The HIGH TORQUE version provides gearboxes with the highest power density.



#### Fast sizing

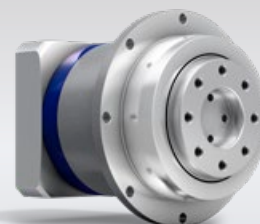
Efficient online sizing within seconds in the SIZING ASSISTANT on the basis of the application data or the motor.



NPS – planetary gearbox with SP<sup>+</sup> output geometry



NPL – planetary gearbox with reinforced bearings and B14 output geometry



NPT – planetary gearbox with TP<sup>+</sup> output geometry





More information about the alpha Value Line: simply scan the QR code using your smartphone.

<https://alpha.wittenstein.de/en-en/alpha-value-line/>



**A Two-piece clamping hub system of the high-end segment**

- Labeled with the tightening torques for secure, fast motor mounting
- Guarantees best synchronization properties

**B Various output shapes**

- Five variants of the NP series available: including with B5 flange mounting, output flange, etc.
- Higher external forces possible with NPL, NPS, and NPR

**C High ratio variation**

- Large number of ratios ( $i=3$  to  $i=100$ )
- Available in the common binary ratios

**D Differentiated power density**

- The HIGH TORQUE version permits an even higher torque density for sizes 015 – 035



**SIZING ASSISTANT**  
YOUR GEARBOX WITHIN SECONDS

# NP 005 MF 1-stage

|                                                                                                            |              |                 |                               | 1-stage                               |       |       |       |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|-------------------------------|---------------------------------------|-------|-------|-------|------|------|
| Ratio                                                                                                      | i            |                 | 4                             | 5                                     | 7     | 8     | 10    |      |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 18                            | 22                                    | 22    | 21    | 21    |      |      |
|                                                                                                            |              | in.lb           | 159                           | 195                                   | 195   | 186   | 186   |      |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 11                            | 14                                    | 14    | 13    | 13    |      |      |
|                                                                                                            |              | in.lb           | 97                            | 124                                   | 124   | 115   | 115   |      |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 26                            | 26                                    | 26    | 26    | 26    |      |      |
|                                                                                                            |              | in.lb           | 230                           | 230                                   | 230   | 230   | 230   |      |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 3800                          | 4000                                  | 4300  | 4400  | 4600  |      |      |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 10000                         | 10000                                 | 10000 | 10000 | 10000 |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$    | Nm              | 0.1                           | 0.09                                  | 0.08  | 0.08  | 0.08  |      |      |
|                                                                                                            |              | in.lb           | 0.89                          | 0.8                                   | 0.71  | 0.71  | 0.71  |      |      |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 10                          |                                       |       |       |       |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 1.2                           | 1.2                                   | 1.2   | 0.85  | 0.85  |      |      |
|                                                                                                            |              | in.lb/arcmin    | 11                            | 11                                    | 11    | 7.5   | 7.5   |      |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 700                           |                                       |       |       |       |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 158                           |                                       |       |       |       |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 800                           |                                       |       |       |       |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 180                           |                                       |       |       |       |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ | Nm              | 23                            |                                       |       |       |       |      |      |
|                                                                                                            |              | in.lb           | 204                           |                                       |       |       |       |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 97                            |                                       |       |       |       |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                       |                                       |       |       |       |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 0.7                           |                                       |       |       |       |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 1.5                           |                                       |       |       |       |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 58                          |                                       |       |       |       |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                           |                                       |       |       |       |      |      |
|                                                                                                            |              | °F              | +194                          |                                       |       |       |       |      |      |
| Ambient temperature                                                                                        |              | °C              | –15 to +40                    |                                       |       |       |       |      |      |
|                                                                                                            |              | °F              | +5 to +104                    |                                       |       |       |       |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life           |                                       |       |       |       |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction |                                       |       |       |       |      |      |
| Protection class                                                                                           |              |                 | IP 64                         |                                       |       |       |       |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0005BA012.000-X           |                                       |       |       |       |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 004.000 - 012.700         |                                       |       |       |       |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | Z            | 8               | $J_1$                         | kgcm <sup>2</sup>                     | 0.03  | 0.03  | 0.03  | 0.02 | 0.02 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.03  | 0.03  | 0.03  | 0.02 | 0.02 |
|                                                                                                            | A            | 9               | $J_1$                         | kgcm <sup>2</sup>                     | 0.03  | 0.03  | 0.03  | 0.03 | 0.02 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.03  | 0.03  | 0.03  | 0.03 | 0.02 |
|                                                                                                            | B            | 11              | $J_1$                         | kgcm <sup>2</sup>                     | 0.05  | 0.05  | 0.04  | 0.04 | 0.04 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.04  | 0.04  | 0.04  | 0.04 | 0.04 |
|                                                                                                            | C            | 14              | $J_1$                         | kgcm <sup>2</sup>                     | 0.14  | 0.13  | 0.13  | 0.13 | 0.13 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.12  | 0.12  | 0.12  | 0.12 | 0.12 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

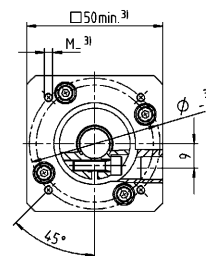
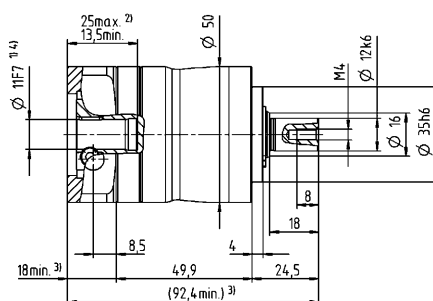
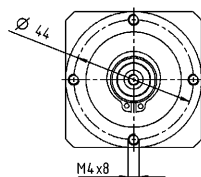
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

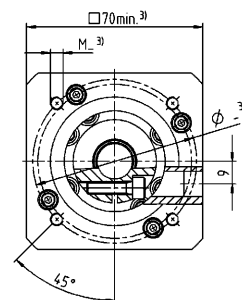
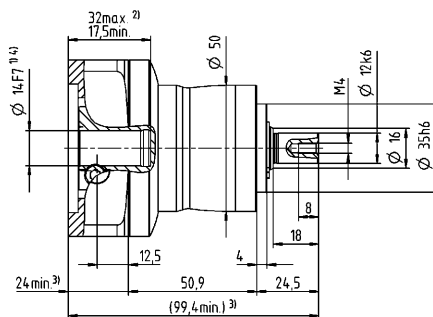
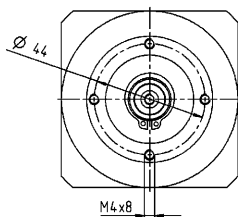
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



up to 14<sup>4)</sup> (C)  
clamping hub  
diameter

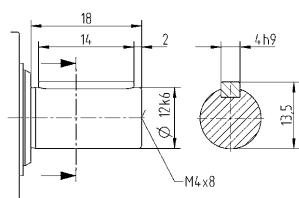


Motor shaft diameter [mm]

Planetary Gearboxes  
Value Line

## Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NP 005 MF 2-stage

|                                                                                                            |              |                 | 2-stage                       |                                       |       |       |       |       |       |       |       |       |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|-------------------------------|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ratio                                                                                                      | i            |                 | 16                            | 20                                    | 25    | 28    | 35    | 40    | 50    | 64    | 70    | 100   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 18                            | 18                                    | 22    | 18    | 22    | 18    | 22    | 21    | 22    | 21    |
|                                                                                                            |              | in.lb           | 159                           | 159                                   | 195   | 159   | 195   | 159   | 195   | 186   | 195   | 186   |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 11                            | 11                                    | 14    | 11    | 14    | 11    | 14    | 13    | 14    | 13    |
|                                                                                                            |              | in.lb           | 97                            | 97                                    | 124   | 97    | 124   | 97    | 124   | 115   | 124   | 115   |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 26                            | 26                                    | 26    | 26    | 26    | 26    | 26    | 26    | 26    | 26    |
|                                                                                                            |              | in.lb           | 230                           | 230                                   | 230   | 230   | 230   | 230   | 230   | 230   | 230   | 230   |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 4000                          | 4000                                  | 4000  | 4300  | 4300  | 4600  | 4600  | 4400  | 4600  | 4600  |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 10000                         | 10000                                 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$    | Nm              | 0.11                          | 0.1                                   | 0.1   | 0.09  | 0.09  | 0.08  | 0.08  | 0.08  | 0.08  | 0.08  |
|                                                                                                            |              | in.lb           | 0.97                          | 0.89                                  | 0.89  | 0.8   | 0.8   | 0.71  | 0.71  | 0.71  | 0.71  | 0.71  |
| Max. backlash                                                                                              | $j_t$        | arcmin          | $\leq 13$                     |                                       |       |       |       |       |       |       |       |       |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 1.2                           | 1.2                                   | 1.2   | 1.2   | 1.2   | 1.2   | 1.2   | 0.85  | 1.2   | 0.85  |
|                                                                                                            |              | in.lb/arcmin    | 11                            | 11                                    | 11    | 11    | 11    | 11    | 11    | 7.5   | 11    | 7.5   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 700                           |                                       |       |       |       |       |       |       |       |       |
|                                                                                                            |              | lb <sub>f</sub> | 158                           |                                       |       |       |       |       |       |       |       |       |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 800                           |                                       |       |       |       |       |       |       |       |       |
|                                                                                                            |              | lb <sub>f</sub> | 180                           |                                       |       |       |       |       |       |       |       |       |
| Max. tilting moment                                                                                        | $M_{2KMax}$  | Nm              | 23                            |                                       |       |       |       |       |       |       |       |       |
|                                                                                                            |              | in.lb           | 204                           |                                       |       |       |       |       |       |       |       |       |
| Efficiency at full load                                                                                    | $\eta$       | %               | 95                            |                                       |       |       |       |       |       |       |       |       |
| Service life                                                                                               | $L_h$        | h               | > 20000                       |                                       |       |       |       |       |       |       |       |       |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 0.9                           |                                       |       |       |       |       |       |       |       |       |
|                                                                                                            |              | lb <sub>m</sub> | 2                             |                                       |       |       |       |       |       |       |       |       |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | $\leq 58$                     |                                       |       |       |       |       |       |       |       |       |
| Max. permitted housing temperature                                                                         |              | °C              | +90                           |                                       |       |       |       |       |       |       |       |       |
|                                                                                                            |              | °F              | +194                          |                                       |       |       |       |       |       |       |       |       |
| Ambient temperature                                                                                        |              | °C              | -15 to +40                    |                                       |       |       |       |       |       |       |       |       |
|                                                                                                            |              | °F              | +5 to +104                    |                                       |       |       |       |       |       |       |       |       |
| Lubrication                                                                                                |              |                 | Lubricated for life           |                                       |       |       |       |       |       |       |       |       |
| Direction of rotation                                                                                      |              |                 | In- and output same direction |                                       |       |       |       |       |       |       |       |       |
| Protection class                                                                                           |              |                 | IP 64                         |                                       |       |       |       |       |       |       |       |       |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0005BA012.000-X           |                                       |       |       |       |       |       |       |       |       |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 004.000 - 012.700         |                                       |       |       |       |       |       |       |       |       |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | Z            | 8               | $J_1$                         | kgcm <sup>2</sup>                     | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                            | A            | 9               | $J_1$                         | kgcm <sup>2</sup>                     | 0.03  | 0.03  | 0.02  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.03  | 0.03  | 0.02  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                            | B            | 11              | $J_1$                         | kgcm <sup>2</sup>                     | 0.05  | 0.05  | 0.04  | 0.05  | 0.04  | 0.04  | 0.04  | 0.04  |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  |
|                                                                                                            | C            | 14              | $J_1$                         | kgcm <sup>2</sup>                     | 0.13  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13  |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

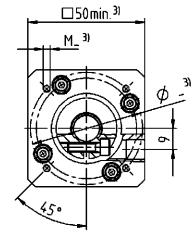
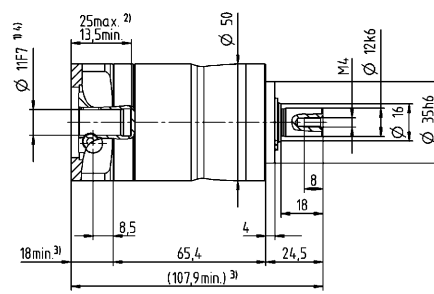
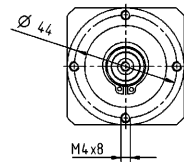
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

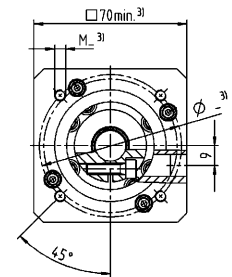
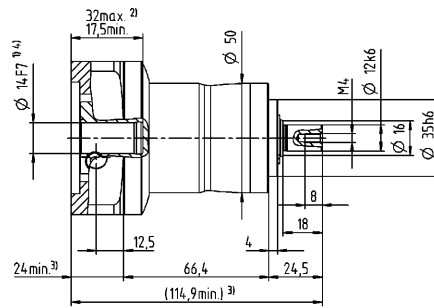
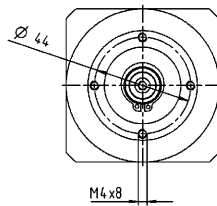
<sup>e)</sup> Valid for: Smooth shaft

## 2-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



up to 14<sup>4)</sup> (C)  
clamping hub  
diameter

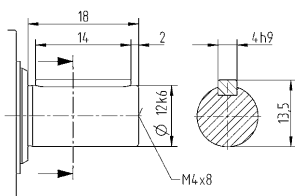


Motor shaft diameter [mm]

Planetary Gearboxes  
Value Line

### Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NP 015 MF 1-stage

|                                                                                                            |             |       |                                       | 1-stage                               |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-------|---------------------------------------|---------------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                      | i           |       |                                       | 3                                     | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    |       | Nm                                    | 51                                    | 56   | 64   | 64   | 56   | 56   |      |
|                                                                                                            |             |       | in.lb                                 | 451                                   | 496  | 566  | 566  | 496  | 496  |      |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    |       | Nm                                    | 32                                    | 35   | 40   | 40   | 35   | 35   |      |
|                                                                                                            |             |       | in.lb                                 | 283                                   | 310  | 354  | 354  | 310  | 310  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  |       | Nm                                    | 80                                    | 80   | 80   | 80   | 80   | 80   |      |
|                                                                                                            |             |       | in.lb                                 | 708                                   | 708  | 708  | 708  | 708  | 708  |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    |       | rpm                                   | 3300                                  | 3500 | 3700 | 4000 | 4100 | 4300 |      |
| Max. input speed                                                                                           | $n_{1Max}$  |       | rpm                                   | 8000                                  | 8000 | 8000 | 8000 | 8000 | 8000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$   |       | Nm                                    | 0.24                                  | 0.2  | 0.17 | 0.14 | 0.13 | 0.12 |      |
|                                                                                                            |             |       | in.lb                                 | 2.1                                   | 1.8  | 1.5  | 1.2  | 1.2  | 1.1  |      |
| Max. backlash                                                                                              | $j_t$       |       | arcmin                                | ≤ 8                                   |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   |       | Nm/arcmin                             | 3.3                                   | 3.3  | 3.3  | 3.3  | 2.8  | 2.8  |      |
|                                                                                                            |             |       | in.lb/arcmin                          | 29                                    | 29   | 29   | 29   | 25   | 25   |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ |       | N                                     | 1550                                  |      |      |      |      |      |      |
|                                                                                                            |             |       | lb <sub>f</sub>                       | 349                                   |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ |       | N                                     | 1700                                  |      |      |      |      |      |      |
|                                                                                                            |             |       | lb <sub>f</sub>                       | 383                                   |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ |       | Nm                                    | 72                                    |      |      |      |      |      |      |
|                                                                                                            |             |       | in.lb                                 | 637                                   |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      |       | %                                     | 97                                    |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$       |       | h                                     | > 20000                               |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         |       | kg                                    | 1.9                                   |      |      |      |      |      |      |
|                                                                                                            |             |       | lb <sub>m</sub>                       | 4.2                                   |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    |       | dB(A)                                 | ≤ 59                                  |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             |       | °C                                    | +90                                   |      |      |      |      |      |      |
|                                                                                                            |             |       | °F                                    | +194                                  |      |      |      |      |      |      |
| Ambient temperature                                                                                        |             |       | °C                                    | –15 to +40                            |      |      |      |      |      |      |
|                                                                                                            |             |       | °F                                    | +5 to +104                            |      |      |      |      |      |      |
| Lubrication                                                                                                |             |       |                                       | Lubricated for life                   |      |      |      |      |      |      |
| Direction of rotation                                                                                      |             |       |                                       | In- and output same direction         |      |      |      |      |      |      |
| Protection class                                                                                           |             |       |                                       | IP 64                                 |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |       |                                       | ELC-0060BA016.000-X                   |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             |       | mm                                    | X = 012.000 - 032.000                 |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | A           | 9     | $J_1$                                 | kgcm <sup>2</sup>                     | 0.22 | 0.18 | 0.16 | 0.14 | 0.14 | 0.13 |
|                                                                                                            |             |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.19 | 0.16 | 0.14 | 0.12 | 0.12 | 0.12 |
|                                                                                                            | B           | 11    | $J_1$                                 | kgcm <sup>2</sup>                     | 0.24 | 0.19 | 0.18 | 0.16 | 0.15 | 0.15 |
|                                                                                                            |             |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.21 | 0.17 | 0.16 | 0.14 | 0.13 | 0.13 |
|                                                                                                            | C           | 14    | $J_1$                                 | kgcm <sup>2</sup>                     | 0.32 | 0.27 | 0.25 | 0.23 | 0.23 | 0.22 |
|                                                                                                            |             |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.28 | 0.24 | 0.22 | 0.2  | 0.2  | 0.19 |
|                                                                                                            | D           | 16    | $J_1$                                 | kgcm <sup>2</sup>                     | 0.45 | 0.4  | 0.38 | 0.36 | 0.36 | 0.35 |
|                                                                                                            |             |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.4  | 0.35 | 0.34 | 0.32 | 0.32 | 0.31 |
| E                                                                                                          | 19          | $J_1$ | kgcm <sup>2</sup>                     | 0.53                                  | 0.48 | 0.46 | 0.44 | 0.44 | 0.43 |      |
|                                                                                                            |             |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.47                                  | 0.42 | 0.41 | 0.39 | 0.39 | 0.38 |      |

Please use our sizing software cymex<sup>®</sup> for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

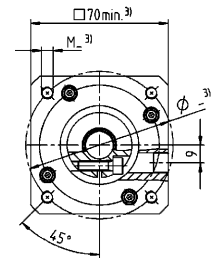
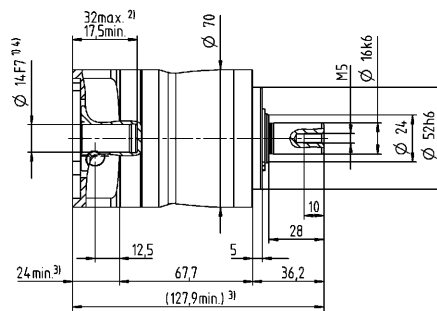
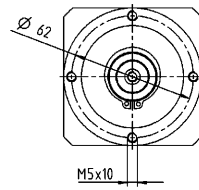
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

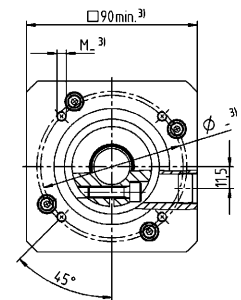
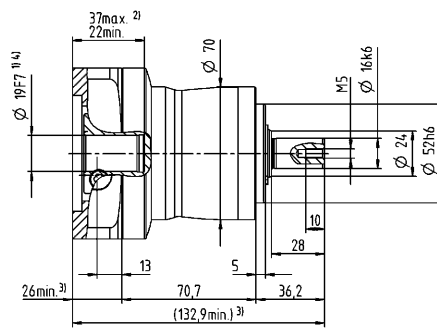
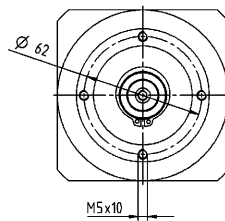


# 1-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



up to 19<sup>4)</sup> (E)  
clamping hub  
diameter

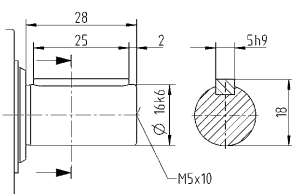


Motor shaft diameter [mm]

Planetary Gearboxes  
Value Line

## Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NP 015 MF 2-stage

|                                                                                                                      |             |                 | 2-stage                       |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
|----------------------------------------------------------------------------------------------------------------------|-------------|-----------------|-------------------------------|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Ratio                                                                                                                | i           |                 | 12                            | 15                                    | 16    | 20    | 25    | 28    | 30    | 32    | 35    | 40    | 50    | 64    | 70    | 100   |      |
| Max. torque <sup>a) b) e)</sup>                                                                                      | $T_{2a}$    | Nm              | 51                            | 51                                    | 56    | 56    | 64    | 56    | 51    | 56    | 64    | 56    | 64    | 56    | 64    | 56    |      |
|                                                                                                                      |             | in.lb           | 451                           | 451                                   | 496   | 496   | 566   | 496   | 451   | 496   | 566   | 496   | 566   | 496   | 566   | 496   |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                                | $T_{2B}$    | Nm              | 32                            | 32                                    | 35    | 35    | 40    | 35    | 32    | 35    | 40    | 35    | 40    | 35    | 40    | 35    |      |
|                                                                                                                      |             | in.lb           | 283                           | 283                                   | 310   | 310   | 354   | 310   | 283   | 310   | 354   | 310   | 354   | 310   | 354   | 310   |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox)           | $T_{2Not}$  | Nm              | 80                            | 80                                    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    |      |
|                                                                                                                      |             | in.lb           | 708                           | 708                                   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                           | $n_{1N}$    | rpm             | 3800                          | 4000                                  | 3800  | 4000  | 4000  | 4300  | 4600  | 4400  | 4300  | 4600  | 4600  | 4400  | 4600  | 4600  |      |
| Max. input speed                                                                                                     | $n_{1Max}$  | rpm             | 10000                         | 10000                                 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)                      | $T_{012}$   | Nm              | 0.13                          | 0.11                                  | 0.12  | 0.11  | 0.1   | 0.09  | 0.09  | 0.09  | 0.09  | 0.08  | 0.08  | 0.08  | 0.08  | 0.08  |      |
|                                                                                                                      |             | in.lb           | 1.2                           | 0.97                                  | 1.1   | 0.97  | 0.89  | 0.8   | 0.8   | 0.8   | 0.8   | 0.71  | 0.71  | 0.71  | 0.71  | 0.71  |      |
| Max. backlash                                                                                                        | $j_t$       | arcmin          | ≤ 10                          |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Torsional rigidity <sup>b)</sup>                                                                                     | $C_{t21}$   | Nm/arcmin       | 3.3                           | 3.3                                   | 3.3   | 3.3   | 3.3   | 3.3   | 4.0   | 3.3   | 3.3   | 3.3   | 3.3   | 2.8   | 3.3   | 2.8   |      |
|                                                                                                                      |             | in.lb/arcmin    | 29                            | 29                                    | 29    | 29    | 29    | 29    | 35    | 29    | 29    | 29    | 29    | 25    | 29    | 25    |      |
| Max. axial force <sup>c)</sup>                                                                                       | $F_{2AMax}$ | N               | 1550                          |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
|                                                                                                                      |             | lb <sub>f</sub> | 349                           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Max. lateral force <sup>c)</sup>                                                                                     | $F_{2QMax}$ | N               | 1700                          |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
|                                                                                                                      |             | lb <sub>f</sub> | 383                           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Max. tilting moment                                                                                                  | $M_{2KMax}$ | Nm              | 72                            |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
|                                                                                                                      |             | in.lb           | 637                           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Efficiency at full load                                                                                              | $\eta$      | %               | 95                            |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Service life                                                                                                         | $L_h$       | h               | > 20000                       |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Weight<br>(incl. standard adapter plate)                                                                             | $m$         | kg              | 1.9                           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
|                                                                                                                      |             | lb <sub>m</sub> | 4.2                           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> ) | $L_{PA}$    | dB(A)           | ≤ 58                          |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Max. permitted housing temperature                                                                                   |             | °C              | +90                           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
|                                                                                                                      |             | °F              | +194                          |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Ambient temperature                                                                                                  |             | °C              | −15 to +40                    |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
|                                                                                                                      |             | °F              | +5 to +104                    |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Lubrication                                                                                                          |             |                 | Lubricated for life           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Direction of rotation                                                                                                |             |                 | In- and output same direction |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Protection class                                                                                                     |             |                 | IP 64                         |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex <sup>®</sup> )                          |             |                 | ELC-0060BA016.000-X           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Bore diameter of coupling<br>on the application side                                                                 |             | mm              | X = 012.000 - 032.000         |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                                       | Z           | 8               | $J_1$                         | kgcm <sup>2</sup>                     | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  | 0.02 |
|                                                                                                                      |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  | 0.02 |
|                                                                                                                      | A           | 9               | $J_1$                         | kgcm <sup>2</sup>                     | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  | 0.02 |
|                                                                                                                      |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  | 0.02 |
|                                                                                                                      | B           | 11              | $J_1$                         | kgcm <sup>2</sup>                     | 0.06  | 0.05  | 0.05  | 0.05  | 0.05  | 0.05  | 0.05  | 0.04  | 0.05  | 0.04  | 0.04  | 0.04  | 0.04 |
|                                                                                                                      |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.05  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04 |
|                                                                                                                      | C           | 14              | $J_1$                         | kgcm <sup>2</sup>                     | 0.14  | 0.14  | 0.14  | 0.13  | 0.13  | 0.13  | 0.14  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13 |
|                                                                                                                      |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12 |

Please use our sizing software cymex<sup>®</sup> for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

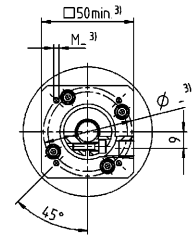
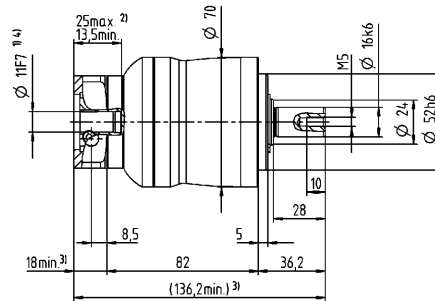
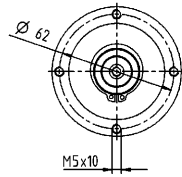
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

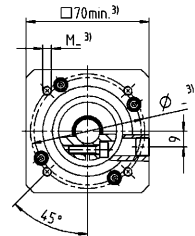
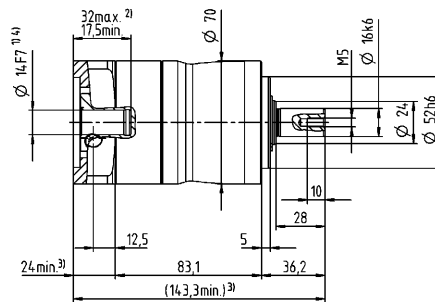
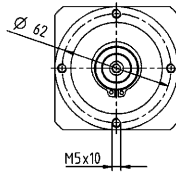
<sup>e)</sup> Valid for: Smooth shaft

## 2-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



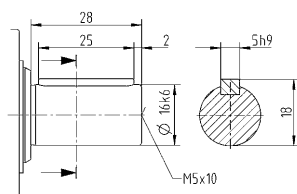
up to 14<sup>4)</sup> (C)  
clamping hub  
diameter



Motor shaft diameter [mm]

### Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NP 025 MF 1-stage

|                                                                                                            |              |       |                                            | 1-stage                                    |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-------|--------------------------------------------|--------------------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |       |                                            | 3                                          | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     |       | <i>Nm</i>                                  | 128                                        | 152  | 160  | 160  | 144  | 144  |      |
|                                                                                                            |              |       | <i>in.lb</i>                               | 1133                                       | 1345 | 1416 | 1416 | 1275 | 1275 |      |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     |       | <i>Nm</i>                                  | 80                                         | 95   | 100  | 100  | 90   | 90   |      |
|                                                                                                            |              |       | <i>in.lb</i>                               | 708                                        | 841  | 885  | 885  | 797  | 797  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   |       | <i>Nm</i>                                  | 190                                        | 190  | 190  | 190  | 190  | 190  |      |
|                                                                                                            |              |       | <i>in.lb</i>                               | 1682                                       | 1682 | 1682 | 1682 | 1682 | 1682 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     |       | <i>rpm</i>                                 | 3100                                       | 3300 | 3400 | 3600 | 3700 | 3900 |      |
| Max. input speed                                                                                           | $n_{1Max}$   |       | <i>rpm</i>                                 | 7000                                       | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$    |       | <i>Nm</i>                                  | 0.38                                       | 0.31 | 0.26 | 0.21 | 0.19 | 0.17 |      |
|                                                                                                            |              |       | <i>in.lb</i>                               | 3.4                                        | 2.7  | 2.3  | 1.9  | 1.7  | 1.5  |      |
| Max. backlash                                                                                              | $j_t$        |       | <i>arcmin</i>                              | ≤ 8                                        |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    |       | <i>Nm/arcmin</i>                           | 9.5                                        | 9.5  | 9.5  | 9.5  | 8.5  | 8.5  |      |
|                                                                                                            |              |       | <i>in.lb/arcmin</i>                        | 84                                         | 84   | 84   | 84   | 75   | 75   |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  |       | <i>N</i>                                   | 1900                                       |      |      |      |      |      |      |
|                                                                                                            |              |       | <i>lb<sub>f</sub></i>                      | 428                                        |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ |       | <i>N</i>                                   | 2800                                       |      |      |      |      |      |      |
|                                                                                                            |              |       | <i>lb<sub>f</sub></i>                      | 630                                        |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ |       | <i>Nm</i>                                  | 137                                        |      |      |      |      |      |      |
|                                                                                                            |              |       | <i>in.lb</i>                               | 1213                                       |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       |       | %                                          | 97                                         |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        |       | <i>h</i>                                   | > 20000                                    |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          |       | <i>kg</i>                                  | 3.8                                        |      |      |      |      |      |      |
|                                                                                                            |              |       | <i>lb<sub>m</sub></i>                      | 8.4                                        |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     |       | <i>dB(A)</i>                               | ≤ 61                                       |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              |       | °C                                         | +90                                        |      |      |      |      |      |      |
|                                                                                                            |              |       | °F                                         | +194                                       |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              |       | °C                                         | –15 to +40                                 |      |      |      |      |      |      |
|                                                                                                            |              |       | °F                                         | +5 to +104                                 |      |      |      |      |      |      |
| Lubrication                                                                                                |              |       |                                            | Lubricated for life                        |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |       |                                            | In- and output same direction              |      |      |      |      |      |      |
| Protection class                                                                                           |              |       |                                            | IP 64                                      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |       |                                            | ELC-0060BA022.000-X                        |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              |       | <i>mm</i>                                  | X = 012.000 - 032.000                      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C            | 14    | $J_1$                                      | <i>kgcm<sup>2</sup></i>                    | 0.57 | 0.46 | 0.37 | 0.3  | 0.27 | 0.25 |
|                                                                                                            |              |       |                                            | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 0.5  | 0.41 | 0.33 | 0.27 | 0.24 | 0.22 |
|                                                                                                            | D            | 16    | $J_1$                                      | <i>kgcm<sup>2</sup></i>                    | 0.71 | 0.61 | 0.52 | 0.43 | 0.42 | 0.4  |
|                                                                                                            |              |       |                                            | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 0.63 | 0.54 | 0.46 | 0.38 | 0.37 | 0.35 |
|                                                                                                            | E            | 19    | $J_1$                                      | <i>kgcm<sup>2</sup></i>                    | 0.8  | 0.7  | 0.61 | 0.53 | 0.51 | 0.49 |
|                                                                                                            |              |       |                                            | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 0.71 | 0.62 | 0.54 | 0.47 | 0.45 | 0.43 |
|                                                                                                            | G            | 24    | $J_1$                                      | <i>kgcm<sup>2</sup></i>                    | 1.8  | 1.7  | 1.6  | 1.6  | 1.5  | 1.5  |
|                                                                                                            |              |       |                                            | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 1.6  | 1.5  | 1.4  | 1.4  | 1.3  | 1.3  |
| H                                                                                                          | 28           | $J_1$ | <i>kgcm<sup>2</sup></i>                    | 1.5                                        | 1.4  | 1.3  | 1.3  | 1.2  | 1.2  |      |
|                                                                                                            |              |       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 1.3                                        | 1.2  | 1.2  | 1.2  | 1.1  | 1.1  |      |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

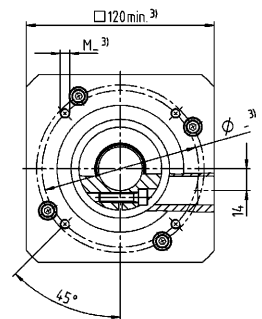
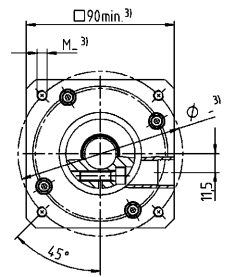
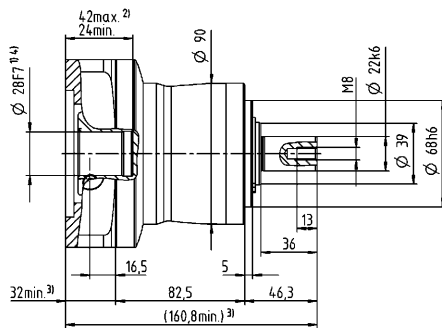
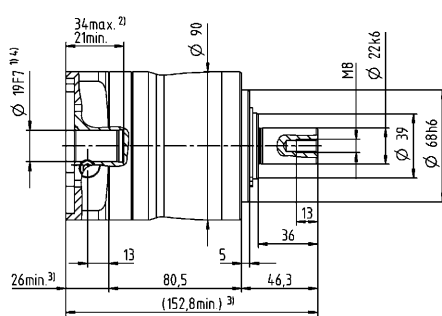
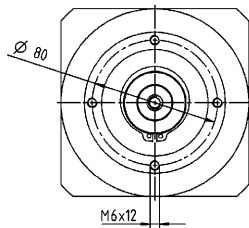
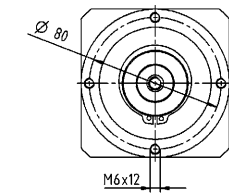
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter

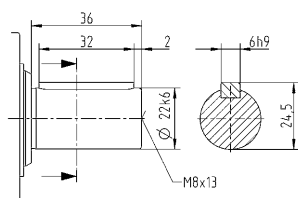
Motor shaft diameter [mm]

up to 28<sup>4)</sup> (H)  
clamping hub  
diameter



## Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NP 025 MF 2-stage

|                                                                                                            |              |                 | 2-stage                       |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|-------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 9                             | 12                                    | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 128                           | 128                                   | 128  | 152  | 152  | 160  | 152  | 128  | 152  | 160  | 152  | 160  | 144  | 160  | 144  |
|                                                                                                            |              | in.lb           | 1133                          | 1133                                  | 1133 | 1345 | 1345 | 1416 | 1345 | 1133 | 1345 | 1416 | 1345 | 1416 | 1275 | 1416 | 1275 |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 80                            | 80                                    | 80   | 95   | 95   | 100  | 95   | 80   | 95   | 100  | 95   | 100  | 90   | 100  | 90   |
|                                                                                                            |              | in.lb           | 708                           | 708                                   | 708  | 841  | 841  | 885  | 841  | 708  | 841  | 885  | 841  | 885  | 797  | 885  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 190                           | 190                                   | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  |
|                                                                                                            |              | in.lb           | 1682                          | 1682                                  | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 3300                          | 3500                                  | 3700 | 3500 | 3700 | 3700 | 4000 | 4300 | 4100 | 4000 | 4300 | 4300 | 4100 | 4300 | 4300 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 8000                          | 8000                                  | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1 = 3000$ rpm and 20 °C gearbox temperature)           | $T_{012}$    | Nm              | 0.22                          | 0.18                                  | 0.16 | 0.16 | 0.15 | 0.14 | 0.12 | 0.12 | 0.12 | 0.12 | 0.11 | 0.1  | 0.1  | 0.1  | 0.09 |
|                                                                                                            |              | in.lb           | 1.9                           | 1.6                                   | 1.4  | 1.4  | 1.3  | 1.2  | 1.1  | 1.1  | 1.1  | 1.1  | 0.97 | 0.89 | 0.89 | 0.89 | 0.8  |
| Max. backlash                                                                                              | $j_t$        | arcmin          | $\leq 10$                     |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 9.5                           | 9.5                                   | 9.5  | 9.5  | 9.5  | 9.5  | 9.5  | 9.5  | 9.5  | 9.5  | 9.5  | 9.5  | 8.5  | 9.5  | 8.5  |
|                                                                                                            |              | in.lb/arcmin    | 84                            | 84                                    | 84   | 84   | 84   | 84   | 84   | 84   | 84   | 84   | 84   | 84   | 75   | 84   | 75   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 1900                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 428                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 2800                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 630                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ | Nm              | 137                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 1213                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 95                            |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                       |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 4.1                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 9.1                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | $\leq 59$                     |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | -15 to +40                    |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +5 to +104                    |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                         |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA022.000-X           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 012.000 - 032.000         |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | A            | 9               | $J_1$                         | kgcm <sup>2</sup>                     | 0.26 | 0.22 | 0.21 | 0.21 | 0.2  | 0.2  | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.23 | 0.19 | 0.19 | 0.19 | 0.18 | 0.18 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
|                                                                                                            | B            | 11              | $J_1$                         | kgcm <sup>2</sup>                     | 0.28 | 0.24 | 0.23 | 0.23 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.25 | 0.21 | 0.2  | 0.2  | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
|                                                                                                            | C            | 14              | $J_1$                         | kgcm <sup>2</sup>                     | 0.35 | 0.31 | 0.3  | 0.3  | 0.3  | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.31 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
|                                                                                                            | D            | 16              | $J_1$                         | kgcm <sup>2</sup>                     | 0.48 | 0.44 | 0.43 | 0.43 | 0.42 | 0.42 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.42 | 0.39 | 0.38 | 0.38 | 0.37 | 0.37 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
|                                                                                                            | E            | 19              | $J_1$                         | kgcm <sup>2</sup>                     | 0.56 | 0.52 | 0.51 | 0.51 | 0.51 | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.49 | 0.49 | 0.49 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.5  | 0.46 | 0.45 | 0.45 | 0.45 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.43 | 0.43 | 0.43 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

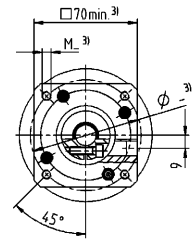
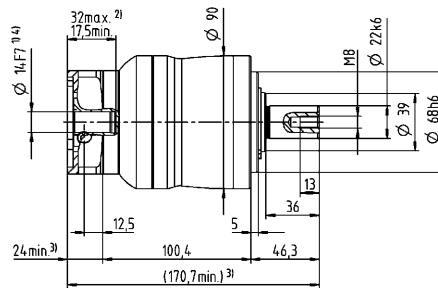
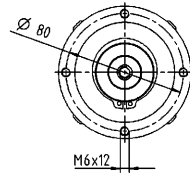
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

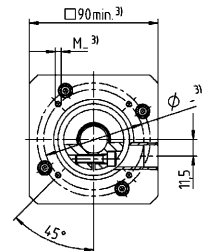
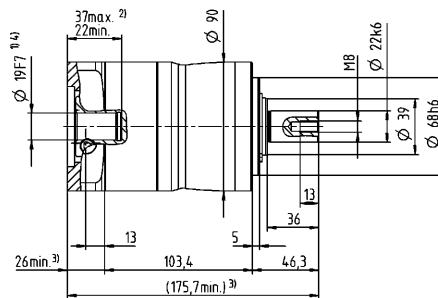
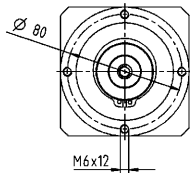
<sup>e)</sup> Valid for: Smooth shaft

## 2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



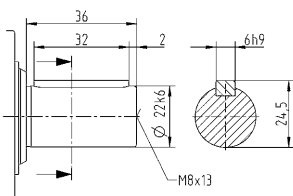
up to 19<sup>4)</sup> (E)  
clamping hub  
diameter



Motor shaft diameter [mm]

### Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NP 035 MF 1-stage

|                                                                                                            |              |       |                                       | 1-stage                               |      |      |      |      |      |     |
|------------------------------------------------------------------------------------------------------------|--------------|-------|---------------------------------------|---------------------------------------|------|------|------|------|------|-----|
| Ratio                                                                                                      | i            |       |                                       | 3                                     | 4    | 5    | 7    | 8    | 10   |     |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     |       | Nm                                    | 320                                   | 408  | 400  | 400  | 352  | 352  |     |
|                                                                                                            |              |       | in.lb                                 | 2832                                  | 3611 | 3540 | 3540 | 3115 | 3115 |     |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     |       | Nm                                    | 200                                   | 255  | 250  | 250  | 220  | 220  |     |
|                                                                                                            |              |       | in.lb                                 | 1770                                  | 2257 | 2213 | 2213 | 1947 | 1947 |     |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   |       | Nm                                    | 500                                   | 500  | 500  | 500  | 500  | 500  |     |
|                                                                                                            |              |       | in.lb                                 | 4425                                  | 4425 | 4425 | 4425 | 4425 | 4425 |     |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     |       | rpm                                   | 2300                                  | 2500 | 2600 | 2800 | 2900 | 3000 |     |
| Max. input speed                                                                                           | $n_{1Max}$   |       | rpm                                   | 6000                                  | 6000 | 6000 | 6000 | 6000 | 6000 |     |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$    |       | Nm                                    | 1                                     | 0.85 | 0.76 | 0.66 | 0.63 | 0.58 |     |
|                                                                                                            |              |       | in.lb                                 | 8.9                                   | 7.5  | 6.7  | 5.8  | 5.6  | 5.1  |     |
| Max. backlash                                                                                              | $j_t$        |       | arcmin                                | ≤ 8                                   |      |      |      |      |      |     |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    |       | Nm/arcmin                             | 22                                    | 25   | 25   | 25   | 22   | 22   |     |
|                                                                                                            |              |       | in.lb/arcmin                          | 195                                   | 221  | 221  | 221  | 195  | 195  |     |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  |       | N                                     | 4000                                  |      |      |      |      |      |     |
|                                                                                                            |              |       | lb <sub>f</sub>                       | 900                                   |      |      |      |      |      |     |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ |       | N                                     | 5000                                  |      |      |      |      |      |     |
|                                                                                                            |              |       | lb <sub>f</sub>                       | 1125                                  |      |      |      |      |      |     |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ |       | Nm                                    | 345                                   |      |      |      |      |      |     |
|                                                                                                            |              |       | in.lb                                 | 3054                                  |      |      |      |      |      |     |
| Efficiency at full load                                                                                    | $\eta$       |       | %                                     | 97                                    |      |      |      |      |      |     |
| Service life                                                                                               | $L_h$        |       | h                                     | > 20000                               |      |      |      |      |      |     |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          |       | kg                                    | 9.4                                   |      |      |      |      |      |     |
|                                                                                                            |              |       | lb <sub>m</sub>                       | 21                                    |      |      |      |      |      |     |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     |       | dB(A)                                 | ≤ 65                                  |      |      |      |      |      |     |
| Max. permitted housing temperature                                                                         |              |       | °C                                    | +90                                   |      |      |      |      |      |     |
|                                                                                                            |              |       | °F                                    | +194                                  |      |      |      |      |      |     |
| Ambient temperature                                                                                        |              |       | °C                                    | –15 to +40                            |      |      |      |      |      |     |
|                                                                                                            |              |       | °F                                    | +5 to +104                            |      |      |      |      |      |     |
| Lubrication                                                                                                |              |       |                                       | Lubricated for life                   |      |      |      |      |      |     |
| Direction of rotation                                                                                      |              |       |                                       | In- and output same direction         |      |      |      |      |      |     |
| Protection class                                                                                           |              |       |                                       | IP 64                                 |      |      |      |      |      |     |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |       |                                       | ELC-0150BA032.000-X                   |      |      |      |      |      |     |
| Bore diameter of coupling on the application side                                                          |              |       |                                       | X = 019.000 - 036.000                 |      |      |      |      |      |     |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E            | 19    | $J_1$                                 | kgcm <sup>2</sup>                     | 2.6  | 1.7  | 1.4  | 1    | 1    | 0.9 |
|                                                                                                            |              |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.3  | 1.5  | 1.2  | 0.89 | 0.89 | 0.8 |
|                                                                                                            | G            | 24    | $J_1$                                 | kgcm <sup>2</sup>                     | 3.4  | 2.5  | 2.2  | 1.8  | 1.7  | 1.7 |
|                                                                                                            |              |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 3    | 2.2  | 1.9  | 1.6  | 1.5  | 1.5 |
|                                                                                                            | H            | 28    | $J_1$                                 | kgcm <sup>2</sup>                     | 3.1  | 2.2  | 1.9  | 1.5  | 1.4  | 1.4 |
|                                                                                                            |              |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.7  | 1.9  | 1.7  | 1.3  | 1.2  | 1.2 |
|                                                                                                            | I            | 32    | $J_1$                                 | kgcm <sup>2</sup>                     | 7.2  | 6.3  | 5.9  | 5.6  | 5.5  | 5.4 |
|                                                                                                            |              |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 6.4  | 5.6  | 5.2  | 5    | 4.9  | 4.8 |
| K                                                                                                          | 38           | $J_1$ | kgcm <sup>2</sup>                     | 8.3                                   | 7.4  | 7.1  | 6.8  | 6.7  | 6.6  |     |
|                                                                                                            |              |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 7.3                                   | 6.5  | 6.3  | 6    | 5.9  | 5.8  |     |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

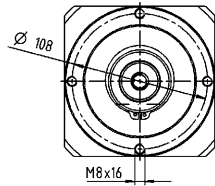
<sup>e)</sup> Valid for: Smooth shaft



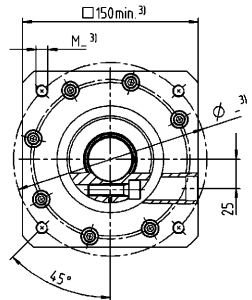
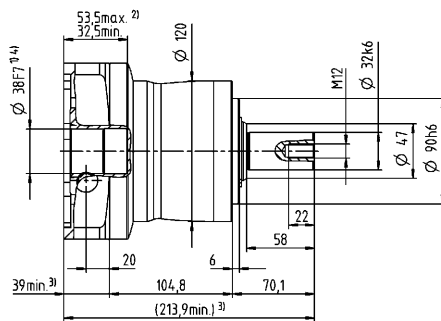
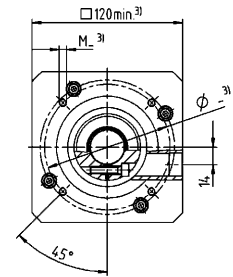
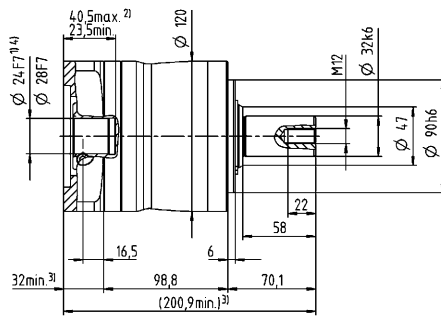
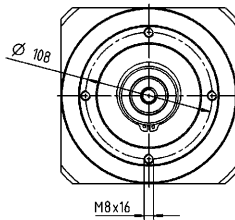
# 1-stage

Motor shaft diameter [mm]

up to 24/28<sup>4)</sup>  
(G<sup>5)</sup>/H)  
clamping hub  
diameter

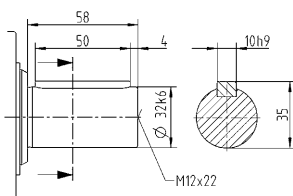


up to 38<sup>4)</sup> (K)  
clamping hub  
diameter



## Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NP 035 MF 2-stage

|                                                                                                            |              |    |                 | 2-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|----|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |    |                 | 9                                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     |    | Nm              | 320                                   | 320  | 320  | 408  | 408  | 400  | 408  | 320  | 408  | 400  | 408  | 400  | 352  | 400  | 352  |      |
|                                                                                                            |              |    | in.lb           | 2832                                  | 2832 | 2832 | 3611 | 3611 | 3540 | 3611 | 2832 | 3611 | 3540 | 3611 | 3540 | 3115 | 3540 | 3115 |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     |    | Nm              | 200                                   | 200  | 200  | 255  | 255  | 250  | 255  | 200  | 255  | 250  | 255  | 250  | 220  | 250  | 220  |      |
|                                                                                                            |              |    | in.lb           | 1770                                  | 1770 | 1770 | 2257 | 2257 | 2213 | 2257 | 1770 | 2257 | 2213 | 2257 | 2213 | 1947 | 2213 | 1947 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   |    | Nm              | 500                                   | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  |      |
|                                                                                                            |              |    | in.lb           | 4425                                  | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$     |    | rpm             | 3100                                  | 3300 | 3400 | 3300 | 3400 | 3400 | 3600 | 3900 | 3700 | 3600 | 3900 | 3900 | 3700 | 3900 | 3900 |      |
| Max. input speed                                                                                           | $n_{1Max}$   |    | rpm             | 7000                                  | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$    |    | Nm              | 0.45                                  | 0.36 | 0.3  | 0.32 | 0.27 | 0.25 | 0.22 | 0.19 | 0.2  | 0.2  | 0.18 | 0.17 | 0.17 | 0.16 | 0.15 |      |
|                                                                                                            |              |    | in.lb           | 4                                     | 3.2  | 2.7  | 2.8  | 2.4  | 2.2  | 1.9  | 1.7  | 1.8  | 1.8  | 1.6  | 1.5  | 1.5  | 1.4  | 1.3  |      |
| Max. backlash                                                                                              | $j_t$        |    | arcmin          | ≤ 10                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    |    | Nm/arcmin       | 22                                    | 22   | 22   | 25   | 25   | 25   | 25   | 22   | 25   | 25   | 25   | 25   | 22   | 25   | 22   |      |
|                                                                                                            |              |    | in.lb/arcmin    | 195                                   | 195  | 195  | 221  | 221  | 221  | 221  | 195  | 221  | 221  | 221  | 221  | 195  | 221  | 195  |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  |    | N               | 4000                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | lb <sub>f</sub> | 900                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ |    | N               | 5000                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | lb <sub>f</sub> | 1125                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ |    | Nm              | 345                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | in.lb           | 3054                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       |    | %               | 95                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        |    | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          |    | kg              | 9.8                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | lb <sub>m</sub> | 22                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     |    | dB(A)           | ≤ 61                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              |    | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              |    | °C              | –15 to +40                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | °F              | +5 to +104                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |    |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |    |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |    |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |    |                 | ELC-0150BA032.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              |    | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C            | 14 | $J_1$           | kgcm <sup>2</sup>                     | 0.61 | 0.6  | 0.6  | 0.43 | 0.42 | 0.36 | 0.37 | 0.52 | 0.38 | 0.32 | 0.36 | 0.31 | 0.26 | 0.27 | 0.24 |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.54 | 0.53 | 0.53 | 0.38 | 0.37 | 0.32 | 0.33 | 0.46 | 0.34 | 0.28 | 0.32 | 0.27 | 0.23 | 0.24 | 0.21 |
|                                                                                                            | D            | 16 | $J_1$           | kgcm <sup>2</sup>                     | 0.76 | 0.75 | 0.75 | 0.58 | 0.57 | 0.5  | 0.5  | 0.67 | 0.52 | 0.45 | 0.51 | 0.46 | 0.4  | 0.41 | 0.39 |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.67 | 0.66 | 0.66 | 0.51 | 0.5  | 0.44 | 0.44 | 0.59 | 0.46 | 0.4  | 0.45 | 0.41 | 0.35 | 0.36 | 0.35 |
|                                                                                                            | E            | 19 | $J_1$           | kgcm <sup>2</sup>                     | 0.85 | 0.83 | 0.83 | 0.67 | 0.66 | 0.59 | 0.6  | 0.75 | 0.61 | 0.55 | 0.6  | 0.54 | 0.49 | 0.5  | 0.48 |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.75 | 0.73 | 0.73 | 0.59 | 0.58 | 0.52 | 0.53 | 0.66 | 0.54 | 0.49 | 0.53 | 0.48 | 0.43 | 0.44 | 0.42 |
|                                                                                                            | G            | 24 | $J_1$           | kgcm <sup>2</sup>                     | 1.9  | 1.9  | 1.9  | 1.7  | 1.7  | 1.6  | 1.6  | 1.8  | 1.6  | 1.6  | 1.6  | 1.6  | 1.5  | 1.5  | 1.5  |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.7  | 1.7  | 1.7  | 1.5  | 1.5  | 1.4  | 1.4  | 1.6  | 1.4  | 1.4  | 1.4  | 1.4  | 1.3  | 1.3  | 1.3  |
|                                                                                                            | H            | 28 | $J_1$           | kgcm <sup>2</sup>                     | 1.6  | 1.6  | 1.6  | 1.4  | 1.4  | 1.3  | 1.3  | 1.5  | 1.4  | 1.3  | 1.3  | 1.3  | 1.2  | 1.2  | 1.2  |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.4  | 1.4  | 1.4  | 1.2  | 1.2  | 1.2  | 1.2  | 1.3  | 1.2  | 1.2  | 1.2  | 1.2  | 1.1  | 1.1  | 1.1  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

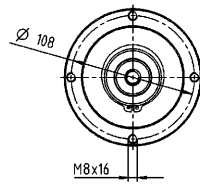
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

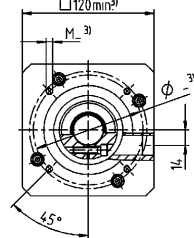
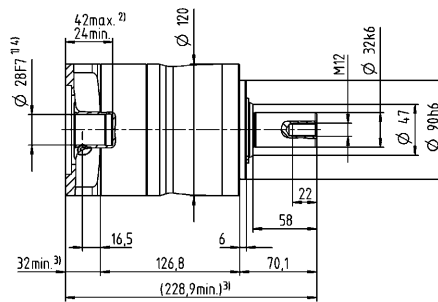
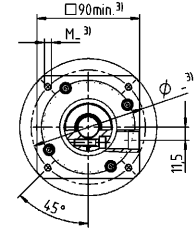
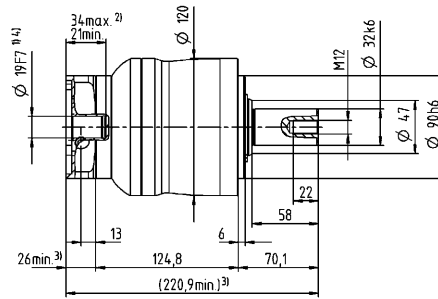
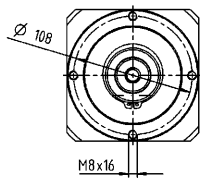
<sup>e)</sup> Valid for: Smooth shaft

## 2-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter



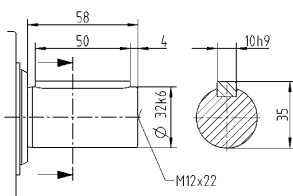
up to 28<sup>4)</sup> (H)  
clamping hub  
diameter



Motor shaft diameter [mm]

### Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NP 045 MF 1- / 2-stage

|                                                                                                            |    |              |                     | 1-stage                       |      |      | 2-stage    |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|----|--------------|---------------------|-------------------------------|------|------|------------|------|------|------|------|------|
| Ratio                                                                                                      |    | i            |                     | 5                             | 8    | 10   | 25         | 32   | 50   | 64   | 100  |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |    | $T_{2a}$     | $Nm$                | 800                           | 640  | 640  | 700        | 640  | 700  | 640  | 640  |      |
|                                                                                                            |    |              | $in.lb$             | 7081                          | 5665 | 5665 | 6196       | 5665 | 6196 | 5665 | 5665 |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |    | $T_{2B}$     | $Nm$                | 500                           | 400  | 400  | 500        | 400  | 500  | 400  | 400  |      |
|                                                                                                            |    |              | $in.lb$             | 4425                          | 3540 | 3540 | 4425       | 3540 | 4425 | 3540 | 3540 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |    | $T_{2Not}$   | $Nm$                | 1000                          | 1000 | 1000 | 1000       | 1000 | 1000 | 1000 | 1000 |      |
|                                                                                                            |    |              | $in.lb$             | 8851                          | 8851 | 8851 | 8851       | 8851 | 8851 | 8851 | 8851 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |    | $n_{1N}$     | $rpm$               | 2000                          | 2200 | 2300 | 2600       | 2500 | 3000 | 2900 | 3000 |      |
| Max. input speed                                                                                           |    | $n_{1Max}$   | $rpm$               | 4000                          | 4000 | 4000 | 6000       | 6000 | 6000 | 6000 | 6000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           |    | $T_{012}$    | $Nm$                | 2.4                           | 2    | 1.9  | 0.8        | 0.68 | 0.6  | 0.6  | 0.55 |      |
|                                                                                                            |    |              | $in.lb$             | 21                            | 18   | 17   | 7.1        | 6    | 5.3  | 5.3  | 4.9  |      |
| Max. backlash                                                                                              |    | $j_t$        | $arcmin$            | ≤ 8                           |      |      | ≤ 10       |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |    | $C_{t21}$    | $Nm/arcmin$         | 55                            | 44   | 44   | 55         | 55   | 55   | 44   | 44   |      |
|                                                                                                            |    |              | $in.lb/arcmin$      | 487                           | 389  | 389  | 487        | 487  | 487  | 389  | 389  |      |
| Max. axial force <sup>c)</sup>                                                                             |    | $F_{2AMax}$  | $N$                 | 6000                          |      |      | 6000       |      |      |      |      |      |
|                                                                                                            |    |              | $lb_f$              | 1350                          |      |      | 1350       |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |    | $F_{2QMMax}$ | $N$                 | 8000                          |      |      | 8000       |      |      |      |      |      |
|                                                                                                            |    |              | $lb_f$              | 1800                          |      |      | 1800       |      |      |      |      |      |
| Max. tilting moment                                                                                        |    | $M_{2KMax}$  | $Nm$                | 704                           |      |      | 704        |      |      |      |      |      |
|                                                                                                            |    |              | $in.lb$             | 6231                          |      |      | 6231       |      |      |      |      |      |
| Efficiency at full load                                                                                    |    | $\eta$       | %                   | 97                            |      |      | 95         |      |      |      |      |      |
| Service life                                                                                               |    | $L_h$        | $h$                 | > 20000                       |      |      | > 20000    |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |    | $m$          | $kg$                | 19                            |      |      | 20         |      |      |      |      |      |
|                                                                                                            |    |              | $lb_m$              | 42                            |      |      | 44         |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |    | $L_{PA}$     | $dB(A)$             | ≤ 68                          |      |      | ≤ 65       |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |    |              | °C                  | +90                           |      |      | +90        |      |      |      |      |      |
|                                                                                                            |    |              | °F                  | +194                          |      |      | +194       |      |      |      |      |      |
| Ambient temperature                                                                                        |    |              | °C                  | –15 to +40                    |      |      | –15 to +40 |      |      |      |      |      |
|                                                                                                            |    |              | °F                  | +5 to +104                    |      |      | +5 to +104 |      |      |      |      |      |
| Lubrication                                                                                                |    |              |                     | Lubricated for life           |      |      |            |      |      |      |      |      |
| Direction of rotation                                                                                      |    |              |                     | In- and output same direction |      |      |            |      |      |      |      |      |
| Protection class                                                                                           |    |              |                     | IP 64                         |      |      |            |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |    |              |                     | ELC-0300BA040.000-X           |      |      |            |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |    |              | $mm$                | X = 020.000 - 045.000         |      |      |            |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E  | 19           | $J_1$               | $kgcm^2$                      | –    | –    | –          | 1.2  | 1.1  | 1.1  | 0.88 | 0.82 |
|                                                                                                            |    |              |                     | $10^{-3} in.lb.s^2$           | –    | –    | –          | 1.1  | 0.97 | 0.97 | 0.78 | 0.73 |
|                                                                                                            | G  | 24           | $J_1$               | $kgcm^2$                      | –    | –    | –          | 2    | 1.9  | 1.8  | 1.7  | 1.6  |
|                                                                                                            |    |              |                     | $10^{-3} in.lb.s^2$           | –    | –    | –          | 1.8  | 1.7  | 1.6  | 1.5  | 1.4  |
|                                                                                                            | H  | 28           | $J_1$               | $kgcm^2$                      | –    | –    | –          | 1.7  | 1.6  | 1.5  | 1.4  | 1.3  |
|                                                                                                            |    |              |                     | $10^{-3} in.lb.s^2$           | –    | –    | –          | 1.5  | 1.4  | 1.3  | 1.2  | 1.2  |
|                                                                                                            | I  | 32           | $J_1$               | $kgcm^2$                      | –    | –    | –          | 5.8  | 5.7  | 5.6  | 5.4  | 5.4  |
|                                                                                                            |    |              |                     | $10^{-3} in.lb.s^2$           | –    | –    | –          | 5.1  | 5    | 5    | 4.8  | 4.8  |
| K                                                                                                          | 38 | $J_1$        | $kgcm^2$            | 8.8                           | 7.4  | 7.2  | 7          | 6.9  | 6.8  | 6.6  | 6.5  |      |
|                                                                                                            |    |              | $10^{-3} in.lb.s^2$ | 7.8                           | 6.5  | 6.4  | 6.2        | 6.1  | 6    | 5.8  | 5.8  |      |

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<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

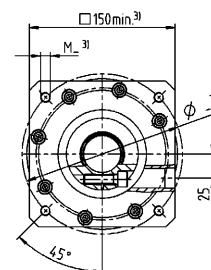
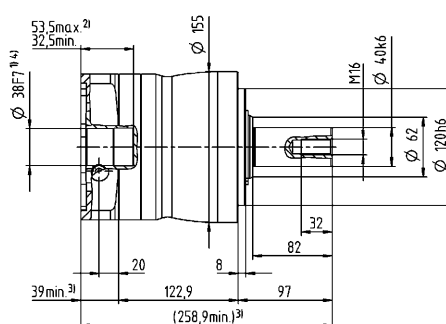
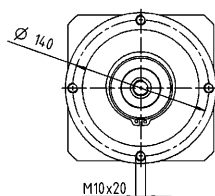
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

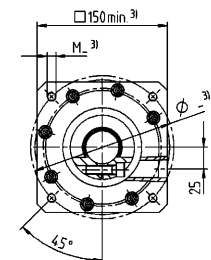
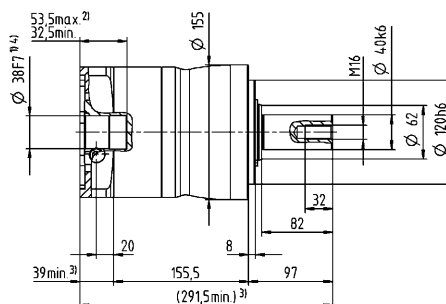
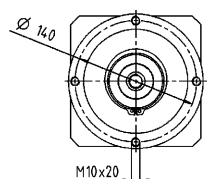
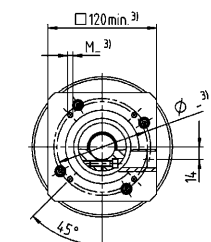
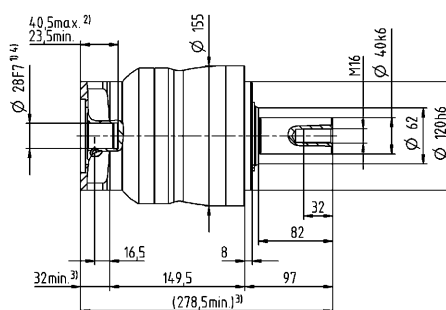
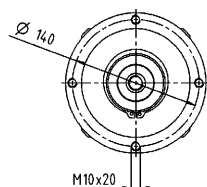
# 1-stage

up to 38<sup>4)</sup> (K)<sup>5)</sup>  
clamping hub  
diameter



# 2-stage

up to 28<sup>4)</sup> (H)<sup>5)</sup>  
clamping hub  
diameter



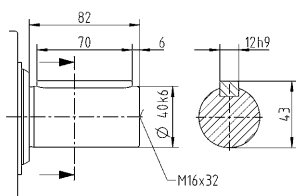
Motor shaft diameter [mm]

up to 38<sup>4)</sup> (K)  
clamping hub  
diameter

Planetary Gearboxes  
Value Line

## Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NP 015 MA 1- / 2-stage

|                                                                                                            |             |                 | 1-stage                       |                                       | 2-stage    |       |       |       |       |       |       |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|-------------------------------|---------------------------------------|------------|-------|-------|-------|-------|-------|-------|------|------|
| Ratio                                                                                                      | i           |                 | 3                             | 4                                     | 12         | 15    | 16    | 20    | 28    | 30    | 40    |      |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | Nm              | 80                            | 67                                    | 62         | 67    | 67    | 67    | 67    | 62    | 67    |      |      |
|                                                                                                            |             | in.lb           | 708                           | 593                                   | 549        | 593   | 593   | 593   | 593   | 549   | 593   |      |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | Nm              | 55                            | 42                                    | 39         | 42    | 42    | 42    | 42    | 39    | 42    |      |      |
|                                                                                                            |             | in.lb           | 487                           | 372                                   | 345        | 372   | 372   | 372   | 372   | 345   | 372   |      |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 80                            | 80                                    | 80         | 80    | 80    | 80    | 80    | 80    | 80    |      |      |
|                                                                                                            |             | in.lb           | 708                           | 708                                   | 708        | 708   | 708   | 708   | 708   | 708   | 708   |      |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 3300                          | 3500                                  | 3800       | 4000  | 3800  | 4000  | 4300  | 4600  | 4600  |      |      |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 8000                          | 8000                                  | 10000      | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$   | Nm              | 0.24                          | 0.2                                   | 0.13       | 0.11  | 0.12  | 0.11  | 0.09  | 0.09  | 0.08  |      |      |
|                                                                                                            |             | in.lb           | 2.1                           | 1.8                                   | 1.2        | 0.97  | 1.1   | 0.97  | 0.8   | 0.8   | 0.71  |      |      |
| Max. backlash                                                                                              | $j_t$       | arcmin          | ≤ 8                           |                                       | ≤ 10       |       |       |       |       |       |       |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 4                             | 4                                     | 4          | 4     | 4     | 4     | 4     | 4     | 4     |      |      |
|                                                                                                            |             | in.lb/arcmin    | 35                            | 35                                    | 35         | 35    | 35    | 35    | 35    | 35    | 35    |      |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 1550                          |                                       | 1550       |       |       |       |       |       |       |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 349                           |                                       | 349        |       |       |       |       |       |       |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | N               | 1700                          |                                       | 1700       |       |       |       |       |       |       |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 383                           |                                       | 383        |       |       |       |       |       |       |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 72                            |                                       | 72         |       |       |       |       |       |       |      |      |
|                                                                                                            |             | in.lb           | 637                           |                                       | 637        |       |       |       |       |       |       |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 97                            |                                       | 95         |       |       |       |       |       |       |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                       |                                       | > 20000    |       |       |       |       |       |       |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 1.9                           |                                       | 1.9        |       |       |       |       |       |       |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 4.2                           |                                       | 4.2        |       |       |       |       |       |       |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | dB(A)           | ≤ 59                          |                                       | ≤ 58       |       |       |       |       |       |       |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                           |                                       | +90        |       |       |       |       |       |       |      |      |
|                                                                                                            |             | °F              | +194                          |                                       | +194       |       |       |       |       |       |       |      |      |
| Ambient temperature                                                                                        |             | °C              | –15 to +40                    |                                       | –15 to +40 |       |       |       |       |       |       |      |      |
|                                                                                                            |             | °F              | +5 to +104                    |                                       | +5 to +104 |       |       |       |       |       |       |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life           |                                       |            |       |       |       |       |       |       |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction |                                       |            |       |       |       |       |       |       |      |      |
| Protection class                                                                                           |             |                 | IP 64                         |                                       |            |       |       |       |       |       |       |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 | ELC-0060BA016.000-X           |                                       |            |       |       |       |       |       |       |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             | mm              | X = 012.000 - 032.000         |                                       |            |       |       |       |       |       |       |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | Z           | 8               | $J_1$                         | kgcm <sup>2</sup>                     | –          | –     | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 |      |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –          | –     | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 | 0.03 |
|                                                                                                            | A           | 9               | $J_1$                         | kgcm <sup>2</sup>                     | 0.22       | 0.18  | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 |      |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.19       | 0.16  | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 | 0.03 |
|                                                                                                            | B           | 11              | $J_1$                         | kgcm <sup>2</sup>                     | 0.24       | 0.19  | 0.06  | 0.05  | 0.05  | 0.05  | 0.05  | 0.05 |      |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.21       | 0.17  | 0.05  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04 | 0.04 |
|                                                                                                            | C           | 14              | $J_1$                         | kgcm <sup>2</sup>                     | 0.32       | 0.27  | 0.14  | 0.14  | 0.14  | 0.13  | 0.13  | 0.14 |      |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.28       | 0.24  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12 | 0.12 |
|                                                                                                            | D           | 16              | $J_1$                         | kgcm <sup>2</sup>                     | 0.45       | 0.4   | –     | –     | –     | –     | –     | –    | –    |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.4        | 0.35  | –     | –     | –     | –     | –     | –    | –    |
|                                                                                                            | E           | 19              | $J_1$                         | kgcm <sup>2</sup>                     | 0.53       | 0.48  | –     | –     | –     | –     | –     | –    | –    |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.47       | 0.42  | –     | –     | –     | –     | –     | –    | –    |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

a) Valid for torque transmission only

b) Valid for standard clamping hub diameter

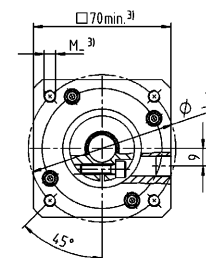
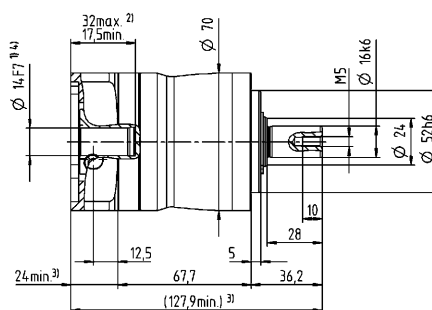
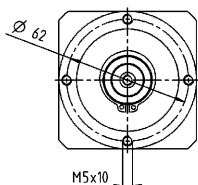
c) Refers to center of the output shaft or flange

d) Please reduce input speed at higher ambient temperatures

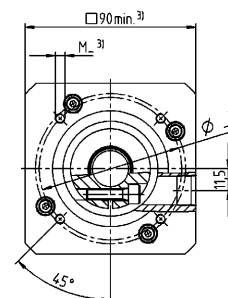
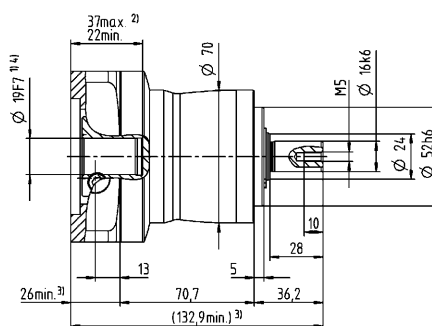
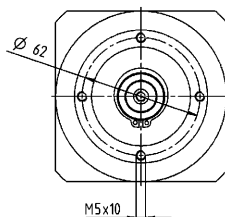
e) Valid for: Smooth shaft

# 1-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter

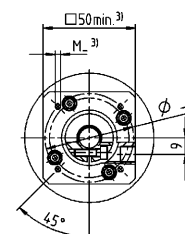
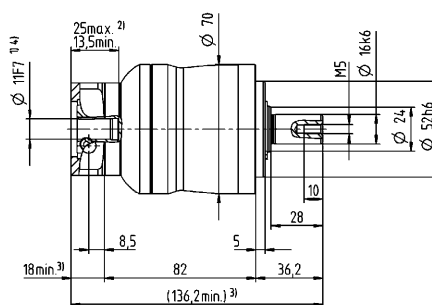
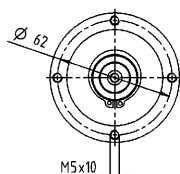


up to 19<sup>4)</sup> (E)  
clamping hub  
diameter

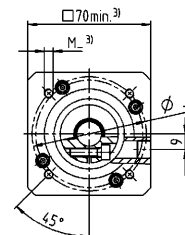
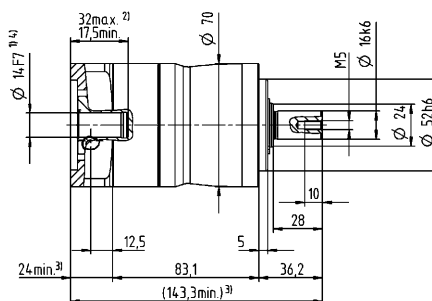
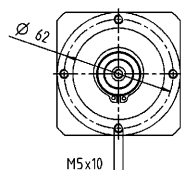


# 2-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



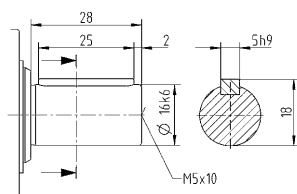
up to 14<sup>4)</sup> (C)  
clamping hub  
diameter



Motor shaft diameter [mm]

## Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NP 025 MA 1- / 2-stage

|                                                                                                            |             |                       | 1-stage                       |                                            | 2-stage    |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------------|-------------------------------|--------------------------------------------|------------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                       | 3                             | 4                                          | 9          | 12   | 15   | 16   | 20   | 28   | 30   | 40   |      |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | <i>Nm</i>             | 185                           | 185                                        | 185        | 185  | 185  | 185  | 185  | 185  | 168  | 185  |      |      |
|                                                                                                            |             | <i>in.lb</i>          | 1637                          | 1637                                       | 1637       | 1637 | 1637 | 1637 | 1637 | 1637 | 1637 | 1487 | 1637 |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | <i>Nm</i>             | 125                           | 115                                        | 125        | 125  | 120  | 115  | 115  | 115  | 105  | 115  |      |      |
|                                                                                                            |             | <i>in.lb</i>          | 1106                          | 1018                                       | 1106       | 1106 | 1062 | 1018 | 1018 | 1018 | 929  | 1018 |      |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | <i>Nm</i>             | 190                           | 190                                        | 190        | 190  | 190  | 190  | 190  | 190  | 190  | 190  |      |      |
|                                                                                                            |             | <i>in.lb</i>          | 1682                          | 1682                                       | 1682       | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | <i>rpm</i>            | 3100                          | 3300                                       | 3300       | 3500 | 3700 | 3500 | 3700 | 4000 | 4300 | 4300 |      |      |
| Max. input speed                                                                                           | $n_{1Max}$  | <i>rpm</i>            | 7000                          | 7000                                       | 8000       | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$   | <i>Nm</i>             | 0.38                          | 0.31                                       | 0.22       | 0.18 | 0.16 | 0.16 | 0.15 | 0.12 | 0.12 | 0.11 |      |      |
|                                                                                                            |             | <i>in.lb</i>          | 3.4                           | 2.7                                        | 1.9        | 1.6  | 1.4  | 1.4  | 1.3  | 1.1  | 1.1  | 0.97 |      |      |
| Max. backlash                                                                                              | $j_t$       | <i>arcmin</i>         | ≤ 8                           |                                            | ≤ 10       |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | <i>Nm/arcmin</i>      | 12                            | 12                                         | 12         | 12   | 12   | 12   | 12   | 10   | 12   | 12   |      |      |
|                                                                                                            |             | <i>in.lb/arcmin</i>   | 106                           | 106                                        | 106        | 106  | 106  | 106  | 106  | 89   | 106  | 106  |      |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | <i>N</i>              | 1900                          |                                            | 1900       |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | <i>lb<sub>f</sub></i> | 428                           |                                            | 428        |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | <i>N</i>              | 2800                          |                                            | 2800       |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | <i>lb<sub>f</sub></i> | 630                           |                                            | 630        |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | <i>Nm</i>             | 137                           |                                            | 137        |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | <i>in.lb</i>          | 1213                          |                                            | 1213       |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %                     | 97                            |                                            | 95         |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | <i>h</i>              | > 20000                       |                                            | > 20000    |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | <i>kg</i>             | 3.8                           |                                            | 4.1        |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | <i>lb<sub>m</sub></i> | 8.4                           |                                            | 9.1        |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | <i>dB(A)</i>          | ≤ 61                          |                                            | ≤ 59       |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C                    | +90                           |                                            | +90        |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | °F                    | +194                          |                                            | +194       |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |             | °C                    | −15 to +40                    |                                            | −15 to +40 |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | °F                    | +5 to +104                    |                                            | +5 to +104 |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |             |                       | Lubricated for life           |                                            |            |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                       | In- and output same direction |                                            |            |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |             |                       | IP 64                         |                                            |            |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                       | ELC-0060BA022.000-X           |                                            |            |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             | <i>mm</i>             | X = 012.000 - 032.000         |                                            |            |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | A           | 9                     | $J_1$                         | <i>kgcm<sup>2</sup></i>                    | –          | –    | 0.26 | 0.22 | 0.21 | 0.21 | 0.2  | 0.19 | 0.19 | 0.19 |
|                                                                                                            |             |                       |                               | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | –          | –    | 0.23 | 0.19 | 0.19 | 0.19 | 0.18 | 0.17 | 0.17 | 0.17 |
|                                                                                                            | B           | 11                    | $J_1$                         | <i>kgcm<sup>2</sup></i>                    | –          | –    | 0.28 | 0.24 | 0.23 | 0.23 | 0.22 | 0.21 | 0.21 | 0.21 |
|                                                                                                            |             |                       |                               | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | –          | –    | 0.25 | 0.21 | 0.2  | 0.2  | 0.19 | 0.19 | 0.19 | 0.19 |
|                                                                                                            | C           | 14                    | $J_1$                         | <i>kgcm<sup>2</sup></i>                    | 0.57       | 0.46 | 0.35 | 0.31 | 0.3  | 0.3  | 0.3  | 0.29 | 0.28 | 0.28 |
|                                                                                                            |             |                       |                               | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 0.5        | 0.41 | 0.31 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.25 | 0.25 |
|                                                                                                            | D           | 16                    | $J_1$                         | <i>kgcm<sup>2</sup></i>                    | 0.71       | 0.61 | 0.48 | 0.44 | 0.43 | 0.43 | 0.42 | 0.41 | 0.41 | 0.41 |
|                                                                                                            |             |                       |                               | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 0.63       | 0.54 | 0.42 | 0.39 | 0.38 | 0.38 | 0.37 | 0.36 | 0.36 | 0.36 |
|                                                                                                            | E           | 19                    | $J_1$                         | <i>kgcm<sup>2</sup></i>                    | 0.8        | 0.7  | 0.56 | 0.52 | 0.51 | 0.51 | 0.51 | 0.5  | 0.5  | 0.49 |
|                                                                                                            |             |                       |                               | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 0.71       | 0.62 | 0.5  | 0.46 | 0.45 | 0.45 | 0.45 | 0.44 | 0.44 | 0.43 |
|                                                                                                            | G           | 24                    | $J_1$                         | <i>kgcm<sup>2</sup></i>                    | 1.8        | 1.7  | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            |             |                       |                               | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 1.6        | 1.5  | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            | H           | 28                    | $J_1$                         | <i>kgcm<sup>2</sup></i>                    | 1.5        | 1.4  | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            |             |                       |                               | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 1.3        | 1.2  | –    | –    | –    | –    | –    | –    | –    | –    |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

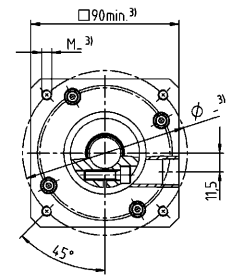
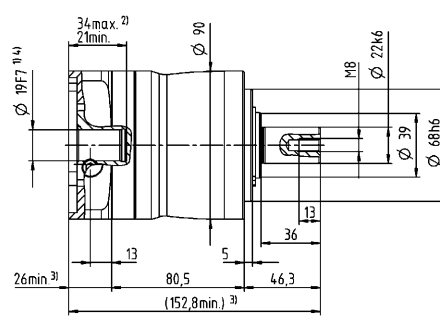
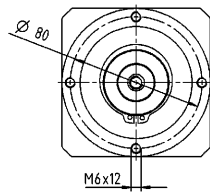
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

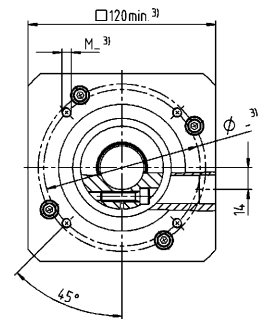
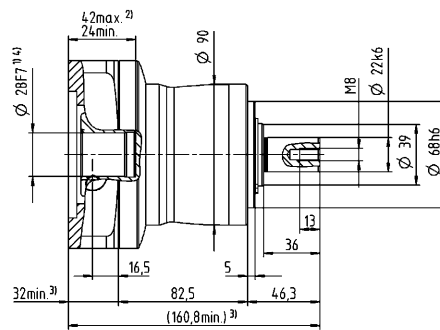
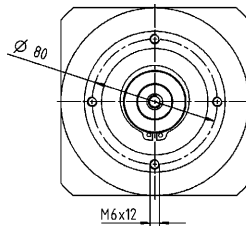


# 1-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter

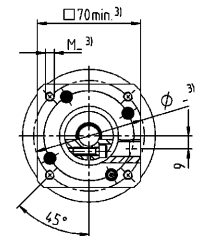
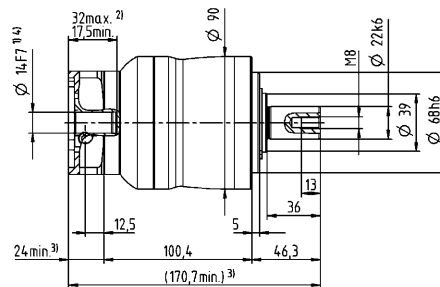
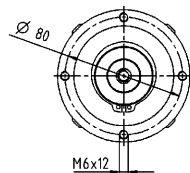


up to 28<sup>4)</sup> (H)  
clamping hub  
diameter

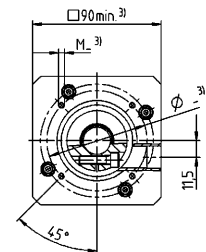
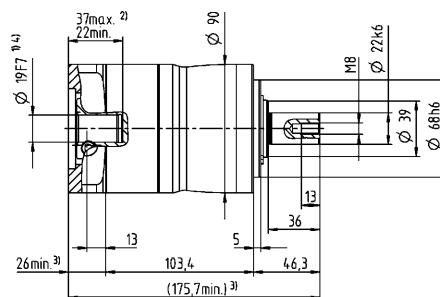
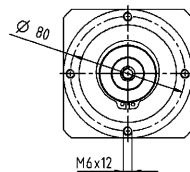


# 2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



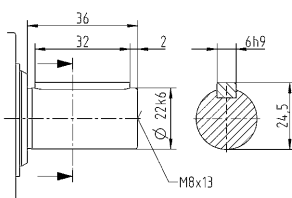
up to 19<sup>4)</sup> (E)  
clamping hub  
diameter



Motor shaft diameter [mm]

## Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NP 035 MA 1- / 2-stage

|                                                                                                            |              |    |                               | 1-stage             |      | 2-stage    |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|----|-------------------------------|---------------------|------|------------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |    |                               | 3                   | 4    | 9          | 12   | 15   | 16   | 20   | 28   | 30   | 40   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     |    | $Nm$                          | 480                 | 480  | 480        | 480  | 480  | 480  | 480  | 480  | 432  | 480  |      |
|                                                                                                            |              |    | $in.lb$                       | 4248                | 4248 | 4248       | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 3824 | 4248 |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     |    | $Nm$                          | 305                 | 305  | 305        | 305  | 300  | 305  | 305  | 305  | 270  | 305  |      |
|                                                                                                            |              |    | $in.lb$                       | 2699                | 2699 | 2699       | 2699 | 2655 | 2699 | 2699 | 2699 | 2699 | 2390 | 2699 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   |    | $Nm$                          | 500                 | 500  | 500        | 500  | 500  | 500  | 500  | 500  | 500  | 500  |      |
|                                                                                                            |              |    | $in.lb$                       | 4425                | 4425 | 4425       | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     |    | $rpm$                         | 2300                | 2500 | 3100       | 3300 | 3400 | 3300 | 3400 | 3600 | 3900 | 3900 |      |
| Max. input speed                                                                                           | $n_{1Max}$   |    | $rpm$                         | 6000                | 6000 | 7000       | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$    |    | $Nm$                          | 1                   | 0.85 | 0.45       | 0.36 | 0.3  | 0.32 | 0.27 | 0.22 | 0.19 | 0.18 |      |
|                                                                                                            |              |    | $in.lb$                       | 8.9                 | 7.5  | 4          | 3.2  | 2.7  | 2.8  | 2.4  | 1.9  | 1.7  | 1.6  |      |
| Max. backlash                                                                                              | $j_t$        |    | $arcmin$                      | ≤ 8                 |      | ≤ 10       |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    |    | $Nm/arcmin$                   | 30                  | 30   | 30         | 30   | 30   | 30   | 30   | 30   | 30   | 30   |      |
|                                                                                                            |              |    | $in.lb/arcmin$                | 266                 | 266  | 266        | 266  | 266  | 266  | 266  | 266  | 266  | 266  | 266  |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  |    | $N$                           | 4000                |      | 4000       |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | $lb_f$                        | 900                 |      | 900        |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ |    | $N$                           | 5000                |      | 5000       |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | $lb_f$                        | 1125                |      | 1125       |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$  |    | $Nm$                          | 345                 |      | 345        |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | $in.lb$                       | 3054                |      | 3054       |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       |    | %                             | 97                  |      | 95         |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        |    | $h$                           | > 20000             |      | > 20000    |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          |    | $kg$                          | 9.4                 |      | 9.8        |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | $lb_m$                        | 21                  |      | 22         |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     |    | $dB(A)$                       | ≤ 65                |      | ≤ 61       |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              |    | °C                            | +90                 |      | +90        |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | °F                            | +194                |      | +194       |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              |    | °C                            | –15 to +40          |      | –15 to +40 |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | °F                            | +5 to +104          |      | +5 to +104 |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |    | Lubricated for life           |                     |      |            |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |    | In- and output same direction |                     |      |            |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |    | IP 64                         |                     |      |            |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |    | ELC-0150BA032.000-X           |                     |      |            |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              |    | X = 019.000 - 036.000         |                     |      |            |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C            | 14 | $J_1$                         | $kgcm^2$            | –    | –          | 0.61 | 0.6  | 0.6  | 0.43 | 0.42 | 0.37 | 0.52 | 0.36 |
|                                                                                                            |              |    |                               | $10^{-3} in.lb.s^2$ | –    | –          | 0.54 | 0.53 | 0.53 | 0.38 | 0.37 | 0.33 | 0.46 | 0.32 |
|                                                                                                            | D            | 16 | $J_1$                         | $kgcm^2$            | –    | –          | 0.76 | 0.75 | 0.75 | 0.58 | 0.57 | 0.5  | 0.67 | 0.51 |
|                                                                                                            |              |    |                               | $10^{-3} in.lb.s^2$ | –    | –          | 0.67 | 0.66 | 0.66 | 0.51 | 0.5  | 0.44 | 0.59 | 0.45 |
|                                                                                                            | E            | 19 | $J_1$                         | $kgcm^2$            | 2.6  | 1.7        | 0.85 | 0.83 | 0.83 | 0.67 | 0.66 | 0.6  | 0.75 | 0.6  |
|                                                                                                            |              |    |                               | $10^{-3} in.lb.s^2$ | 2.3  | 1.5        | 0.75 | 0.73 | 0.73 | 0.59 | 0.58 | 0.53 | 0.66 | 0.53 |
|                                                                                                            | G            | 24 | $J_1$                         | $kgcm^2$            | 3.4  | 2.5        | 1.9  | 1.9  | 1.9  | 1.7  | 1.7  | 1.6  | 1.8  | 1.6  |
|                                                                                                            |              |    |                               | $10^{-3} in.lb.s^2$ | 3    | 2.2        | 1.7  | 1.7  | 1.7  | 1.5  | 1.5  | 1.4  | 1.6  | 1.4  |
|                                                                                                            | H            | 28 | $J_1$                         | $kgcm^2$            | 3.1  | 2.2        | 1.6  | 1.6  | 1.6  | 1.4  | 1.4  | 1.3  | 0.5  | 1.3  |
|                                                                                                            |              |    |                               | $10^{-3} in.lb.s^2$ | 2.7  | 1.9        | 1.4  | 1.4  | 1.4  | 1.2  | 1.2  | 1.2  | 0.44 | 1.2  |
|                                                                                                            | I            | 32 | $J_1$                         | $kgcm^2$            | 7.2  | 6.3        | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            |              |    |                               | $10^{-3} in.lb.s^2$ | 6.4  | 5.6        | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            | K            | 38 | $J_1$                         | $kgcm^2$            | 8.3  | 7.4        | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            |              |    |                               | $10^{-3} in.lb.s^2$ | 7.3  | 6.5        | –    | –    | –    | –    | –    | –    | –    | –    |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

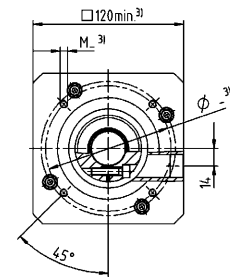
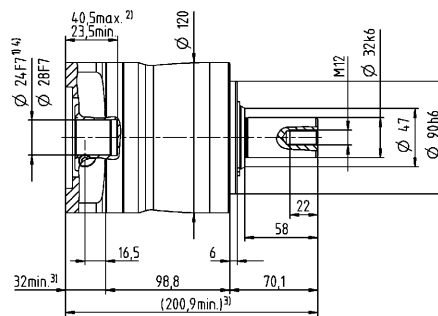
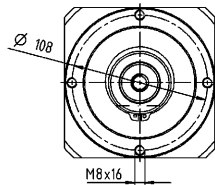
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

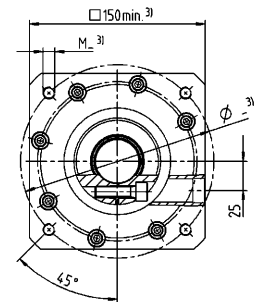
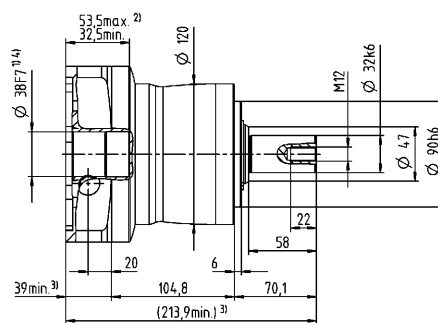
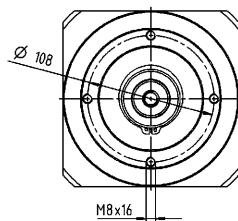
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 24/28<sup>4)</sup>  
(G<sup>5)</sup>/H)  
clamping hub  
diameter

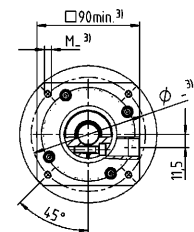
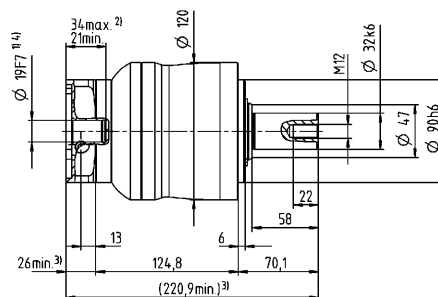
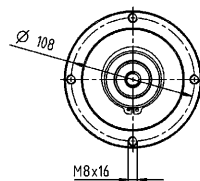


up to 38<sup>4)</sup> (K)  
clamping hub  
diameter

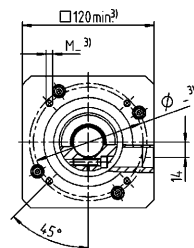
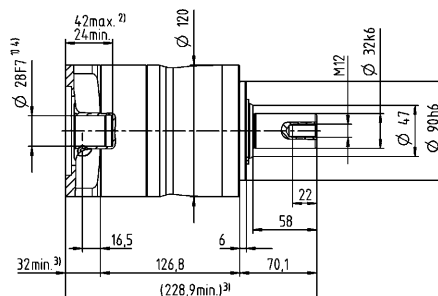
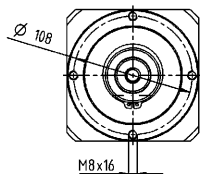


# 2-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter



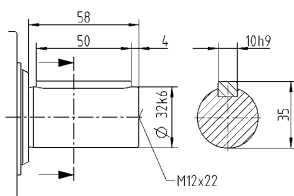
up to 28<sup>4)</sup> (H)  
clamping hub  
diameter



Motor shaft diameter [mm]

## Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPL 015 MF 1-stage

|                                                                                                            |             |    |                 | 1-stage                               |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|----|-----------------|---------------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                      | i           |    |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    |    | Nm              | 51                                    | 56   | 64   | 64   | 56   | 56   |      |
|                                                                                                            |             |    | in.lb           | 451                                   | 496  | 566  | 566  | 496  | 496  |      |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    |    | Nm              | 32                                    | 35   | 40   | 40   | 35   | 35   |      |
|                                                                                                            |             |    | in.lb           | 283                                   | 310  | 354  | 354  | 310  | 310  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  |    | Nm              | 80                                    | 80   | 80   | 80   | 80   | 80   |      |
|                                                                                                            |             |    | in.lb           | 708                                   | 708  | 708  | 708  | 708  | 708  |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    |    | rpm             | 2900                                  | 3100 | 3300 | 3600 | 3600 | 3800 |      |
| Max. input speed                                                                                           | $n_{1Max}$  |    | rpm             | 8000                                  | 8000 | 8000 | 8000 | 8000 | 8000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$   |    | Nm              | 0.92                                  | 0.74 | 0.62 | 0.51 | 0.47 | 0.41 |      |
|                                                                                                            |             |    | in.lb           | 8.1                                   | 6.5  | 5.5  | 4.5  | 4.2  | 3.6  |      |
| Max. backlash                                                                                              | $j_t$       |    | arcmin          | ≤ 8                                   |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   |    | Nm/arcmin       | 3.3                                   | 3.3  | 3.3  | 3.3  | 2.8  | 2.8  |      |
|                                                                                                            |             |    | in.lb/arcmin    | 29                                    | 29   | 29   | 29   | 25   | 25   |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ |    | N               | 2400                                  |      |      |      |      |      |      |
|                                                                                                            |             |    | lb <sub>f</sub> | 540                                   |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ |    | N               | 2800                                  |      |      |      |      |      |      |
|                                                                                                            |             |    | lb <sub>f</sub> | 630                                   |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ |    | Nm              | 152                                   |      |      |      |      |      |      |
|                                                                                                            |             |    | in.lb           | 1345                                  |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      |    | %               | 97                                    |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$       |    | h               | > 20000                               |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         |    | kg              | 1.9                                   |      |      |      |      |      |      |
|                                                                                                            |             |    | lb <sub>m</sub> | 4.2                                   |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    |    | dB(A)           | ≤ 59                                  |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             |    | °C              | +90                                   |      |      |      |      |      |      |
|                                                                                                            |             |    | °F              | +194                                  |      |      |      |      |      |      |
| Ambient temperature                                                                                        |             |    | °C              | –15 to +40                            |      |      |      |      |      |      |
|                                                                                                            |             |    | °F              | +5 to +104                            |      |      |      |      |      |      |
| Lubrication                                                                                                |             |    |                 | Lubricated for life                   |      |      |      |      |      |      |
| Direction of rotation                                                                                      |             |    |                 | In- and output same direction         |      |      |      |      |      |      |
| Protection class                                                                                           |             |    |                 | IP 65                                 |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |    |                 | ELC-0060BA016.000-X                   |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             |    | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | A           | 9  | $J_1$           | kgcm <sup>2</sup>                     | 0.25 | 0.19 | 0.17 | 0.14 | 0.14 | 0.13 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.22 | 0.17 | 0.15 | 0.12 | 0.12 | 0.12 |
|                                                                                                            | B           | 11 | $J_1$           | kgcm <sup>2</sup>                     | 0.26 | 0.21 | 0.18 | 0.16 | 0.16 | 0.15 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.23 | 0.19 | 0.16 | 0.14 | 0.14 | 0.13 |
|                                                                                                            | C           | 14 | $J_1$           | kgcm <sup>2</sup>                     | 0.34 | 0.28 | 0.26 | 0.24 | 0.23 | 0.23 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.3  | 0.25 | 0.23 | 0.21 | 0.2  | 0.2  |
|                                                                                                            | D           | 16 | $J_1$           | kgcm <sup>2</sup>                     | 0.47 | 0.41 | 0.39 | 0.36 | 0.36 | 0.35 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.42 | 0.36 | 0.35 | 0.32 | 0.32 | 0.31 |
|                                                                                                            | E           | 19 | $J_1$           | kgcm <sup>2</sup>                     | 0.55 | 0.49 | 0.47 | 0.45 | 0.44 | 0.44 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.49 | 0.43 | 0.42 | 0.4  | 0.39 | 0.39 |

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<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

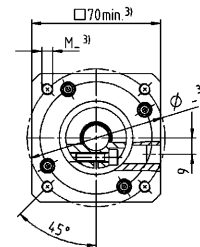
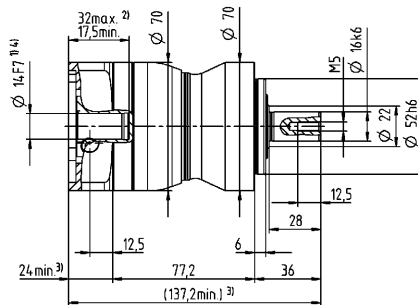
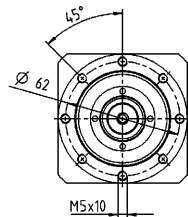
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

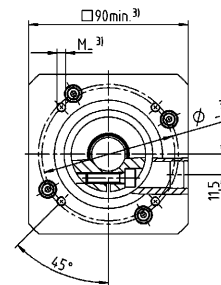
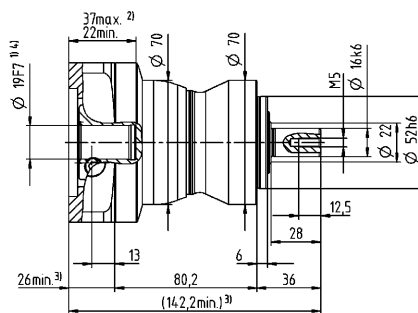
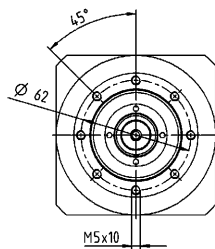
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



up to 19<sup>4)</sup> (E)  
clamping hub  
diameter



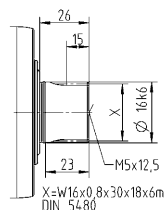
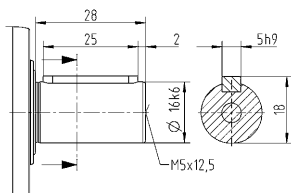
Motor shaft diameter [mm]

Planetary Gearboxes  
Value Line

## Other output variants

Shaft with key

Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPL 015 MF 2-stage

|                                                                                                                      |              |                 | 2-stage                       |                     |       |       |       |       |       |       |       |       |       |       |       |       |
|----------------------------------------------------------------------------------------------------------------------|--------------|-----------------|-------------------------------|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ratio                                                                                                                | i            |                 | 12                            | 15                  | 16    | 20    | 25    | 28    | 30    | 32    | 35    | 40    | 50    | 64    | 70    | 100   |
| Max. torque <sup>a) b) e)</sup>                                                                                      | $T_{2a}$     | Nm              | 51                            | 51                  | 56    | 56    | 64    | 56    | 51    | 56    | 64    | 56    | 64    | 56    | 64    | 56    |
|                                                                                                                      |              | in.lb           | 451                           | 451                 | 496   | 496   | 566   | 496   | 451   | 496   | 566   | 496   | 566   | 496   | 566   | 496   |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                                | $T_{2B}$     | Nm              | 32                            | 32                  | 35    | 35    | 40    | 35    | 32    | 35    | 40    | 35    | 40    | 35    | 40    | 35    |
|                                                                                                                      |              | in.lb           | 283                           | 283                 | 310   | 310   | 354   | 310   | 283   | 310   | 354   | 310   | 354   | 310   | 354   | 310   |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox)           | $T_{2Not}$   | Nm              | 80                            | 80                  | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    |
|                                                                                                                      |              | in.lb           | 708                           | 708                 | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                           | $n_{1N}$     | rpm             | 3800                          | 4000                | 3800  | 4000  | 4000  | 4300  | 4600  | 4400  | 4300  | 4600  | 4600  | 4400  | 4600  | 4600  |
| Max. input speed                                                                                                     | $n_{1Max}$   | rpm             | 10000                         | 10000               | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)                       | $T_{012}$    | Nm              | 0.34                          | 0.29                | 0.29  | 0.25  | 0.23  | 0.21  | 0.21  | 0.2   | 0.2   | 0.19  | 0.17  | 0.17  | 0.16  | 0.15  |
|                                                                                                                      |              | in.lb           | 3                             | 2.6                 | 2.6   | 2.2   | 2     | 1.9   | 1.9   | 1.8   | 1.8   | 1.7   | 1.5   | 1.5   | 1.4   | 1.3   |
| Max. backlash                                                                                                        | $j_t$        | arcmin          | $\leq 10$                     |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Torsional rigidity <sup>b)</sup>                                                                                     | $C_{t21}$    | Nm/arcmin       | 3.3                           | 3.3                 | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 2.8   | 3.3   | 2.8   |
|                                                                                                                      |              | in.lb/arcmin    | 29                            | 29                  | 29    | 29    | 29    | 29    | 29    | 29    | 29    | 29    | 29    | 25    | 29    | 25    |
| Max. axial force <sup>c)</sup>                                                                                       | $F_{2AMax}$  | N               | 2400                          |                     |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                                      |              | lb <sub>f</sub> | 540                           |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Max. lateral force <sup>c)</sup>                                                                                     | $F_{2QMMax}$ | N               | 2800                          |                     |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                                      |              | lb <sub>f</sub> | 630                           |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Max. tilting moment                                                                                                  | $M_{2KMMax}$ | Nm              | 152                           |                     |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                                      |              | in.lb           | 1345                          |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Efficiency at full load                                                                                              | $\eta$       | %               | 95                            |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Service life                                                                                                         | $L_h$        | h               | > 20000                       |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Weight<br>(incl. standard adapter plate)                                                                             | $m$          | kg              | 2                             |                     |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                                      |              | lb <sub>m</sub> | 4.4                           |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> ) | $L_{PA}$     | dB(A)           | $\leq 58$                     |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Max. permitted housing temperature                                                                                   |              | °C              | +90                           |                     |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                                      |              | °F              | +194                          |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Ambient temperature                                                                                                  |              | °C              | -15 to +40                    |                     |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                                      |              | °F              | +5 to +104                    |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Lubrication                                                                                                          |              |                 | Lubricated for life           |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Direction of rotation                                                                                                |              |                 | In- and output same direction |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Protection class                                                                                                     |              |                 | IP 65                         |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex <sup>®</sup> )                          |              |                 | ELC-0060BA016.000-X           |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Bore diameter of coupling<br>on the application side                                                                 |              | mm              | X = 012.000 - 032.000         |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                                       | Z            | 8               | $J_1$                         | $kgcm^2$            | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                                      |              |                 |                               | $10^{-3} in.lb.s^2$ | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                                      | A            | 9               | $J_1$                         | $kgcm^2$            | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                                      |              |                 |                               | $10^{-3} in.lb.s^2$ | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                                      | B            | 11              | $J_1$                         | $kgcm^2$            | 0.06  | 0.06  | 0.05  | 0.05  | 0.05  | 0.05  | 0.05  | 0.04  | 0.05  | 0.04  | 0.04  | 0.04  |
|                                                                                                                      |              |                 |                               | $10^{-3} in.lb.s^2$ | 0.05  | 0.05  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  |
|                                                                                                                      | C            | 14              | $J_1$                         | $kgcm^2$            | 0.14  | 0.14  | 0.14  | 0.13  | 0.13  | 0.13  | 0.14  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13  |
|                                                                                                                      |              |                 |                               | $10^{-3} in.lb.s^2$ | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  |

Please use our sizing software cymex<sup>®</sup> for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

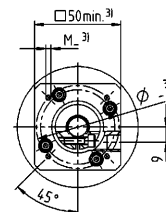
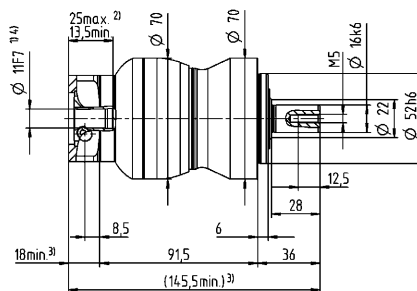
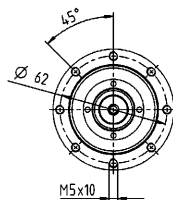
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

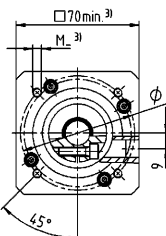
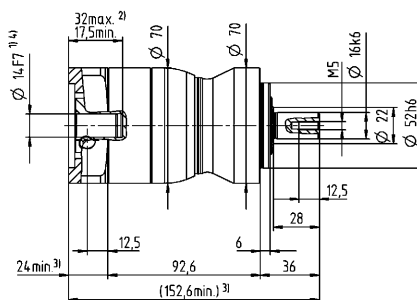
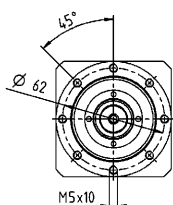
<sup>e)</sup> Valid for: Smooth shaft

## 2-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



up to 14<sup>4)</sup> (C)  
clamping hub  
diameter



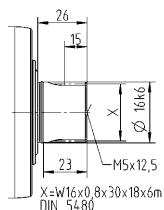
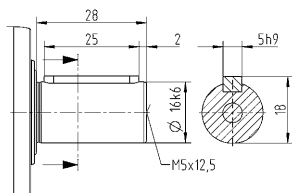
Motor shaft diameter [mm]

Planetary Gearboxes  
Value Line

### Other output variants

Shaft with key

Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPL 025 MF 1-stage

|                                                                                                            |             |    |       | 1-stage                               |                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|----|-------|---------------------------------------|-------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i           |    |       |                                       | 3                             | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    |    |       | Nm                                    | 128                           | 152  | 160  | 160  | 144  | 144  |
|                                                                                                            |             |    |       | in.lb                                 | 1133                          | 1345 | 1416 | 1416 | 1275 | 1275 |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    |    |       | Nm                                    | 80                            | 95   | 100  | 100  | 90   | 90   |
|                                                                                                            |             |    |       | in.lb                                 | 708                           | 841  | 885  | 885  | 797  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  |    |       | Nm                                    | 190                           | 190  | 190  | 190  | 190  | 190  |
|                                                                                                            |             |    |       | in.lb                                 | 1682                          | 1682 | 1682 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    |    |       | rpm                                   | 2700                          | 2900 | 3000 | 3200 | 3300 | 3500 |
| Max. input speed                                                                                           | $n_{1Max}$  |    |       | rpm                                   | 7000                          | 7000 | 7000 | 7000 | 7000 | 7000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$   |    |       | Nm                                    | 1.8                           | 1.5  | 1.3  | 1.1  | 1    | 0.94 |
|                                                                                                            |             |    |       | in.lb                                 | 16                            | 13   | 12   | 9.7  | 8.9  | 8.3  |
| Max. backlash                                                                                              | $j_t$       |    |       | arcmin                                | ≤ 8                           |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   |    |       | Nm/arcmin                             | 9.5                           | 9.5  | 9.5  | 9.5  | 8.5  | 8.5  |
|                                                                                                            |             |    |       | in.lb/arcmin                          | 84                            | 84   | 84   | 84   | 75   | 75   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ |    |       | N                                     | 3350                          |      |      |      |      |      |
|                                                                                                            |             |    |       | lb <sub>f</sub>                       | 754                           |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ |    |       | N                                     | 4200                          |      |      |      |      |      |
|                                                                                                            |             |    |       | lb <sub>f</sub>                       | 945                           |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ |    |       | Nm                                    | 236                           |      |      |      |      |      |
|                                                                                                            |             |    |       | in.lb                                 | 2089                          |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      |    |       | %                                     | 97                            |      |      |      |      |      |
| Service life                                                                                               | $L_h$       |    |       | h                                     | > 20000                       |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         |    |       | kg                                    | 3.9                           |      |      |      |      |      |
|                                                                                                            |             |    |       | lb <sub>m</sub>                       | 8.6                           |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    |    |       | dB(A)                                 | ≤ 61                          |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             |    |       | °C                                    | +90                           |      |      |      |      |      |
|                                                                                                            |             |    |       | °F                                    | +194                          |      |      |      |      |      |
| Ambient temperature                                                                                        |             |    |       | °C                                    | –15 to +40                    |      |      |      |      |      |
|                                                                                                            |             |    |       | °F                                    | +5 to +104                    |      |      |      |      |      |
| Lubrication                                                                                                |             |    |       |                                       | Lubricated for life           |      |      |      |      |      |
| Direction of rotation                                                                                      |             |    |       |                                       | In- and output same direction |      |      |      |      |      |
| Protection class                                                                                           |             |    |       |                                       | IP 65                         |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |    |       |                                       | ELC-0060BA022.000-X           |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             |    |       |                                       | mm                            |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C           | 14 | $J_1$ | kgcm <sup>2</sup>                     | 0.58                          | 0.47 | 0.38 | 0.3  | 0.28 | 0.26 |
|                                                                                                            |             |    |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.51                          | 0.42 | 0.34 | 0.27 | 0.25 | 0.23 |
|                                                                                                            | D           | 16 | $J_1$ | kgcm <sup>2</sup>                     | 0.73                          | 0.62 | 0.53 | 0.43 | 0.42 | 0.4  |
|                                                                                                            |             |    |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.65                          | 0.55 | 0.47 | 0.38 | 0.37 | 0.35 |
|                                                                                                            | E           | 19 | $J_1$ | kgcm <sup>2</sup>                     | 0.81                          | 0.71 | 0.61 | 0.53 | 0.51 | 0.49 |
|                                                                                                            |             |    |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.72                          | 0.63 | 0.54 | 0.47 | 0.45 | 0.43 |
|                                                                                                            | G           | 24 | $J_1$ | kgcm <sup>2</sup>                     | 1.8                           | 1.7  | 1.6  | 1.6  | 1.5  | 1.5  |
|                                                                                                            |             |    |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.6                           | 1.5  | 1.4  | 1.4  | 1.3  | 1.3  |
|                                                                                                            | H           | 28 | $J_1$ | kgcm <sup>2</sup>                     | 1.6                           | 1.4  | 1.4  | 1.3  | 1.3  | 1.2  |
|                                                                                                            |             |    |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.4                           | 1.2  | 1.2  | 1.2  | 1.2  | 1.1  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

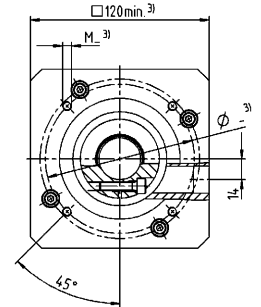
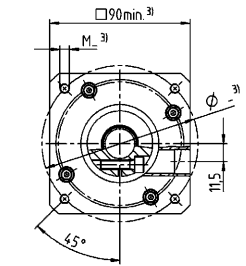
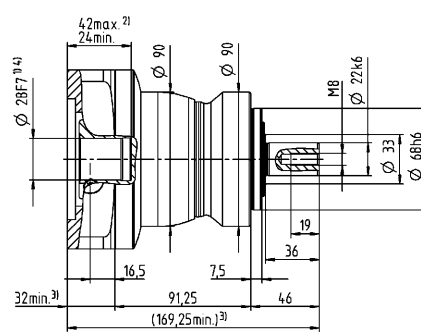
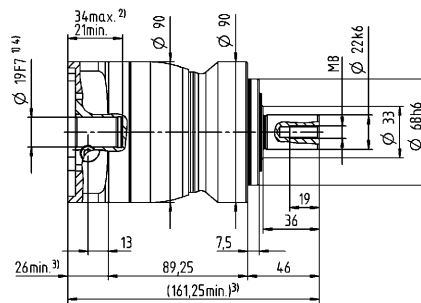
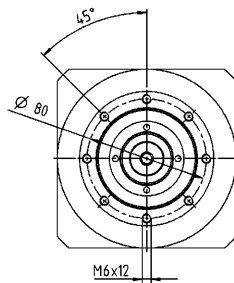
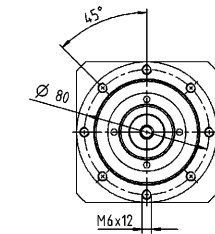


# 1-stage

up to 19 <sup>4)</sup> (E) <sup>5)</sup>  
clamping hub  
diameter

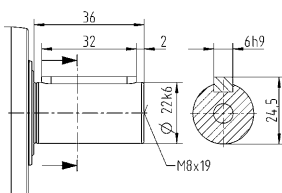
Motor shaft diameter [mm]

up to 28 <sup>4)</sup> (H)  
clamping hub  
diameter

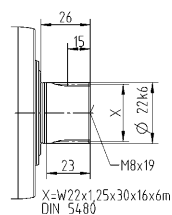
Planetary Gearboxes  
Value Line

## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

- 1) Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

<sup>5)</sup> Standard clamping hub diameter

# NPL 025 MF 2-stage

|                                                                                                            |              |                 | 2-stage                       |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|-------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 9                             | 12                                    | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 128                           | 128                                   | 128  | 152  | 152  | 160  | 152  | 128  | 144  | 160  | 152  | 160  | 144  | 160  | 144  |
|                                                                                                            |              | in.lb           | 1133                          | 1133                                  | 1133 | 1345 | 1345 | 1416 | 1345 | 1133 | 1275 | 1416 | 1345 | 1416 | 1275 | 1416 | 1275 |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 80                            | 80                                    | 80   | 95   | 95   | 100  | 95   | 80   | 90   | 100  | 95   | 100  | 90   | 100  | 90   |
|                                                                                                            |              | in.lb           | 708                           | 708                                   | 708  | 841  | 841  | 885  | 841  | 708  | 797  | 885  | 841  | 885  | 797  | 885  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 190                           | 190                                   | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  |
|                                                                                                            |              | in.lb           | 1682                          | 1682                                  | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 2900                          | 3500                                  | 3700 | 3500 | 3700 | 3700 | 4000 | 4300 | 4100 | 4000 | 4300 | 4300 | 4100 | 4300 | 4300 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 8000                          | 8000                                  | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1 = 3000$ rpm and 20 °C gearbox temperature)           | $T_{012}$    | Nm              | 0.67                          | 0.55                                  | 0.47 | 0.46 | 0.4  | 0.36 | 0.34 | 0.33 | 0.32 | 0.31 | 0.29 | 0.27 | 0.25 | 0.25 | 0.23 |
|                                                                                                            |              | in.lb           | 5.9                           | 4.9                                   | 4.2  | 4.1  | 3.5  | 3.2  | 3    | 2.9  | 2.8  | 2.7  | 2.6  | 2.4  | 2.2  | 2.2  | 2    |
| Max. backlash                                                                                              | $j_t$        | arcmin          | $\leq 10$                     |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 10                            | 10                                    | 10   | 10   | 10   | 9.5  | 10   | 10   | 10   | 9.5  | 10   | 9.5  | 8.5  | 9.5  | 8.5  |
|                                                                                                            |              | in.lb/arcmin    | 89                            | 89                                    | 89   | 89   | 89   | 84   | 89   | 89   | 89   | 84   | 89   | 84   | 75   | 84   | 75   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 3350                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 754                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 4200                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 945                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ | Nm              | 236                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 2089                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 95                            |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                       |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 4.2                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 9.3                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | $\leq 59$                     |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | -15 to +40                    |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +5 to +104                    |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 65                         |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA022.000-X           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 012.000 - 032.000         |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | A            | 9               | $J_1$                         | kgcm <sup>2</sup>                     | 0.26 | 0.22 | 0.21 | 0.21 | 0.2  | 0.2  | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.23 | 0.19 | 0.19 | 0.19 | 0.18 | 0.18 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
|                                                                                                            | B            | 11              | $J_1$                         | kgcm <sup>2</sup>                     | 0.28 | 0.24 | 0.23 | 0.23 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.25 | 0.21 | 0.2  | 0.2  | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
|                                                                                                            | C            | 14              | $J_1$                         | kgcm <sup>2</sup>                     | 0.35 | 0.31 | 0.3  | 0.3  | 0.3  | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.31 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
|                                                                                                            | D            | 16              | $J_1$                         | kgcm <sup>2</sup>                     | 0.48 | 0.44 | 0.43 | 0.43 | 0.42 | 0.42 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.42 | 0.39 | 0.38 | 0.38 | 0.37 | 0.37 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
|                                                                                                            | E            | 19              | $J_1$                         | kgcm <sup>2</sup>                     | 0.56 | 0.52 | 0.51 | 0.52 | 0.51 | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.49 | 0.49 | 0.49 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.5  | 0.46 | 0.45 | 0.46 | 0.45 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.43 | 0.43 | 0.43 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

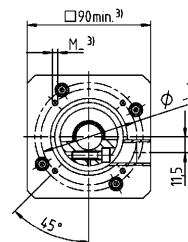
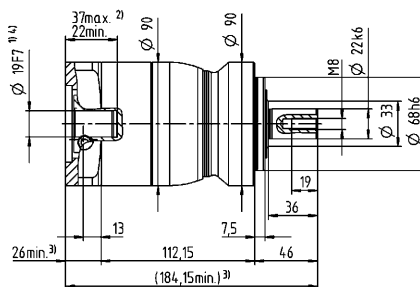
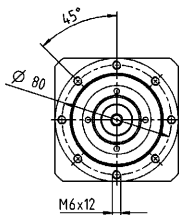
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

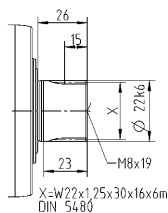
up to 14 <sup>4)</sup> (C) <sup>5)</sup>  
clamping hub  
diameter

up to 19 <sup>4)</sup> (E)  
clamping hub  
diameter



Shaft with key

Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

- 1) Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPL 035 MF 1-stage

|                                                                                                            |              |    |                 | 1-stage                               |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|----|-----------------|---------------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |    |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     |    | Nm              | 320                                   | 408  | 400  | 400  | 352  | 352  |      |
|                                                                                                            |              |    | in.lb           | 2832                                  | 3611 | 3540 | 3540 | 3115 | 3115 |      |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     |    | Nm              | 200                                   | 255  | 250  | 250  | 220  | 220  |      |
|                                                                                                            |              |    | in.lb           | 1770                                  | 2257 | 2213 | 2213 | 1947 | 1947 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   |    | Nm              | 500                                   | 500  | 500  | 500  | 500  | 500  |      |
|                                                                                                            |              |    | in.lb           | 4425                                  | 4425 | 4425 | 4425 | 4425 | 4425 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     |    | rpm             | 2000                                  | 2200 | 2300 | 2500 | 2600 | 2700 |      |
| Max. input speed                                                                                           | $n_{1Max}$   |    | rpm             | 6000                                  | 6000 | 6000 | 6000 | 6000 | 6000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$    |    | Nm              | 3.3                                   | 2.7  | 2.3  | 1.9  | 1.7  | 1.5  |      |
|                                                                                                            |              |    | in.lb           | 29                                    | 24   | 20   | 17   | 15   | 13   |      |
| Max. backlash                                                                                              | $j_t$        |    | arcmin          | ≤ 8                                   |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    |    | Nm/arcmin       | 25                                    | 25   | 25   | 25   | 22   | 22   |      |
|                                                                                                            |              |    | in.lb/arcmin    | 221                                   | 221  | 221  | 221  | 195  | 195  |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  |    | N               | 5650                                  |      |      |      |      |      |      |
|                                                                                                            |              |    | lb <sub>f</sub> | 1271                                  |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ |    | N               | 6600                                  |      |      |      |      |      |      |
|                                                                                                            |              |    | lb <sub>f</sub> | 1485                                  |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ |    | Nm              | 487                                   |      |      |      |      |      |      |
|                                                                                                            |              |    | in.lb           | 4310                                  |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       |    | %               | 97                                    |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        |    | h               | > 20000                               |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          |    | kg              | 9.1                                   |      |      |      |      |      |      |
|                                                                                                            |              |    | lb <sub>m</sub> | 20                                    |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     |    | dB(A)           | ≤ 65                                  |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              |    | °C              | +90                                   |      |      |      |      |      |      |
|                                                                                                            |              |    | °F              | +194                                  |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              |    | °C              | –15 to +40                            |      |      |      |      |      |      |
|                                                                                                            |              |    | °F              | +5 to +104                            |      |      |      |      |      |      |
| Lubrication                                                                                                |              |    |                 | Lubricated for life                   |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |    |                 | In- and output same direction         |      |      |      |      |      |      |
| Protection class                                                                                           |              |    |                 | IP 65                                 |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |    |                 | ELC-0150BA032.000-X                   |      |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |              |    | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E            | 19 | $J_1$           | kgcm <sup>2</sup>                     | 2.5  | 1.7  | 1.3  | 1    | 0.94 | 0.87 |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.2  | 1.5  | 1.2  | 0.89 | 0.83 | 0.77 |
|                                                                                                            | G            | 24 | $J_1$           | kgcm <sup>2</sup>                     | 3.3  | 2.4  | 2.1  | 1.8  | 1.7  | 1.6  |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.9  | 2.1  | 1.9  | 1.6  | 1.5  | 1.4  |
|                                                                                                            | H            | 28 | $J_1$           | kgcm <sup>2</sup>                     | 3    | 2.2  | 1.8  | 1.5  | 1.4  | 1.4  |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.7  | 1.9  | 1.6  | 1.3  | 1.2  | 1.2  |
|                                                                                                            | I            | 32 | $J_1$           | kgcm <sup>2</sup>                     | 7.1  | 6.2  | 5.9  | 5.6  | 5.5  | 5.4  |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 6.3  | 5.5  | 5.2  | 5    | 4.9  | 4.8  |
|                                                                                                            | K            | 38 | $J_1$           | kgcm <sup>2</sup>                     | 8.3  | 7.4  | 7.1  | 6.7  | 6.6  | 6.6  |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 7.3  | 6.5  | 6.3  | 5.9  | 5.8  | 5.8  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

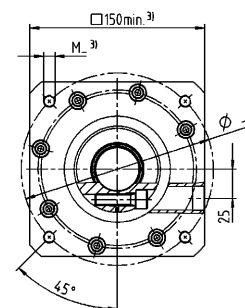
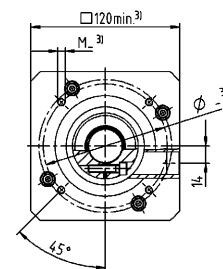
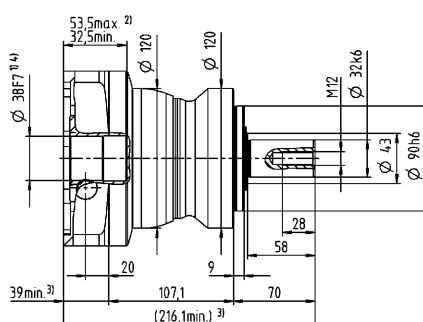
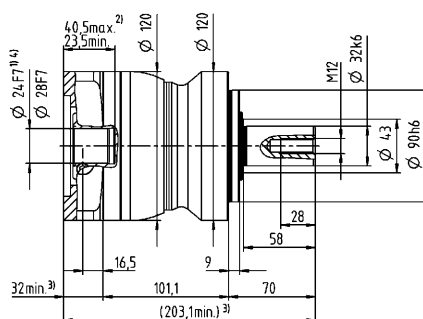
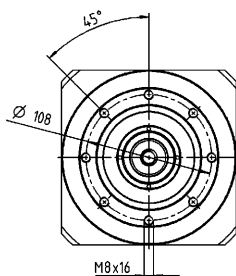
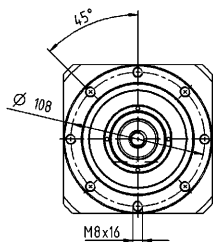
<sup>e)</sup> Valid for: Smooth shaft

1-stage

up to 24/28 <sup>4)</sup>  
(G <sup>5)</sup>/H)  
clamping hub  
diameter

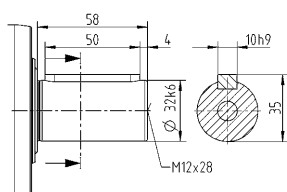
Motor shaft diameter [mm]

up to 38<sup>4)</sup> (K)  
clamping hub  
diameter

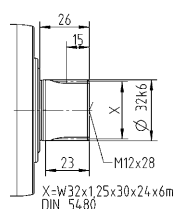


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit.<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

3) The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPL 035 MF 2-stage

|                                                                                                            |   |    |              | 2-stage                               |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|----|--------------|---------------------------------------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   |    | i            |                                       | 9                             | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            |   |    | $T_{2a}$     | Nm                                    | 320                           | 320  | 320  | 408  | 408  | 400  | 408  | 320  | 408  | 400  | 408  | 400  | 352  | 400  | 352  |
|                                                                                                            |   |    |              | in.lb                                 | 2832                          | 2832 | 2832 | 3611 | 3611 | 3540 | 3611 | 2832 | 3611 | 3540 | 3611 | 3540 | 3115 | 3540 | 3115 |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   |    | $T_{2B}$     | Nm                                    | 200                           | 200  | 200  | 255  | 255  | 250  | 255  | 200  | 255  | 250  | 255  | 250  | 220  | 250  | 220  |
|                                                                                                            |   |    |              | in.lb                                 | 1770                          | 1770 | 1770 | 2257 | 2257 | 2213 | 2257 | 1770 | 2257 | 2213 | 2257 | 2213 | 1947 | 2213 | 1947 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   |    | $T_{2Not}$   | Nm                                    | 500                           | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  |
|                                                                                                            |   |    |              | in.lb                                 | 4425                          | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 |   |    | $n_{1N}$     | rpm                                   | 2700                          | 3300 | 3400 | 3300 | 3400 | 3400 | 3600 | 3900 | 3700 | 3600 | 3900 | 3900 | 3700 | 3900 | 3900 |
| Max. input speed                                                                                           |   |    | $n_{1Max}$   | rpm                                   | 7000                          | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           |   |    | $T_{012}$    | Nm                                    | 1.7                           | 1.4  | 1.2  | 1.2  | 1.1  | 1    | 0.93 | 0.88 | 0.88 | 0.87 | 0.81 | 0.77 | 0.75 | 0.72 | 0.68 |
|                                                                                                            |   |    |              | in.lb                                 | 15                            | 12   | 11   | 11   | 9.7  | 8.9  | 8.2  | 7.8  | 7.8  | 7.7  | 7.2  | 6.8  | 6.6  | 6.4  | 6    |
| Max. backlash                                                                                              |   |    | $j_t$        | arcmin                                | ≤ 10                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   |    | $C_{t21}$    | Nm/arcmin                             | 25                            | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 22   | 25   | 22   |
|                                                                                                            |   |    |              | in.lb/arcmin                          | 221                           | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 195  | 221  |
| Max. axial force <sup>c)</sup>                                                                             |   |    | $F_{2AMax}$  | N                                     | 5650                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |    |              | lb <sub>f</sub>                       | 1271                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   |    | $F_{2QMMax}$ | N                                     | 6600                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |    |              | lb <sub>f</sub>                       | 1485                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   |    | $M_{2KMax}$  | Nm                                    | 487                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |    |              | in.lb                                 | 4310                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   |    | $\eta$       | %                                     | 95                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   |    | $L_h$        | h                                     | > 20000                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   |    | $m$          | kg                                    | 9.5                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |    |              | lb <sub>m</sub>                       | 21                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   |    | $L_{PA}$     | dB(A)                                 | ≤ 61                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |    |              | °C                                    | +90                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |    |              | °F                                    | +194                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |    |              | °C                                    | −15 to +40                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |    |              | °F                                    | +5 to +104                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |    |              |                                       | Lubricated for life           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |    |              |                                       | In- and output same direction |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |    |              |                                       | IP 65                         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |    |              |                                       | ELC-0150BA032.000-X           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |    |              | mm                                    | X = 019.000 - 036.000         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C | 14 | $J_1$        | kgcm <sup>2</sup>                     | 0.6                           | 0.59 | 0.6  | 0.43 | 0.42 | 0.36 | 0.37 | 0.52 | 0.38 | 0.32 | 0.36 | 0.31 | 0.26 | 0.27 | 0.24 |
|                                                                                                            |   |    |              | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.53                          | 0.52 | 0.53 | 0.38 | 0.37 | 0.32 | 0.33 | 0.46 | 0.34 | 0.28 | 0.32 | 0.27 | 0.23 | 0.24 | 0.21 |
|                                                                                                            | D | 16 | $J_1$        | kgcm <sup>2</sup>                     | 0.75                          | 0.74 | 0.74 | 0.58 | 0.57 | 0.5  | 0.5  | 0.67 | 0.52 | 0.45 | 0.51 | 0.46 | 0.4  | 0.41 | 0.39 |
|                                                                                                            |   |    |              | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.66                          | 0.65 | 0.65 | 0.51 | 0.5  | 0.44 | 0.44 | 0.59 | 0.46 | 0.4  | 0.45 | 0.41 | 0.35 | 0.36 | 0.35 |
|                                                                                                            | E | 19 | $J_1$        | kgcm <sup>2</sup>                     | 0.84                          | 0.83 | 0.83 | 0.66 | 0.65 | 0.59 | 0.6  | 0.75 | 0.61 | 0.55 | 0.6  | 0.54 | 0.49 | 0.5  | 0.48 |
|                                                                                                            |   |    |              | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.74                          | 0.73 | 0.73 | 0.58 | 0.58 | 0.52 | 0.53 | 0.66 | 0.54 | 0.49 | 0.53 | 0.48 | 0.43 | 0.44 | 0.42 |
|                                                                                                            | G | 24 | $J_1$        | kgcm <sup>2</sup>                     | 1.9                           | 1.9  | 1.9  | 1.7  | 1.7  | 1.6  | 1.6  | 1.8  | 1.6  | 1.6  | 1.6  | 1.6  | 1.5  | 1.5  | 1.5  |
|                                                                                                            |   |    |              | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.7                           | 1.6  | 1.7  | 1.5  | 1.5  | 1.4  | 1.5  | 1.6  | 1.5  | 1.4  | 1.4  | 1.4  | 1.3  | 1.4  | 1.3  |
|                                                                                                            | H | 28 | $J_1$        | kgcm <sup>2</sup>                     | 1.6                           | 1.6  | 1.6  | 1.4  | 1.4  | 1.3  | 1.3  | 1.5  | 1.4  | 1.3  | 1.3  | 1.3  | 1.2  | 1.2  | 1.2  |
|                                                                                                            |   |    |              | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.4                           | 1.4  | 1.4  | 1.2  | 1.2  | 1.2  | 1.2  | 1.3  | 1.2  | 1.1  | 1.2  | 1.1  | 1.1  | 1.1  | 1.1  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

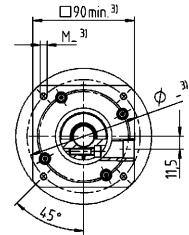
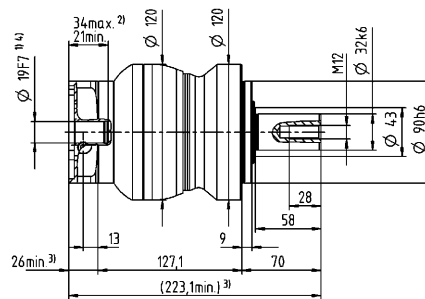
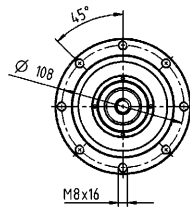
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

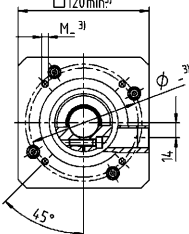
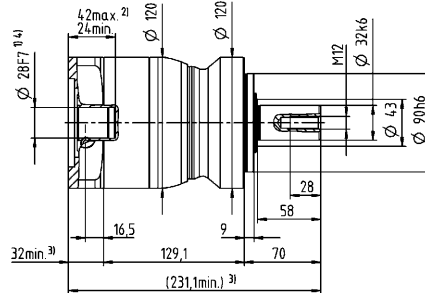
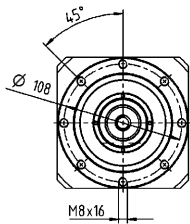
## 2-stage

Motor shaft diameter [mm]

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter

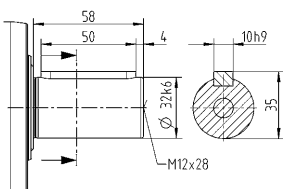


up to 28<sup>4)</sup> (H)  
clamping hub  
diameter

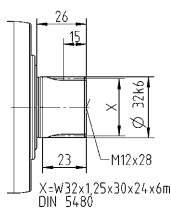


### Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPL 045 MF 1-/2-stage

|                                                                                                            |    |             |                                       | 1-stage                               |      |      | 2-stage    |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|----|-------------|---------------------------------------|---------------------------------------|------|------|------------|------|------|------|------|------|
| Ratio                                                                                                      |    | i           |                                       | 5                                     | 8    | 10   | 25         | 32   | 50   | 64   | 100  |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |    | $T_{2a}$    | Nm                                    | 800                                   | 640  | 640  | 700        | 640  | 700  | 640  | 640  |      |
|                                                                                                            |    |             | in.lb                                 | 7081                                  | 5665 | 5665 | 6196       | 5665 | 6196 | 5665 | 5665 |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |    | $T_{2B}$    | Nm                                    | 500                                   | 400  | 400  | 500        | 400  | 500  | 400  | 400  |      |
|                                                                                                            |    |             | in.lb                                 | 4425                                  | 3540 | 3540 | 4425       | 3540 | 4425 | 3540 | 3540 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |    | $T_{2Not}$  | Nm                                    | 1000                                  | 1000 | 1000 | 1000       | 1000 | 1000 | 1000 | 1000 |      |
|                                                                                                            |    |             | in.lb                                 | 8851                                  | 8851 | 8851 | 8851       | 8851 | 8851 | 8851 | 8851 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |    | $n_{1N}$    | rpm                                   | 1800                                  | 1900 | 2000 | 2600       | 2500 | 3000 | 2900 | 3000 |      |
| Max. input speed                                                                                           |    | $n_{1Max}$  | rpm                                   | 4000                                  | 4000 | 4000 | 6000       | 6000 | 6000 | 6000 | 6000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           |    | $T_{012}$   | Nm                                    | 4.2                                   | 3    | 2.6  | 1.6        | 1.5  | 1.2  | 1.1  | 0.97 |      |
|                                                                                                            |    |             | in.lb                                 | 37                                    | 27   | 23   | 14         | 13   | 11   | 9.7  | 8.6  |      |
| Max. backlash                                                                                              |    | $j_t$       | arcmin                                | ≤ 8                                   |      |      | ≤ 10       |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |    | $C_{t21}$   | Nm/arcmin                             | 55                                    | 44   | 44   | 55         | 44   | 55   | 44   | 44   |      |
|                                                                                                            |    |             | in.lb/arcmin                          | 487                                   | 389  | 389  | 487        | 389  | 487  | 389  | 389  |      |
| Max. axial force <sup>c)</sup>                                                                             |    | $F_{2AMax}$ | N                                     | 9870                                  |      |      | 9870       |      |      |      |      |      |
|                                                                                                            |    |             | lb <sub>f</sub>                       | 2221                                  |      |      | 2221       |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |    | $F_{2QMax}$ | N                                     | 9900                                  |      |      | 9900       |      |      |      |      |      |
|                                                                                                            |    |             | lb <sub>f</sub>                       | 2228                                  |      |      | 2228       |      |      |      |      |      |
| Max. tilting moment                                                                                        |    | $M_{2KMax}$ | Nm                                    | 952                                   |      |      | 952        |      |      |      |      |      |
|                                                                                                            |    |             | in.lb                                 | 8426                                  |      |      | 8426       |      |      |      |      |      |
| Efficiency at full load                                                                                    |    | $\eta$      | %                                     | 97                                    |      |      | 95         |      |      |      |      |      |
| Service life                                                                                               |    | $L_h$       | h                                     | > 20000                               |      |      | > 20000    |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |    | $m$         | kg                                    | 20                                    |      |      | 20         |      |      |      |      |      |
|                                                                                                            |    |             | lb <sub>m</sub>                       | 44                                    |      |      | 44         |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |    | $L_{PA}$    | dB(A)                                 | ≤ 68                                  |      |      | ≤ 65       |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |    |             | °C                                    | +90                                   |      |      | +90        |      |      |      |      |      |
|                                                                                                            |    |             | °F                                    | +194                                  |      |      | +194       |      |      |      |      |      |
| Ambient temperature                                                                                        |    |             | °C                                    | –15 to +40                            |      |      | –15 to +40 |      |      |      |      |      |
|                                                                                                            |    |             | °F                                    | +5 to +104                            |      |      | +5 to +104 |      |      |      |      |      |
| Lubrication                                                                                                |    |             |                                       | Lubricated for life                   |      |      |            |      |      |      |      |      |
| Direction of rotation                                                                                      |    |             |                                       | In- and output same direction         |      |      |            |      |      |      |      |      |
| Protection class                                                                                           |    |             |                                       | IP 65                                 |      |      |            |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |    |             |                                       | ELC-0300BA040.000-X                   |      |      |            |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |    |             | mm                                    | X = 020.000 - 045.000                 |      |      |            |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E  | 19          | $J_1$                                 | kgcm <sup>2</sup>                     | –    | –    | –          | 1.2  | 1.1  | 1    | 0.88 | 0.82 |
|                                                                                                            |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –    | –          | 1.1  | 0.97 | 0.89 | 0.78 | 0.73 |
|                                                                                                            | G  | 24          | $J_1$                                 | kgcm <sup>2</sup>                     | –    | –    | –          | 2    | 1.9  | 1.8  | 1.7  | 1.6  |
|                                                                                                            |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –    | –          | 1.8  | 1.7  | 1.6  | 1.5  | 1.4  |
|                                                                                                            | H  | 28          | $J_1$                                 | kgcm <sup>2</sup>                     | –    | –    | –          | 1.7  | 1.6  | 1.5  | 1.4  | 1.3  |
|                                                                                                            |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –    | –          | 1.5  | 1.4  | 1.3  | 1.2  | 1.2  |
|                                                                                                            | I  | 32          | $J_1$                                 | kgcm <sup>2</sup>                     | –    | –    | –          | 5.8  | 5.7  | 5.6  | 5.4  | 5.4  |
|                                                                                                            |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –    | –          | 5.1  | 5    | 5    | 4.8  | 4.8  |
| K                                                                                                          | 38 | $J_1$       | kgcm <sup>2</sup>                     | 8.7                                   | 7.3  | 7.2  | 7          | 6.9  | 6.8  | 6.6  | 6.5  |      |
|                                                                                                            |    |             | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 7.7                                   | 6.5  | 6.4  | 6.2        | 6.1  | 6    | 5.8  | 5.8  |      |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

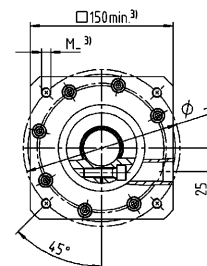
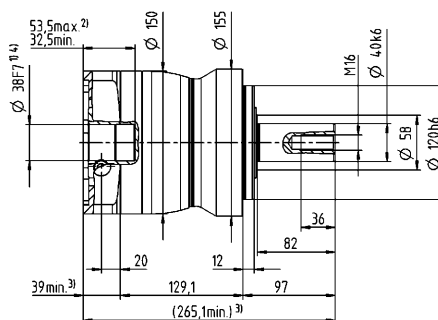
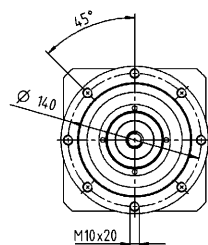
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft



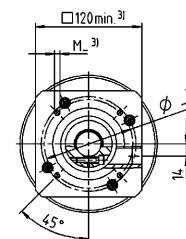
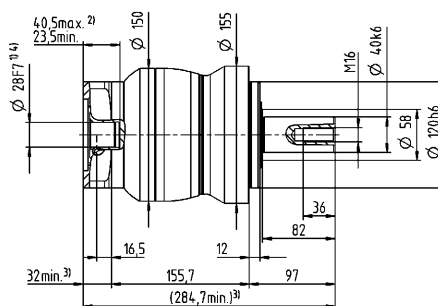
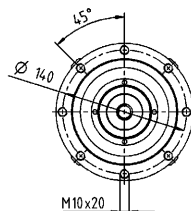
1-stage

up to 38 <sup>4)</sup> (K) <sup>5)</sup>  
clamping hub  
diameter



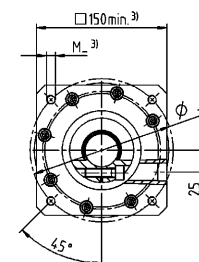
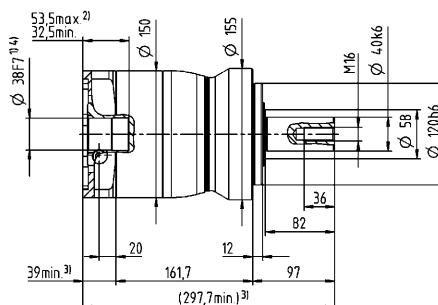
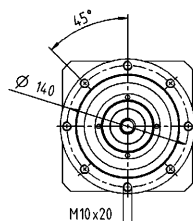
## 2-stage

up to 28 <sup>4)</sup> (H) <sup>5)</sup>  
clamping hub  
diameter



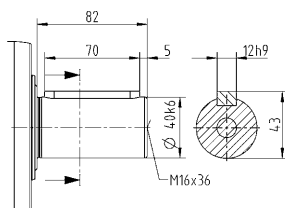
Motor shaft diameter [mm]

up to 38 <sup>4)</sup> (K)  
clamping hub  
diameter

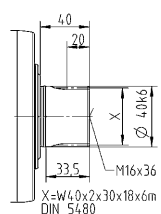


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

3) The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPL 015 MA 1-/2-stage

|                                                                                                            |             |                 | 1-stage                       |                                       | 2-stage    |       |       |       |       |       |       |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|-------------------------------|---------------------------------------|------------|-------|-------|-------|-------|-------|-------|------|------|
| Ratio                                                                                                      | i           |                 | 3                             | 4                                     | 12         | 15    | 16    | 20    | 28    | 30    | 40    |      |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | Nm              | 80                            | 67                                    | 62         | 67    | 67    | 67    | 67    | 62    | 67    |      |      |
|                                                                                                            |             | in.lb           | 708                           | 593                                   | 549        | 593   | 593   | 593   | 593   | 549   | 593   |      |      |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | Nm              | 55                            | 42                                    | 39         | 42    | 42    | 42    | 42    | 39    | 42    |      |      |
|                                                                                                            |             | in.lb           | 487                           | 372                                   | 345        | 372   | 372   | 372   | 372   | 345   | 372   |      |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 80                            | 80                                    | 80         | 80    | 80    | 80    | 80    | 80    | 80    |      |      |
|                                                                                                            |             | in.lb           | 708                           | 708                                   | 708        | 708   | 708   | 708   | 708   | 708   | 708   |      |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 2900                          | 3100                                  | 3800       | 4000  | 3800  | 4000  | 4300  | 4600  | 4600  |      |      |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 8000                          | 8000                                  | 10000      | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$   | Nm              | 0.92                          | 0.74                                  | 0.34       | 0.29  | 0.29  | 0.25  | 0.21  | 0.21  | 0.19  |      |      |
|                                                                                                            |             | in.lb           | 8.1                           | 6.5                                   | 3          | 2.6   | 2.6   | 2.2   | 1.9   | 1.9   | 1.7   |      |      |
| Max. backlash                                                                                              | $j_t$       | arcmin          | ≤ 8                           |                                       | ≤ 10       |       |       |       |       |       |       |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 4                             | 4                                     | 4          | 4     | 4     | 4     | 4     | 4     | 4     |      |      |
|                                                                                                            |             | in.lb/arcmin    | 35                            | 35                                    | 35         | 35    | 35    | 35    | 35    | 35    | 35    |      |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 2400                          |                                       | 2400       |       |       |       |       |       |       |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 540                           |                                       | 540        |       |       |       |       |       |       |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | N               | 2800                          |                                       | 2800       |       |       |       |       |       |       |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 630                           |                                       | 630        |       |       |       |       |       |       |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 152                           |                                       | 152        |       |       |       |       |       |       |      |      |
|                                                                                                            |             | in.lb           | 1345                          |                                       | 1345       |       |       |       |       |       |       |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 97                            |                                       | 95         |       |       |       |       |       |       |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                       |                                       | > 20000    |       |       |       |       |       |       |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 1.9                           |                                       | 2          |       |       |       |       |       |       |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 4.2                           |                                       | 4.4        |       |       |       |       |       |       |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | dB(A)           | ≤ 59                          |                                       | ≤ 58       |       |       |       |       |       |       |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                           |                                       | +90        |       |       |       |       |       |       |      |      |
|                                                                                                            |             | °F              | +194                          |                                       | +194       |       |       |       |       |       |       |      |      |
| Ambient temperature                                                                                        |             | °C              | –15 to +40                    |                                       | –15 to +40 |       |       |       |       |       |       |      |      |
|                                                                                                            |             | °F              | +5 to +104                    |                                       | +5 to +104 |       |       |       |       |       |       |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life           |                                       |            |       |       |       |       |       |       |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction |                                       |            |       |       |       |       |       |       |      |      |
| Protection class                                                                                           |             |                 | IP 65                         |                                       |            |       |       |       |       |       |       |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 | ELC-0060BA016.000-X           |                                       |            |       |       |       |       |       |       |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             | mm              | X = 012.000 - 032.000         |                                       |            |       |       |       |       |       |       |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | Z           | 8               | $J_1$                         | kgcm <sup>2</sup>                     | –          | –     | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 |      |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –          | –     | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 | 0.03 |
|                                                                                                            | A           | 9               | $J_1$                         | kgcm <sup>2</sup>                     | 0.25       | 0.19  | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 |      |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.22       | 0.17  | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 | 0.03 |
|                                                                                                            | B           | 11              | $J_1$                         | kgcm <sup>2</sup>                     | 0.26       | 0.21  | 0.06  | 0.06  | 0.05  | 0.05  | 0.05  | 0.05 |      |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.23       | 0.19  | 0.05  | 0.05  | 0.04  | 0.04  | 0.04  | 0.04 | 0.04 |
|                                                                                                            | C           | 14              | $J_1$                         | kgcm <sup>2</sup>                     | 0.34       | 0.28  | 0.14  | 0.14  | 0.14  | 0.13  | 0.13  | 0.14 |      |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.3        | 0.25  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12 | 0.12 |
|                                                                                                            | D           | 16              | $J_1$                         | kgcm <sup>2</sup>                     | 0.47       | 0.41  | –     | –     | –     | –     | –     | –    | –    |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.42       | 0.36  | –     | –     | –     | –     | –     | –    | –    |
|                                                                                                            | E           | 19              | $J_1$                         | kgcm <sup>2</sup>                     | 0.55       | 0.49  | –     | –     | –     | –     | –     | –    | –    |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.49       | 0.43  | –     | –     | –     | –     | –     | –    | –    |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

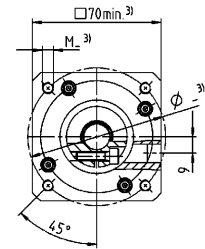
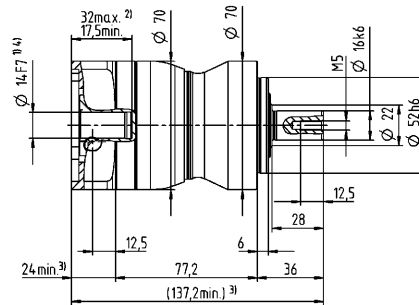
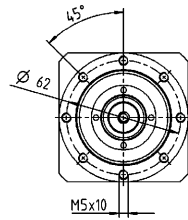
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

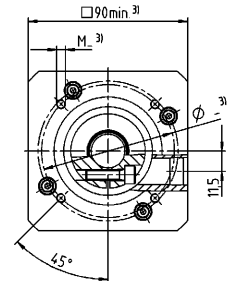
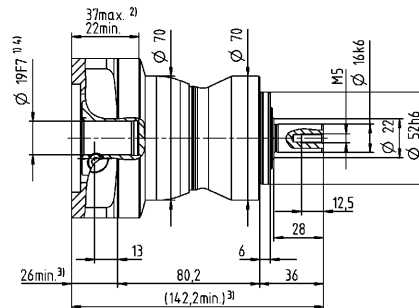
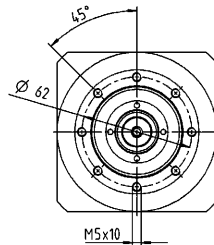
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter

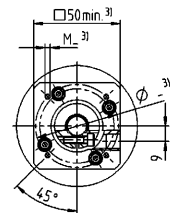
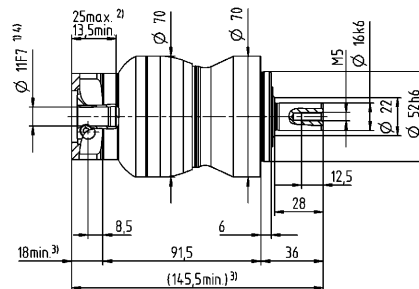
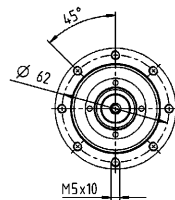


up to 19<sup>4)</sup> (E)  
clamping hub  
diameter

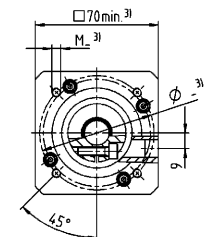
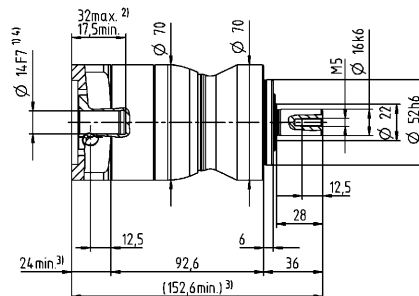
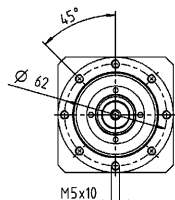


# 2-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



up to 14<sup>4)</sup> (C)  
clamping hub  
diameter

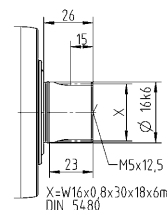
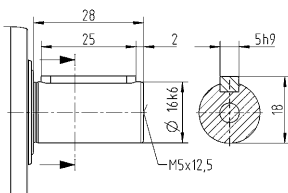


Motor shaft diameter [mm]

## Other output variants

Shaft with key

Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPL 025 MA 1-/2-stage

|                                                                                                            |             |                | 1-stage                       |                     | 2-stage    |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|----------------|-------------------------------|---------------------|------------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                | 3                             | 4                   | 9          | 12   | 15   | 16   | 20   | 28   | 30   | 40   |      |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | $Nm$           | 185                           | 185                 | 185        | 185  | 185  | 185  | 185  | 185  | 168  | 185  |      |      |
|                                                                                                            |             | $in.lb$        | 1637                          | 1637                | 1637       | 1637 | 1637 | 1637 | 1637 | 1637 | 1637 | 1487 | 1637 |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | $Nm$           | 125                           | 115                 | 125        | 125  | 120  | 115  | 115  | 115  | 105  | 115  |      |      |
|                                                                                                            |             | $in.lb$        | 1106                          | 1018                | 1106       | 1106 | 1062 | 1018 | 1018 | 1018 | 929  | 1018 |      |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | $Nm$           | 190                           | 190                 | 190        | 190  | 190  | 190  | 190  | 190  | 190  | 190  |      |      |
|                                                                                                            |             | $in.lb$        | 1682                          | 1682                | 1682       | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | $rpm$          | 2700                          | 2900                | 2900       | 3500 | 3700 | 3500 | 3700 | 4000 | 4300 | 4300 |      |      |
| Max. input speed                                                                                           | $n_{1Max}$  | $rpm$          | 7000                          | 7000                | 8000       | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$   | $Nm$           | 1.8                           | 1.5                 | 0.67       | 0.55 | 0.47 | 0.46 | 0.4  | 0.34 | 0.33 | 0.29 |      |      |
|                                                                                                            |             | $in.lb$        | 16                            | 13                  | 5.9        | 4.9  | 4.2  | 4.1  | 3.5  | 3    | 2.9  | 2.6  |      |      |
| Max. backlash                                                                                              | $j_t$       | $arcmin$       | ≤ 8                           |                     | ≤ 10       |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | $Nm/arcmin$    | 12                            | 12                  | 12         | 12   | 12   | 12   | 12   | 12   | 12   | 12   |      |      |
|                                                                                                            |             | $in.lb/arcmin$ | 106                           | 106                 | 106        | 106  | 106  | 106  | 106  | 106  | 106  | 106  | 106  |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | $N$            | 3350                          |                     | 3350       |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $lb_f$         | 754                           |                     | 754        |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | $N$            | 4200                          |                     | 4200       |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $lb_f$         | 945                           |                     | 945        |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | $Nm$           | 236                           |                     | 236        |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $in.lb$        | 2089                          |                     | 2089       |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %              | 97                            |                     | 95         |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | $h$            | > 20000                       |                     | > 20000    |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | $kg$           | 3.9                           |                     | 4.2        |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $lb_m$         | 8.6                           |                     | 9.3        |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | $dB(A)$        | ≤ 61                          |                     | ≤ 59       |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C             | +90                           |                     | +90        |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | °F             | +194                          |                     | +194       |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |             | °C             | −15 to +40                    |                     | −15 to +40 |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | °F             | +5 to +104                    |                     | +5 to +104 |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |             |                | Lubricated for life           |                     |            |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                | In- and output same direction |                     |            |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |             |                | IP 65                         |                     |            |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                | ELC-0060BA022.000-X           |                     |            |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             | $mm$           | X = 012.000 - 032.000         |                     |            |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | A           | 9              | $J_1$                         | $kgcm^2$            | –          | –    | 0.26 | 0.22 | 0.21 | 0.21 | 0.2  | 0.19 | 0.19 | 0.19 |
|                                                                                                            |             |                |                               | $10^{-3} in.lb.s^2$ | –          | –    | 0.23 | 0.19 | 0.19 | 0.19 | 0.18 | 0.17 | 0.17 | 0.17 |
|                                                                                                            | B           | 11             | $J_1$                         | $kgcm^2$            | –          | –    | 0.28 | 0.24 | 0.23 | 0.23 | 0.22 | 0.21 | 0.21 | 0.21 |
|                                                                                                            |             |                |                               | $10^{-3} in.lb.s^2$ | –          | –    | 0.25 | 0.21 | 0.2  | 0.2  | 0.19 | 0.19 | 0.19 | 0.19 |
|                                                                                                            | C           | 14             | $J_1$                         | $kgcm^2$            | 0.58       | 0.47 | 0.35 | 0.31 | 0.3  | 0.3  | 0.3  | 0.29 | 0.28 | 0.28 |
|                                                                                                            |             |                |                               | $10^{-3} in.lb.s^2$ | 0.51       | 0.42 | 0.31 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.25 | 0.25 |
|                                                                                                            | D           | 16             | $J_1$                         | $kgcm^2$            | 0.73       | 0.62 | 0.48 | 0.44 | 0.43 | 0.43 | 0.42 | 0.41 | 0.41 | 0.41 |
|                                                                                                            |             |                |                               | $10^{-3} in.lb.s^2$ | 0.65       | 0.55 | 0.42 | 0.39 | 0.38 | 0.38 | 0.37 | 0.36 | 0.36 | 0.36 |
|                                                                                                            | E           | 19             | $J_1$                         | $kgcm^2$            | 0.81       | 0.71 | 0.56 | 0.52 | 0.51 | 0.52 | 0.51 | 0.5  | 0.5  | 0.49 |
|                                                                                                            |             |                |                               | $10^{-3} in.lb.s^2$ | 0.72       | 0.63 | 0.5  | 0.46 | 0.45 | 0.46 | 0.45 | 0.44 | 0.44 | 0.43 |
|                                                                                                            | G           | 24             | $J_1$                         | $kgcm^2$            | 1.8        | 1.7  | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            |             |                |                               | $10^{-3} in.lb.s^2$ | 1.6        | 1.5  | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            | H           | 28             | $J_1$                         | $kgcm^2$            | 1.6        | 1.4  | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            |             |                |                               | $10^{-3} in.lb.s^2$ | 1.4        | 1.2  | –    | –    | –    | –    | –    | –    | –    | –    |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

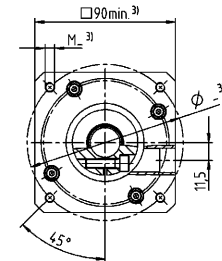
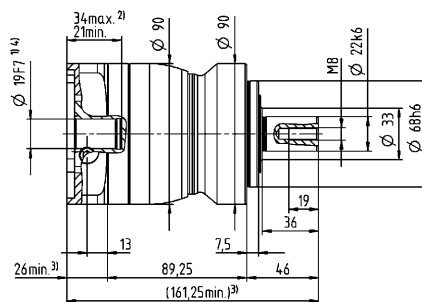
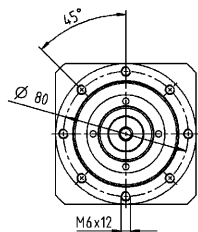
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

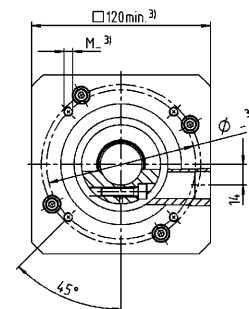
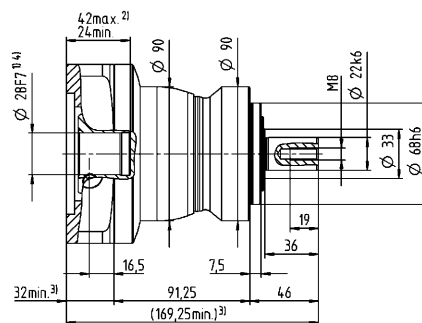
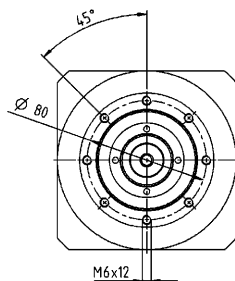
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter

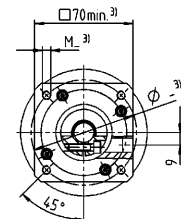
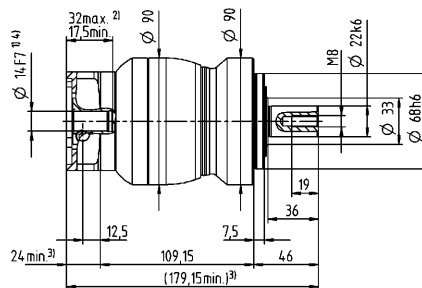
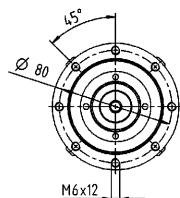


up to 28<sup>4)</sup> (H)  
clamping hub  
diameter

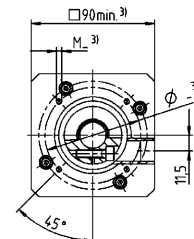
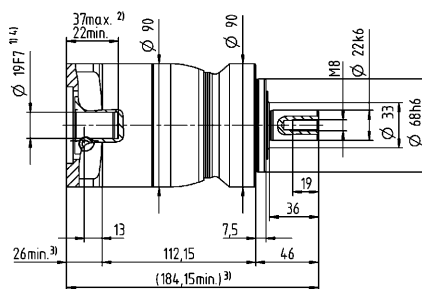
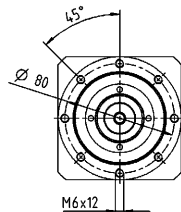


# 2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



up to 19<sup>4)</sup> (E)  
clamping hub  
diameter

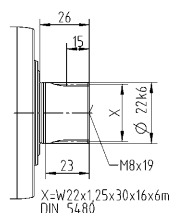
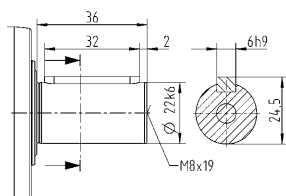


Motor shaft diameter [mm]

## Other output variants

Shaft with key

Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPL 035 MA 1-/2-stage

|                                                                                                            |              |       |                                       | 1-stage                               |      |            | 2-stage |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-------|---------------------------------------|---------------------------------------|------|------------|---------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |       |                                       | 3                                     | 4    | 9          | 12      | 15   | 16   | 20   | 28   | 30   | 40   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     |       | Nm                                    | 480                                   | 480  | 480        | 480     | 480  | 480  | 480  | 480  | 432  | 480  |      |
|                                                                                                            |              |       | in.lb                                 | 4248                                  | 4248 | 4248       | 4248    | 4248 | 4248 | 4248 | 4248 | 3824 | 4248 |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     |       | Nm                                    | 305                                   | 305  | 305        | 305     | 300  | 305  | 305  | 305  | 270  | 305  |      |
|                                                                                                            |              |       | in.lb                                 | 2699                                  | 2699 | 2699       | 2699    | 2655 | 2699 | 2699 | 2699 | 2390 | 2699 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   |       | Nm                                    | 500                                   | 500  | 500        | 500     | 500  | 500  | 500  | 500  | 500  | 500  |      |
|                                                                                                            |              |       | in.lb                                 | 4425                                  | 4425 | 4425       | 4425    | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     |       | rpm                                   | 2000                                  | 2200 | 2700       | 3300    | 3400 | 3300 | 3400 | 3600 | 3900 | 3900 |      |
| Max. input speed                                                                                           | $n_{1Max}$   |       | rpm                                   | 6000                                  | 6000 | 7000       | 7000    | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$    |       | Nm                                    | 3.3                                   | 2.7  | 1.7        | 1.4     | 1.2  | 1.2  | 1.1  | 0.93 | 0.88 | 0.81 |      |
|                                                                                                            |              |       | in.lb                                 | 29                                    | 24   | 15         | 12      | 11   | 11   | 9.7  | 8.2  | 7.8  | 7.2  |      |
| Max. backlash                                                                                              | $j_t$        |       | arcmin                                | ≤ 8                                   |      | ≤ 10       |         |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    |       | Nm/arcmin                             | 30                                    | 30   | 30         | 30      | 30   | 30   | 30   | 30   | 30   | 30   |      |
|                                                                                                            |              |       | in.lb/arcmin                          | 266                                   | 266  | 266        | 266     | 266  | 266  | 266  | 266  | 266  | 266  |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  |       | N                                     | 5650                                  |      | 5650       |         |      |      |      |      |      |      |      |
|                                                                                                            |              |       | lb <sub>f</sub>                       | 1271                                  |      | 1271       |         |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$  |       | N                                     | 6600                                  |      | 6600       |         |      |      |      |      |      |      |      |
|                                                                                                            |              |       | lb <sub>f</sub>                       | 1485                                  |      | 1485       |         |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ |       | Nm                                    | 487                                   |      | 487        |         |      |      |      |      |      |      |      |
|                                                                                                            |              |       | in.lb                                 | 4310                                  |      | 4310       |         |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       |       | %                                     | 97                                    |      | 95         |         |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        |       | h                                     | > 20000                               |      | > 20000    |         |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          |       | kg                                    | 9.1                                   |      | 9.5        |         |      |      |      |      |      |      |      |
|                                                                                                            |              |       | lb <sub>m</sub>                       | 20                                    |      | 21         |         |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     |       | dB(A)                                 | ≤ 65                                  |      | ≤ 61       |         |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              |       | °C                                    | +90                                   |      | +90        |         |      |      |      |      |      |      |      |
|                                                                                                            |              |       | °F                                    | +194                                  |      | +194       |         |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              |       | °C                                    | −15 to +40                            |      | −15 to +40 |         |      |      |      |      |      |      |      |
|                                                                                                            |              |       | °F                                    | +5 to +104                            |      | +5 to +104 |         |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |       |                                       | Lubricated for life                   |      |            |         |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |       |                                       | In- and output same direction         |      |            |         |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |       |                                       | IP 65                                 |      |            |         |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |       |                                       | ELC-0150BA032.000-X                   |      |            |         |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              |       | mm                                    | X = 019.000 - 036.000                 |      |            |         |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C            | 14    | $J_1$                                 | kgcm <sup>2</sup>                     | –    | –          | 0.6     | 0.59 | 0.6  | 0.43 | 0.42 | 0.37 | 0.52 | 0.36 |
|                                                                                                            |              |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –          | 0.53    | 0.52 | 0.53 | 0.38 | 0.37 | 0.33 | 0.46 | 0.32 |
|                                                                                                            | D            | 16    | $J_1$                                 | kgcm <sup>2</sup>                     | –    | –          | 0.75    | 0.74 | 0.74 | 0.58 | 0.57 | 0.5  | 0.67 | 0.51 |
|                                                                                                            |              |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –          | 0.66    | 0.65 | 0.65 | 0.51 | 0.5  | 0.44 | 0.59 | 0.45 |
|                                                                                                            | E            | 19    | $J_1$                                 | kgcm <sup>2</sup>                     | 2.5  | 1.7        | 0.84    | 0.83 | 0.83 | 0.66 | 0.65 | 0.6  | 0.75 | 0.6  |
|                                                                                                            |              |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.2  | 1.5        | 0.74    | 0.73 | 0.73 | 0.58 | 0.58 | 0.53 | 0.66 | 0.53 |
|                                                                                                            | G            | 24    | $J_1$                                 | kgcm <sup>2</sup>                     | 3.3  | 2.4        | 1.9     | 1.9  | 1.9  | 1.7  | 1.7  | 1.6  | 1.8  | 1.6  |
|                                                                                                            |              |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.9  | 2.1        | 1.7     | 1.6  | 1.7  | 1.5  | 1.5  | 1.5  | 1.6  | 1.4  |
|                                                                                                            | H            | 28    | $J_1$                                 | kgcm <sup>2</sup>                     | 3    | 2.2        | 1.6     | 1.6  | 1.6  | 1.4  | 1.4  | 1.3  | 1.5  | 1.3  |
|                                                                                                            |              |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.7  | 1.9        | 1.4     | 1.4  | 1.4  | 1.2  | 1.2  | 1.2  | 1.3  | 1.2  |
|                                                                                                            | I            | 32    | $J_1$                                 | kgcm <sup>2</sup>                     | 7.1  | 6.2        | –       | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            |              |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 6.3  | 5.5        | –       | –    | –    | –    | –    | –    | –    | –    |
| K                                                                                                          | 38           | $J_1$ | kgcm <sup>2</sup>                     | 8.3                                   | 7.4  | –          | –       | –    | –    | –    | –    | –    | –    |      |
|                                                                                                            |              |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 7.3                                   | 6.5  | –          | –       | –    | –    | –    | –    | –    | –    |      |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

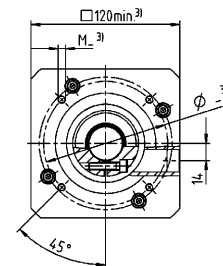
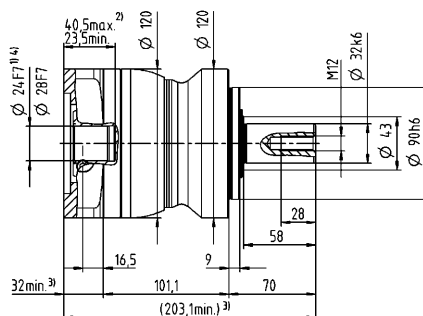
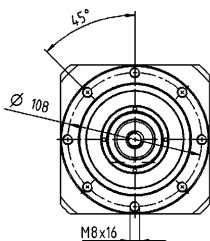
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

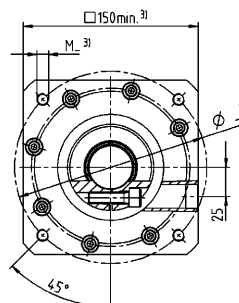
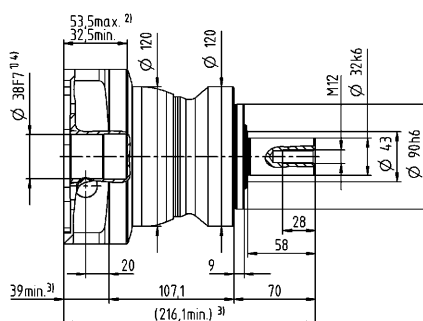
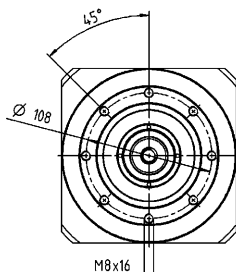
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 24/28<sup>4)</sup>  
(G<sup>5)</sup>/H)  
clamping hub  
diameter

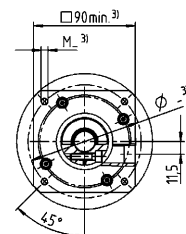
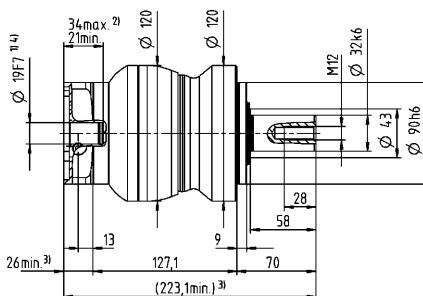
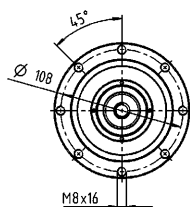


up to 38<sup>4)</sup> (K)  
clamping hub  
diameter

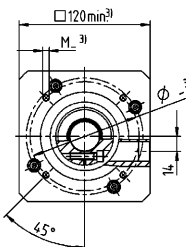
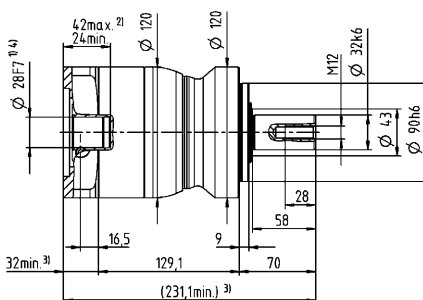
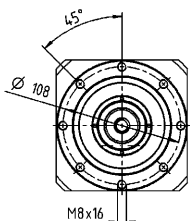


# 2-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter



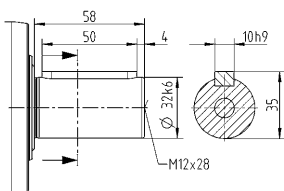
up to 28<sup>4)</sup> (H)  
clamping hub  
diameter



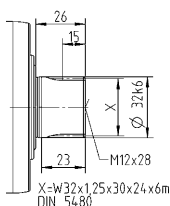
Motor shaft diameter [mm]

## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPS 015 MF 1-stage

|                                                                                                            |    |              |                                       | 1-stage                               |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|----|--------------|---------------------------------------|---------------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                      |    | i            |                                       | 3                                     | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |    | $T_{2a}$     | Nm                                    | 51                                    | 56   | 64   | 64   | 56   | 56   |      |
|                                                                                                            |    |              | in.lb                                 | 451                                   | 496  | 566  | 566  | 496  | 496  |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |    | $T_{2B}$     | Nm                                    | 32                                    | 35   | 40   | 40   | 35   | 35   |      |
|                                                                                                            |    |              | in.lb                                 | 283                                   | 310  | 354  | 354  | 310  | 310  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |    | $T_{2Not}$   | Nm                                    | 80                                    | 80   | 80   | 80   | 80   | 80   |      |
|                                                                                                            |    |              | in.lb                                 | 708                                   | 708  | 708  | 708  | 708  | 708  |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |    | $n_{1N}$     | rpm                                   | 2900                                  | 3100 | 3300 | 3600 | 3600 | 3800 |      |
| Max. input speed                                                                                           |    | $n_{1Max}$   | rpm                                   | 8000                                  | 8000 | 8000 | 8000 | 8000 | 8000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           |    | $T_{012}$    | Nm                                    | 0.92                                  | 0.74 | 0.62 | 0.51 | 0.47 | 0.41 |      |
|                                                                                                            |    |              | in.lb                                 | 8.1                                   | 6.5  | 5.5  | 4.5  | 4.2  | 3.6  |      |
| Max. backlash                                                                                              |    | $j_t$        | arcmin                                | ≤ 8                                   |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |    | $C_{t21}$    | Nm/arcmin                             | 3.3                                   | 3.3  | 3.3  | 3.3  | 2.8  | 2.8  |      |
|                                                                                                            |    |              | in.lb/arcmin                          | 29                                    | 29   | 29   | 29   | 25   | 25   |      |
| Max. axial force <sup>c)</sup>                                                                             |    | $F_{2AMax}$  | N                                     | 2400                                  |      |      |      |      |      |      |
|                                                                                                            |    |              | lb <sub>f</sub>                       | 540                                   |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |    | $F_{2QMMax}$ | N                                     | 2800                                  |      |      |      |      |      |      |
|                                                                                                            |    |              | lb <sub>f</sub>                       | 630                                   |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |    | $M_{2KMMax}$ | Nm                                    | 152                                   |      |      |      |      |      |      |
|                                                                                                            |    |              | in.lb                                 | 1345                                  |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |    | $\eta$       | %                                     | 97                                    |      |      |      |      |      |      |
| Service life                                                                                               |    | $L_h$        | h                                     | > 20000                               |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |    | $m$          | kg                                    | 1.8                                   |      |      |      |      |      |      |
|                                                                                                            |    |              | lb <sub>m</sub>                       | 4                                     |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |    | $L_{PA}$     | dB(A)                                 | ≤ 59                                  |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |    |              | °C                                    | +90                                   |      |      |      |      |      |      |
|                                                                                                            |    |              | °F                                    | +194                                  |      |      |      |      |      |      |
| Ambient temperature                                                                                        |    |              | °C                                    | –15 to +40                            |      |      |      |      |      |      |
|                                                                                                            |    |              | °F                                    | +5 to +104                            |      |      |      |      |      |      |
| Lubrication                                                                                                |    |              | Lubricated for life                   |                                       |      |      |      |      |      |      |
| Direction of rotation                                                                                      |    |              | In- and output same direction         |                                       |      |      |      |      |      |      |
| Protection class                                                                                           |    |              | IP 65                                 |                                       |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |    |              | ELC-0060BA016.000-X                   |                                       |      |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |    |              | mm                                    | X = 012.000 - 032.000                 |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | A  | 9            | $J_1$                                 | kgcm <sup>2</sup>                     | 0.25 | 0.19 | 0.17 | 0.14 | 0.14 | 0.13 |
|                                                                                                            |    |              |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.22 | 0.17 | 0.15 | 0.12 | 0.12 | 0.12 |
|                                                                                                            | B  | 11           | $J_1$                                 | kgcm <sup>2</sup>                     | 0.26 | 0.21 | 0.18 | 0.16 | 0.16 | 0.15 |
|                                                                                                            |    |              |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.23 | 0.19 | 0.16 | 0.14 | 0.14 | 0.13 |
|                                                                                                            | C  | 14           | $J_1$                                 | kgcm <sup>2</sup>                     | 0.34 | 0.28 | 0.26 | 0.24 | 0.23 | 0.23 |
|                                                                                                            |    |              |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.3  | 0.25 | 0.23 | 0.21 | 0.2  | 0.2  |
|                                                                                                            | D  | 16           | $J_1$                                 | kgcm <sup>2</sup>                     | 0.47 | 0.41 | 0.39 | 0.36 | 0.36 | 0.35 |
|                                                                                                            |    |              |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.42 | 0.36 | 0.35 | 0.32 | 0.32 | 0.31 |
| E                                                                                                          | 19 | $J_1$        | kgcm <sup>2</sup>                     | 0.55                                  | 0.49 | 0.47 | 0.45 | 0.44 | 0.44 |      |
|                                                                                                            |    |              | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.49                                  | 0.43 | 0.42 | 0.4  | 0.39 | 0.39 |      |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

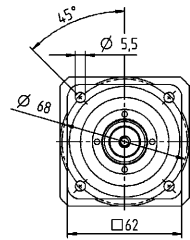
<sup>e)</sup> Valid for: Smooth shaft



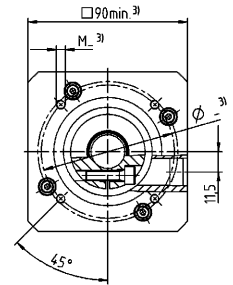
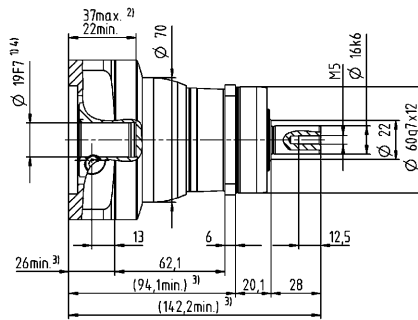
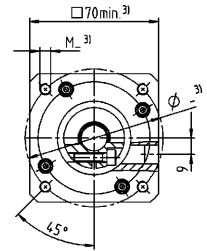
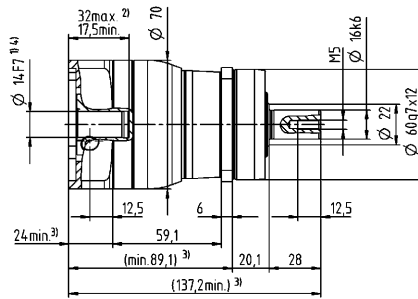
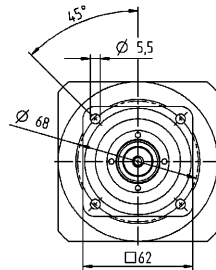
# 1-stage

Motor shaft diameter [mm]

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



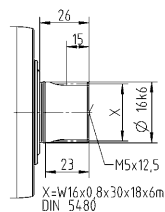
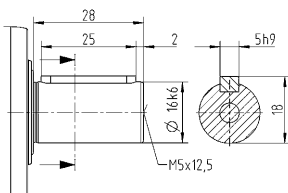
up to 19<sup>4)</sup> (E)  
clamping hub  
diameter



## Other output variants

Shaft with key

Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPS 015 MF 2-stage

|                                                                                                                      |              |                 | 2-stage                       |                     |       |       |       |       |       |       |       |       |       |       |       |       |
|----------------------------------------------------------------------------------------------------------------------|--------------|-----------------|-------------------------------|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ratio                                                                                                                | i            |                 | 12                            | 15                  | 16    | 20    | 25    | 28    | 30    | 32    | 35    | 40    | 50    | 64    | 70    | 100   |
| Max. torque <sup>a) b) e)</sup>                                                                                      | $T_{2a}$     | Nm              | 51                            | 51                  | 56    | 56    | 64    | 56    | 51    | 56    | 64    | 56    | 64    | 56    | 64    | 56    |
|                                                                                                                      |              | in.lb           | 451                           | 451                 | 496   | 496   | 566   | 496   | 451   | 496   | 566   | 496   | 566   | 496   | 566   | 496   |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                                | $T_{2B}$     | Nm              | 32                            | 32                  | 35    | 35    | 40    | 35    | 32    | 35    | 40    | 35    | 40    | 35    | 40    | 35    |
|                                                                                                                      |              | in.lb           | 283                           | 283                 | 310   | 310   | 354   | 310   | 283   | 310   | 354   | 310   | 354   | 310   | 354   | 310   |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox)           | $T_{2Not}$   | Nm              | 80                            | 80                  | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    |
|                                                                                                                      |              | in.lb           | 708                           | 708                 | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                           | $n_{1N}$     | rpm             | 3800                          | 4000                | 3800  | 4000  | 4000  | 4300  | 4600  | 4400  | 4300  | 4600  | 4600  | 4400  | 4600  | 4600  |
| Max. input speed                                                                                                     | $n_{1Max}$   | rpm             | 10000                         | 10000               | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)                       | $T_{012}$    | Nm              | 0.34                          | 0.29                | 0.29  | 0.25  | 0.23  | 0.21  | 0.21  | 0.2   | 0.2   | 0.19  | 0.17  | 0.17  | 0.16  | 0.15  |
|                                                                                                                      |              | in.lb           | 3                             | 2.6                 | 2.6   | 2.2   | 2     | 1.9   | 1.9   | 1.8   | 1.8   | 1.7   | 1.5   | 1.5   | 1.4   | 1.3   |
| Max. backlash                                                                                                        | $j_t$        | arcmin          | $\leq 10$                     |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Torsional rigidity <sup>b)</sup>                                                                                     | $C_{t21}$    | Nm/arcmin       | 3.3                           | 3.3                 | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 2.8   | 3.3   | 2.8   |
|                                                                                                                      |              | in.lb/arcmin    | 29                            | 29                  | 29    | 29    | 29    | 29    | 29    | 29    | 29    | 29    | 29    | 25    | 29    | 25    |
| Max. axial force <sup>c)</sup>                                                                                       | $F_{2AMax}$  | N               | 2400                          |                     |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                                      |              | lb <sub>f</sub> | 540                           |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Max. lateral force <sup>c)</sup>                                                                                     | $F_{2QMMax}$ | N               | 2800                          |                     |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                                      |              | lb <sub>f</sub> | 630                           |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Max. tilting moment                                                                                                  | $M_{2KMMax}$ | Nm              | 152                           |                     |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                                      |              | in.lb           | 1345                          |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Efficiency at full load                                                                                              | $\eta$       | %               | 95                            |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Service life                                                                                                         | $L_h$        | h               | > 20000                       |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Weight<br>(incl. standard adapter plate)                                                                             | $m$          | kg              | 1.9                           |                     |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                                      |              | lb <sub>m</sub> | 4.2                           |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> ) | $L_{PA}$     | dB(A)           | $\leq 58$                     |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Max. permitted housing temperature                                                                                   |              | °C              | +90                           |                     |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                                      |              | °F              | +194                          |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Ambient temperature                                                                                                  |              | °C              | -15 to +40                    |                     |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                                      |              | °F              | +5 to +104                    |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Lubrication                                                                                                          |              |                 | Lubricated for life           |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Direction of rotation                                                                                                |              |                 | In- and output same direction |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Protection class                                                                                                     |              |                 | IP 65                         |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex <sup>®</sup> )                          |              |                 | ELC-0060BA016.000-X           |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Bore diameter of coupling<br>on the application side                                                                 |              | mm              | X = 012.000 - 032.000         |                     |       |       |       |       |       |       |       |       |       |       |       |       |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                                       | Z            | 8               | $J_1$                         | $kgcm^2$            | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                                      |              |                 |                               | $10^{-3} in.lb.s^2$ | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                                      | A            | 9               | $J_1$                         | $kgcm^2$            | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                                      |              |                 |                               | $10^{-3} in.lb.s^2$ | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                                      | B            | 11              | $J_1$                         | $kgcm^2$            | 0.06  | 0.06  | 0.05  | 0.05  | 0.05  | 0.05  | 0.05  | 0.04  | 0.05  | 0.04  | 0.04  | 0.04  |
|                                                                                                                      |              |                 |                               | $10^{-3} in.lb.s^2$ | 0.05  | 0.05  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  |
|                                                                                                                      | C            | 14              | $J_1$                         | $kgcm^2$            | 0.14  | 0.14  | 0.14  | 0.13  | 0.13  | 0.13  | 0.14  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13  |
|                                                                                                                      |              |                 |                               | $10^{-3} in.lb.s^2$ | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  |

Please use our sizing software cymex<sup>®</sup> for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

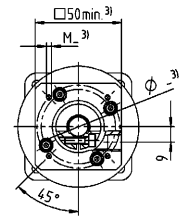
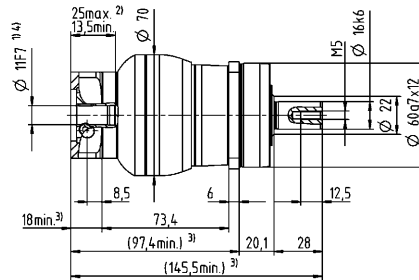
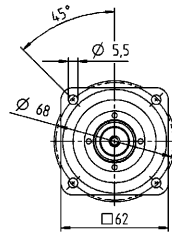
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

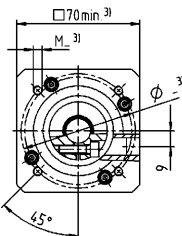
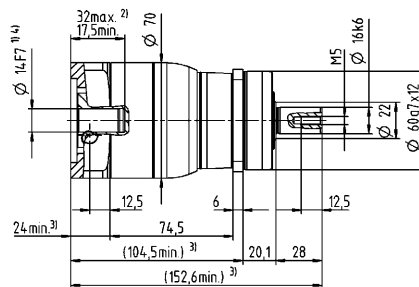
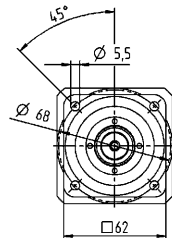
<sup>e)</sup> Valid for: Smooth shaft

## 2-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



up to 14<sup>4)</sup> (C)  
clamping hub  
diameter

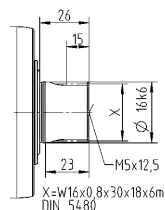
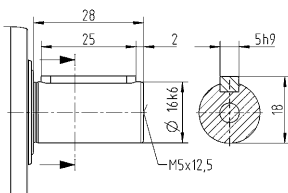


Motor shaft diameter [mm]

### Other output variants

Shaft with key

Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPS 025 MF 1-stage

|                                                                                                            |    |              |                     | 1-stage                       |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|----|--------------|---------------------|-------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                      |    | i            |                     | 3                             | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |    | $T_{2a}$     | $Nm$                | 128                           | 152  | 160  | 160  | 144  | 144  |      |
|                                                                                                            |    |              | $in.lb$             | 1133                          | 1345 | 1416 | 1416 | 1275 | 1275 |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |    | $T_{2B}$     | $Nm$                | 80                            | 95   | 100  | 100  | 90   | 90   |      |
|                                                                                                            |    |              | $in.lb$             | 708                           | 841  | 885  | 885  | 797  | 797  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |    | $T_{2Not}$   | $Nm$                | 190                           | 190  | 190  | 190  | 190  | 190  |      |
|                                                                                                            |    |              | $in.lb$             | 1682                          | 1682 | 1682 | 1682 | 1682 | 1682 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 |    | $n_{1N}$     | $rpm$               | 2700                          | 2900 | 3000 | 3200 | 3300 | 3500 |      |
| Max. input speed                                                                                           |    | $n_{1Max}$   | $rpm$               | 7000                          | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           |    | $T_{012}$    | $Nm$                | 1.8                           | 1.5  | 1.3  | 1.1  | 1    | 0.94 |      |
|                                                                                                            |    |              | $in.lb$             | 16                            | 13   | 12   | 9.7  | 8.9  | 8.3  |      |
| Max. backlash                                                                                              |    | $j_t$        | $arcmin$            | ≤ 8                           |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |    | $C_{t21}$    | $Nm/arcmin$         | 9.5                           | 9.5  | 9.5  | 9.5  | 8.5  | 8.5  |      |
|                                                                                                            |    |              | $in.lb/arcmin$      | 84                            | 84   | 84   | 84   | 75   | 75   |      |
| Max. axial force <sup>c)</sup>                                                                             |    | $F_{2AMax}$  | $N$                 | 3350                          |      |      |      |      |      |      |
|                                                                                                            |    |              | $lb_f$              | 754                           |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |    | $F_{2QMMax}$ | $N$                 | 4200                          |      |      |      |      |      |      |
|                                                                                                            |    |              | $lb_f$              | 945                           |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |    | $M_{2KMMax}$ | $Nm$                | 236                           |      |      |      |      |      |      |
|                                                                                                            |    |              | $in.lb$             | 2089                          |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |    | $\eta$       | %                   | 97                            |      |      |      |      |      |      |
| Service life                                                                                               |    | $L_h$        | $h$                 | > 20000                       |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |    | $m$          | $kg$                | 3.6                           |      |      |      |      |      |      |
|                                                                                                            |    |              | $lb_m$              | 8                             |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |    | $L_{PA}$     | $dB(A)$             | ≤ 61                          |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |    |              | °C                  | +90                           |      |      |      |      |      |      |
|                                                                                                            |    |              | °F                  | +194                          |      |      |      |      |      |      |
| Ambient temperature                                                                                        |    |              | °C                  | –15 to +40                    |      |      |      |      |      |      |
|                                                                                                            |    |              | °F                  | +5 to +104                    |      |      |      |      |      |      |
| Lubrication                                                                                                |    |              |                     | Lubricated for life           |      |      |      |      |      |      |
| Direction of rotation                                                                                      |    |              |                     | In- and output same direction |      |      |      |      |      |      |
| Protection class                                                                                           |    |              |                     | IP 65                         |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |    |              |                     | ELC-0060BA022.000-X           |      |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |    |              | $mm$                | X = 012.000 - 032.000         |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C  | 14           | $J_1$               | $kgcm^2$                      | 0.58 | 0.47 | 0.38 | 0.3  | 0.28 | 0.26 |
|                                                                                                            |    |              |                     | $10^{-3} in.lb.s^2$           | 0.51 | 0.42 | 0.34 | 0.27 | 0.25 | 0.23 |
|                                                                                                            | D  | 16           | $J_1$               | $kgcm^2$                      | 0.73 | 0.62 | 0.53 | 0.43 | 0.42 | 0.4  |
|                                                                                                            |    |              |                     | $10^{-3} in.lb.s^2$           | 0.65 | 0.55 | 0.47 | 0.38 | 0.37 | 0.35 |
|                                                                                                            | E  | 19           | $J_1$               | $kgcm^2$                      | 0.81 | 0.71 | 0.61 | 0.53 | 0.51 | 0.49 |
|                                                                                                            |    |              |                     | $10^{-3} in.lb.s^2$           | 0.72 | 0.63 | 0.54 | 0.47 | 0.45 | 0.43 |
|                                                                                                            | G  | 24           | $J_1$               | $kgcm^2$                      | 1.8  | 1.7  | 1.6  | 1.6  | 1.5  | 1.5  |
|                                                                                                            |    |              |                     | $10^{-3} in.lb.s^2$           | 1.6  | 1.5  | 1.4  | 1.4  | 1.3  | 1.3  |
| H                                                                                                          | 28 | $J_1$        | $kgcm^2$            | 1.6                           | 1.4  | 1.4  | 1.3  | 1.3  | 1.2  |      |
|                                                                                                            |    |              | $10^{-3} in.lb.s^2$ | 1.4                           | 1.2  | 1.2  | 1.2  | 1.2  | 1.1  |      |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

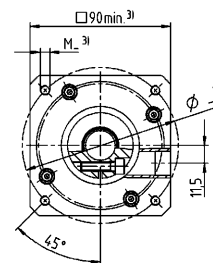
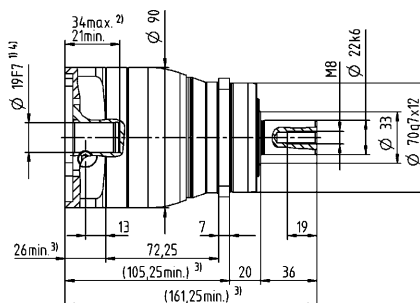
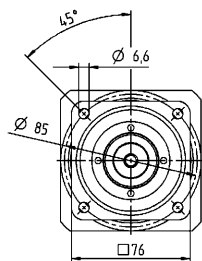
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

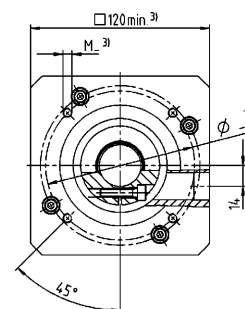
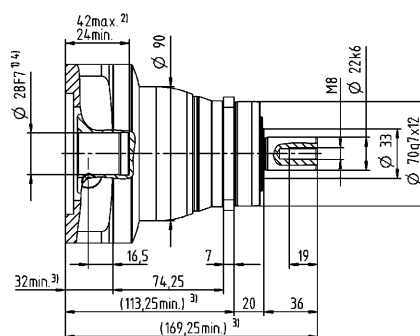
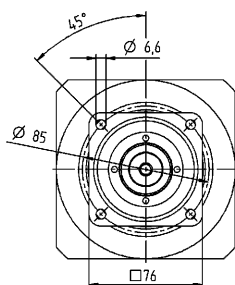
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter



up to 28<sup>4)</sup> (H)  
clamping hub  
diameter



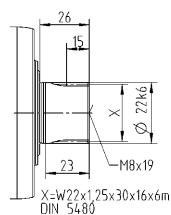
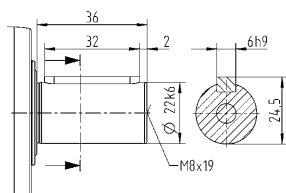
Motor shaft diameter [mm]

Planetary Gearboxes  
Value Line

## Other output variants

Shaft with key

Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPS 025 MF 2-stage

|                                                                                                            |              |                 | 2-stage                       |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|-------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 9                             | 12                                    | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 128                           | 128                                   | 128  | 152  | 152  | 160  | 152  | 128  | 144  | 160  | 152  | 160  | 144  | 160  | 144  |
|                                                                                                            |              | in.lb           | 1133                          | 1133                                  | 1133 | 1345 | 1345 | 1416 | 1345 | 1133 | 1275 | 1416 | 1345 | 1416 | 1275 | 1416 | 1275 |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 80                            | 80                                    | 80   | 95   | 95   | 100  | 95   | 80   | 90   | 100  | 95   | 100  | 90   | 100  | 90   |
|                                                                                                            |              | in.lb           | 708                           | 708                                   | 708  | 841  | 841  | 885  | 841  | 708  | 797  | 885  | 841  | 885  | 797  | 885  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 190                           | 190                                   | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  |
|                                                                                                            |              | in.lb           | 1682                          | 1682                                  | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 2900                          | 3500                                  | 3700 | 3500 | 3700 | 3700 | 4000 | 4300 | 4100 | 4000 | 4300 | 4300 | 4100 | 4300 | 4300 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 8000                          | 8000                                  | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1 = 3000$ rpm and 20 °C gearbox temperature)           | $T_{012}$    | Nm              | 0.67                          | 0.55                                  | 0.47 | 0.46 | 0.4  | 0.36 | 0.34 | 0.33 | 0.32 | 0.31 | 0.29 | 0.27 | 0.25 | 0.25 | 0.23 |
|                                                                                                            |              | in.lb           | 5.9                           | 4.9                                   | 4.2  | 4.1  | 3.5  | 3.2  | 3    | 2.9  | 2.8  | 2.7  | 2.6  | 2.4  | 2.2  | 2.2  | 2    |
| Max. backlash                                                                                              | $j_t$        | arcmin          | $\leq 10$                     |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 10                            | 10                                    | 10   | 10   | 10   | 9.5  | 10   | 10   | 10   | 9.5  | 10   | 9.5  | 8.5  | 9.5  | 8.5  |
|                                                                                                            |              | in.lb/arcmin    | 89                            | 89                                    | 89   | 89   | 89   | 84   | 89   | 89   | 89   | 84   | 89   | 84   | 75   | 84   | 75   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 3350                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 754                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 4200                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 945                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ | Nm              | 236                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 2089                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 95                            |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                       |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 3.9                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 8.6                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | $\leq 59$                     |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | -15 to +40                    |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +5 to +104                    |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 65                         |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA022.000-X           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 012.000 - 032.000         |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | A            | 9               | $J_1$                         | kgcm <sup>2</sup>                     | 0.26 | 0.22 | 0.21 | 0.21 | 0.2  | 0.2  | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.23 | 0.19 | 0.19 | 0.19 | 0.18 | 0.18 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
|                                                                                                            | B            | 11              | $J_1$                         | kgcm <sup>2</sup>                     | 0.28 | 0.24 | 0.23 | 0.23 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.25 | 0.21 | 0.2  | 0.2  | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
|                                                                                                            | C            | 14              | $J_1$                         | kgcm <sup>2</sup>                     | 0.35 | 0.31 | 0.3  | 0.3  | 0.3  | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.31 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
|                                                                                                            | D            | 16              | $J_1$                         | kgcm <sup>2</sup>                     | 0.48 | 0.44 | 0.43 | 0.43 | 0.42 | 0.42 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.42 | 0.39 | 0.38 | 0.38 | 0.37 | 0.37 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
|                                                                                                            | E            | 19              | $J_1$                         | kgcm <sup>2</sup>                     | 0.56 | 0.52 | 0.51 | 0.52 | 0.51 | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.49 | 0.49 | 0.49 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.5  | 0.46 | 0.45 | 0.46 | 0.45 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.43 | 0.43 | 0.43 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

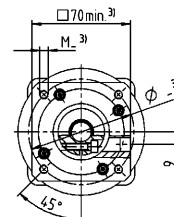
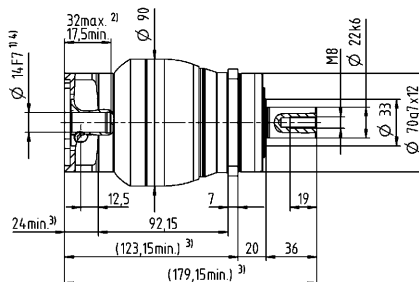
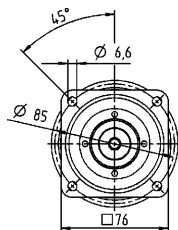
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

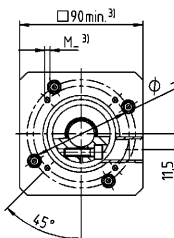
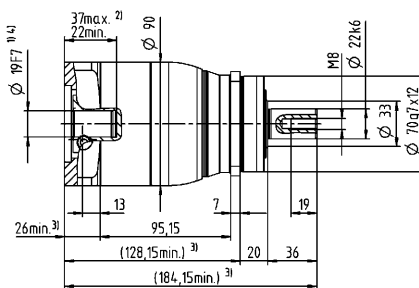
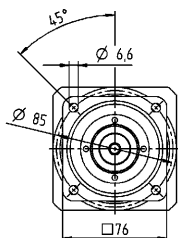
<sup>e)</sup> Valid for: Smooth shaft

## 2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



up to 19<sup>4)</sup> (E)  
clamping hub  
diameter



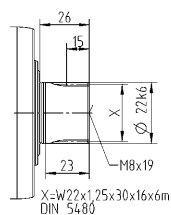
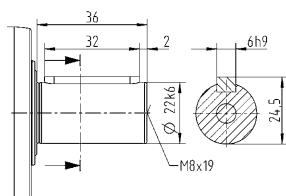
Motor shaft diameter [mm]

Planetary Gearboxes  
Value Line

### Other output variants

Shaft with key

Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPS 035 MF 1-stage

|                                                                                                            |              |       | 1-stage                               |                                       |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-------|---------------------------------------|---------------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |       |                                       | 3                                     | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     |       | Nm                                    | 320                                   | 408  | 400  | 400  | 352  | 352  |      |
|                                                                                                            |              |       | in.lb                                 | 2832                                  | 3611 | 3540 | 3540 | 3115 | 3115 |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     |       | Nm                                    | 200                                   | 255  | 250  | 250  | 220  | 220  |      |
|                                                                                                            |              |       | in.lb                                 | 1770                                  | 2257 | 2213 | 2213 | 1947 | 1947 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   |       | Nm                                    | 500                                   | 500  | 500  | 500  | 500  | 500  |      |
|                                                                                                            |              |       | in.lb                                 | 4425                                  | 4425 | 4425 | 4425 | 4425 | 4425 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     |       | rpm                                   | 2000                                  | 2200 | 2300 | 2500 | 2600 | 2700 |      |
| Max. input speed                                                                                           | $n_{1Max}$   |       | rpm                                   | 6000                                  | 6000 | 6000 | 6000 | 6000 | 6000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$    |       | Nm                                    | 3.3                                   | 2.7  | 2.3  | 1.9  | 1.7  | 1.5  |      |
|                                                                                                            |              |       | in.lb                                 | 29                                    | 24   | 20   | 17   | 15   | 13   |      |
| Max. backlash                                                                                              | $j_t$        |       | arcmin                                | ≤ 8                                   |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    |       | Nm/arcmin                             | 25                                    | 25   | 25   | 25   | 22   | 22   |      |
|                                                                                                            |              |       | in.lb/arcmin                          | 221                                   | 221  | 221  | 221  | 195  | 195  |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  |       | N                                     | 5650                                  |      |      |      |      |      |      |
|                                                                                                            |              |       | lb <sub>f</sub>                       | 1271                                  |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ |       | N                                     | 6600                                  |      |      |      |      |      |      |
|                                                                                                            |              |       | lb <sub>f</sub>                       | 1485                                  |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$  |       | Nm                                    | 487                                   |      |      |      |      |      |      |
|                                                                                                            |              |       | in.lb                                 | 4310                                  |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       |       | %                                     | 97                                    |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        |       | h                                     | > 20000                               |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          |       | kg                                    | 8.4                                   |      |      |      |      |      |      |
|                                                                                                            |              |       | lb <sub>m</sub>                       | 19                                    |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     |       | dB(A)                                 | ≤ 65                                  |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              |       | °C                                    | +90                                   |      |      |      |      |      |      |
|                                                                                                            |              |       | °F                                    | +194                                  |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              |       | °C                                    | –15 to +40                            |      |      |      |      |      |      |
|                                                                                                            |              |       | °F                                    | +5 to +104                            |      |      |      |      |      |      |
| Lubrication                                                                                                |              |       |                                       | Lubricated for life                   |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |       |                                       | In- and output same direction         |      |      |      |      |      |      |
| Protection class                                                                                           |              |       |                                       | IP 65                                 |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |       |                                       | ELC-0150BA032.000-X                   |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              |       | mm                                    | X = 019.000 - 036.000                 |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E            | 19    | $J_1$                                 | kgcm <sup>2</sup>                     | 2.5  | 1.7  | 1.3  | 1    | 0.94 | 0.87 |
|                                                                                                            |              |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.2  | 1.5  | 1.2  | 0.89 | 0.83 | 0.77 |
|                                                                                                            | G            | 24    | $J_1$                                 | kgcm <sup>2</sup>                     | 3.3  | 2.4  | 2.1  | 1.8  | 1.7  | 1.6  |
|                                                                                                            |              |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.9  | 2.1  | 1.9  | 1.6  | 1.5  | 1.4  |
|                                                                                                            | H            | 28    | $J_1$                                 | kgcm <sup>2</sup>                     | 3    | 2.2  | 1.8  | 1.5  | 1.4  | 1.4  |
|                                                                                                            |              |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.7  | 1.9  | 1.6  | 1.3  | 1.2  | 1.2  |
|                                                                                                            | I            | 32    | $J_1$                                 | kgcm <sup>2</sup>                     | 7.1  | 6.2  | 5.9  | 5.6  | 5.5  | 5.4  |
|                                                                                                            |              |       |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 6.3  | 5.5  | 5.2  | 5    | 4.9  | 4.8  |
| K                                                                                                          | 38           | $J_1$ | kgcm <sup>2</sup>                     | 8.3                                   | 7.4  | 7.1  | 6.7  | 6.6  | 6.6  |      |
|                                                                                                            |              |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 7.3                                   | 6.5  | 6.3  | 5.9  | 5.8  | 5.8  |      |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

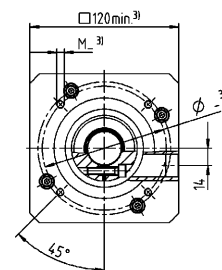
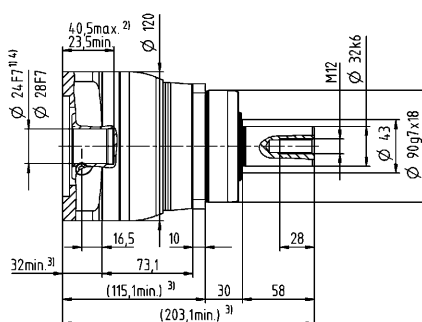
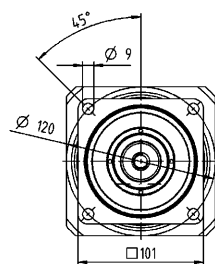
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft



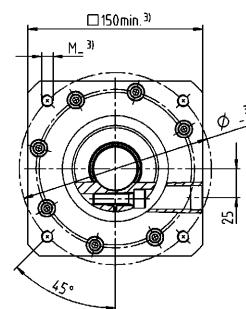
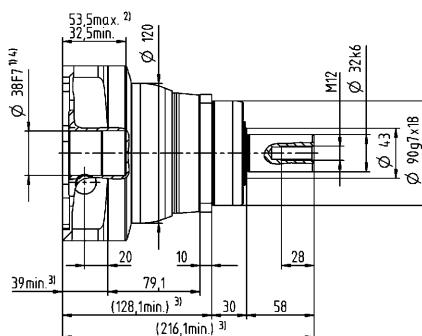
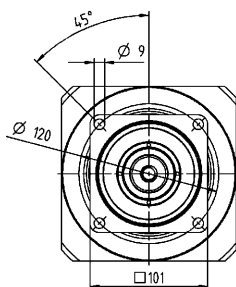
# 1-stage

up to 24/28 <sup>4)</sup>  
(G <sup>5)</sup>/H)  
clamping hub  
diameter



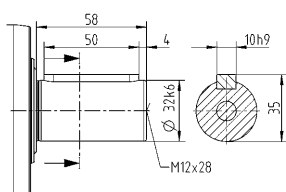
# 1-stage

up to 38 <sup>4)</sup> (K)  
clamping hub  
diameter

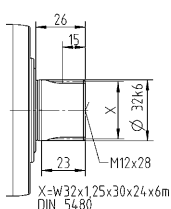


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPS 035 MF 2-stage

|                                                                                                            |              |    |                 | 2-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|----|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |    |                 | 9                                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     |    | Nm              | 320                                   | 320  | 320  | 408  | 408  | 400  | 408  | 320  | 408  | 400  | 408  | 400  | 352  | 400  | 352  |      |
|                                                                                                            |              |    | in.lb           | 2832                                  | 2832 | 2832 | 3611 | 3611 | 3540 | 3611 | 2832 | 3611 | 3540 | 3611 | 3540 | 3115 | 3540 | 3115 |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     |    | Nm              | 200                                   | 200  | 200  | 255  | 255  | 250  | 255  | 200  | 255  | 250  | 255  | 250  | 220  | 250  | 220  |      |
|                                                                                                            |              |    | in.lb           | 1770                                  | 1770 | 1770 | 2257 | 2257 | 2213 | 2257 | 1770 | 2257 | 2213 | 2257 | 2213 | 1947 | 2213 | 1947 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   |    | Nm              | 500                                   | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  |      |
|                                                                                                            |              |    | in.lb           | 4425                                  | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$     |    | rpm             | 2700                                  | 3300 | 3400 | 3300 | 3400 | 3400 | 3600 | 3900 | 3700 | 3600 | 3900 | 3900 | 3700 | 3900 | 3900 |      |
| Max. input speed                                                                                           | $n_{1Max}$   |    | rpm             | 7000                                  | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$    |    | Nm              | 1.7                                   | 1.4  | 1.2  | 1.2  | 1.1  | 1    | 0.93 | 0.88 | 0.88 | 0.87 | 0.81 | 0.77 | 0.75 | 0.72 | 0.68 |      |
|                                                                                                            |              |    | in.lb           | 15                                    | 12   | 11   | 11   | 9.7  | 8.9  | 8.2  | 7.8  | 7.8  | 7.7  | 7.2  | 6.8  | 6.6  | 6.4  | 6    |      |
| Max. backlash                                                                                              | $j_t$        |    | arcmin          | ≤ 10                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    |    | Nm/arcmin       | 25                                    | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 22   | 25   | 22   |      |
|                                                                                                            |              |    | in.lb/arcmin    | 221                                   | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 195  | 221  | 195  |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  |    | N               | 5650                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | lb <sub>f</sub> | 1271                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ |    | N               | 6600                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | lb <sub>f</sub> | 1485                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$  |    | Nm              | 487                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | in.lb           | 4310                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       |    | %               | 95                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        |    | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          |    | kg              | 8.8                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | lb <sub>m</sub> | 19                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     |    | dB(A)           | ≤ 61                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              |    | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              |    | °C              | –15 to +40                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | °F              | +5 to +104                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |    |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |    |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |    |                 | IP 65                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |    |                 | ELC-0150BA032.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              |    | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C            | 14 | $J_1$           | kgcm <sup>2</sup>                     | 0.6  | 0.59 | 0.6  | 0.43 | 0.42 | 0.36 | 0.37 | 0.52 | 0.38 | 0.32 | 0.36 | 0.31 | 0.26 | 0.27 | 0.24 |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.53 | 0.52 | 0.53 | 0.38 | 0.37 | 0.32 | 0.33 | 0.46 | 0.34 | 0.28 | 0.32 | 0.27 | 0.23 | 0.24 | 0.21 |
|                                                                                                            | D            | 16 | $J_1$           | kgcm <sup>2</sup>                     | 0.75 | 0.74 | 0.74 | 0.58 | 0.57 | 0.5  | 0.5  | 0.67 | 0.52 | 0.45 | 0.51 | 0.46 | 0.4  | 0.41 | 0.39 |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.66 | 0.65 | 0.65 | 0.51 | 0.5  | 0.44 | 0.44 | 0.59 | 0.46 | 0.4  | 0.45 | 0.41 | 0.35 | 0.36 | 0.35 |
|                                                                                                            | E            | 19 | $J_1$           | kgcm <sup>2</sup>                     | 0.84 | 0.83 | 0.83 | 0.66 | 0.65 | 0.59 | 0.6  | 0.75 | 0.61 | 0.55 | 0.6  | 0.54 | 0.49 | 0.5  | 0.48 |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.74 | 0.73 | 0.73 | 0.58 | 0.58 | 0.52 | 0.53 | 0.66 | 0.54 | 0.49 | 0.53 | 0.48 | 0.43 | 0.44 | 0.42 |
|                                                                                                            | G            | 24 | $J_1$           | kgcm <sup>2</sup>                     | 1.9  | 1.9  | 1.9  | 1.7  | 1.7  | 1.6  | 1.6  | 1.8  | 1.6  | 1.6  | 1.6  | 1.6  | 1.5  | 1.5  | 1.5  |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.7  | 1.6  | 1.7  | 1.5  | 1.5  | 1.4  | 1.5  | 1.6  | 1.5  | 1.4  | 1.4  | 1.4  | 1.3  | 1.4  | 1.3  |
|                                                                                                            | H            | 28 | $J_1$           | kgcm <sup>2</sup>                     | 1.6  | 1.6  | 1.6  | 1.4  | 1.4  | 1.3  | 1.3  | 1.5  | 1.4  | 1.3  | 1.3  | 1.3  | 1.2  | 1.2  | 1.2  |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.4  | 1.4  | 1.4  | 1.2  | 1.2  | 1.2  | 1.2  | 1.3  | 1.2  | 1.1  | 1.2  | 1.1  | 1.1  | 1.1  | 1.1  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

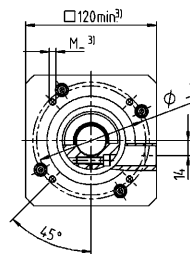
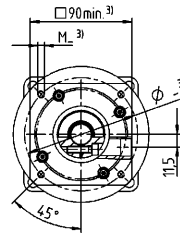
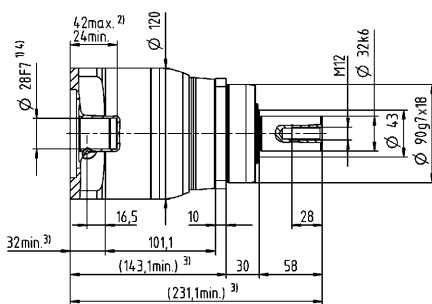
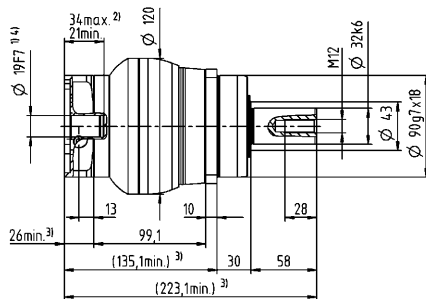
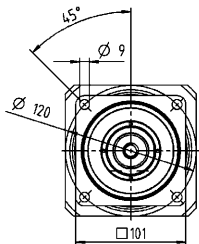
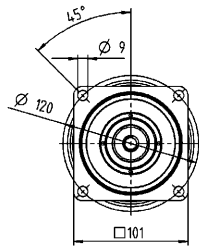
<sup>e)</sup> Valid for: Smooth shaft

## 2-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter

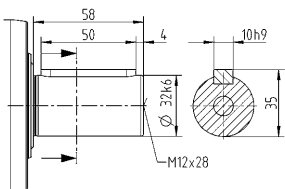
Motor shaft diameter [mm]

up to 28 <sup>4)</sup> (H)  
clamping hub  
diameter

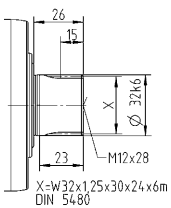


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

- 1) Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPS 045 MF 1-/2-stage

|                                                                                                            |              |                |                               | 1-stage             |      |      | 2-stage    |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|----------------|-------------------------------|---------------------|------|------|------------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                |                               | 5                   | 8    | 10   | 25         | 32   | 50   | 64   | 100  |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | $Nm$           |                               | 800                 | 640  | 640  | 700        | 640  | 700  | 640  | 640  |      |
|                                                                                                            |              | $in.lb$        |                               | 7081                | 5665 | 5665 | 6196       | 5665 | 6196 | 5665 | 5665 |      |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | $Nm$           |                               | 500                 | 400  | 400  | 500        | 400  | 500  | 400  | 400  |      |
|                                                                                                            |              | $in.lb$        |                               | 4425                | 3540 | 3540 | 4425       | 3540 | 4425 | 3540 | 3540 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | $Nm$           |                               | 1000                | 1000 | 1000 | 1000       | 1000 | 1000 | 1000 | 1000 |      |
|                                                                                                            |              | $in.lb$        |                               | 8851                | 8851 | 8851 | 8851       | 8851 | 8851 | 8851 | 8851 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$     | $rpm$          |                               | 1800                | 1900 | 2000 | 2600       | 2500 | 3000 | 2900 | 3000 |      |
| Max. input speed                                                                                           | $n_{1Max}$   | $rpm$          |                               | 4000                | 4000 | 4000 | 6000       | 6000 | 6000 | 6000 | 6000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$    | $Nm$           |                               | 4.2                 | 3    | 2.6  | 1.6        | 1.5  | 1.2  | 1.1  | 0.97 |      |
|                                                                                                            |              | $in.lb$        |                               | 37                  | 27   | 23   | 14         | 13   | 11   | 9.7  | 8.6  |      |
| Max. backlash                                                                                              | $j_t$        | $arcmin$       | ≤ 8                           |                     |      |      | ≤ 10       |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | $Nm/arcmin$    | 55                            | 44                  | 44   | 55   | 44         | 55   | 44   | 44   |      |      |
|                                                                                                            |              | $in.lb/arcmin$ | 487                           | 389                 | 389  | 487  | 389        | 487  | 389  | 389  |      |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | $N$            | 9870                          |                     |      |      | 9870       |      |      |      |      |      |
|                                                                                                            |              | $lb_f$         | 2221                          |                     |      |      | 2221       |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | $N$            | 9900                          |                     |      |      | 9900       |      |      |      |      |      |
|                                                                                                            |              | $lb_f$         | 2228                          |                     |      |      | 2228       |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ | $Nm$           | 952                           |                     |      |      | 952        |      |      |      |      |      |
|                                                                                                            |              | $in.lb$        | 8426                          |                     |      |      | 8426       |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %              | 97                            |                     |      |      | 95         |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | $h$            | > 20000                       |                     |      |      | > 20000    |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | $kg$           | 19                            |                     |      |      | 19         |      |      |      |      |      |
|                                                                                                            |              | $lb_m$         | 42                            |                     |      |      | 42         |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | $dB(A)$        | ≤ 68                          |                     |      |      | ≤ 65       |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C             | +90                           |                     |      |      | +90        |      |      |      |      |      |
|                                                                                                            |              | °F             | +194                          |                     |      |      | +194       |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C             | –15 to +40                    |                     |      |      | –15 to +40 |      |      |      |      |      |
|                                                                                                            |              | °F             | +5 to +104                    |                     |      |      | +5 to +104 |      |      |      |      |      |
| Lubrication                                                                                                |              |                | Lubricated for life           |                     |      |      |            |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                | In- and output same direction |                     |      |      |            |      |      |      |      |      |
| Protection class                                                                                           |              |                | IP 65                         |                     |      |      |            |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                | ELC-0300BA040.000-X           |                     |      |      |            |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | $mm$           | X = 020.000 - 045.000         |                     |      |      |            |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E            | 19             | $J_1$                         | $kgcm^2$            | –    | –    | –          | 1.2  | 1.1  | 1    | 0.88 | 0.82 |
|                                                                                                            |              |                |                               | $10^{-3} in.lb.s^2$ | –    | –    | –          | 1.1  | 0.97 | 0.89 | 0.78 | 0.73 |
|                                                                                                            | G            | 24             | $J_1$                         | $kgcm^2$            | –    | –    | –          | 2    | 1.9  | 1.8  | 1.7  | 1.6  |
|                                                                                                            |              |                |                               | $10^{-3} in.lb.s^2$ | –    | –    | –          | 1.8  | 1.7  | 1.6  | 1.5  | 1.4  |
|                                                                                                            | H            | 28             | $J_1$                         | $kgcm^2$            | –    | –    | –          | 1.7  | 1.6  | 1.5  | 1.4  | 1.3  |
|                                                                                                            |              |                |                               | $10^{-3} in.lb.s^2$ | –    | –    | –          | 1.5  | 1.4  | 1.3  | 1.2  | 1.2  |
|                                                                                                            | I            | 32             | $J_1$                         | $kgcm^2$            | –    | –    | –          | 5.8  | 5.7  | 5.6  | 5.4  | 5.4  |
|                                                                                                            |              |                |                               | $10^{-3} in.lb.s^2$ | –    | –    | –          | 5.1  | 5    | 5    | 4.8  | 4.8  |
|                                                                                                            | K            | 38             | $J_1$                         | $kgcm^2$            | 8.7  | 7.3  | 7.2        | 7    | 6.9  | 6.8  | 6.6  | 6.5  |
|                                                                                                            |              |                |                               | $10^{-3} in.lb.s^2$ | 7.7  | 6.5  | 6.4        | 6.2  | 6.1  | 6    | 5.8  | 5.8  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

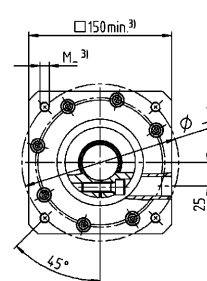
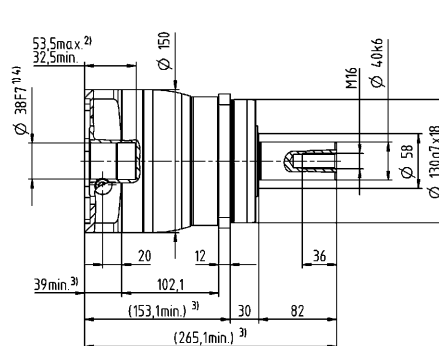
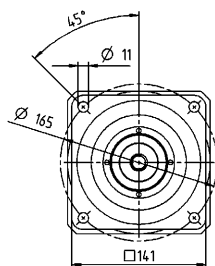
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

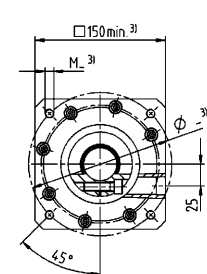
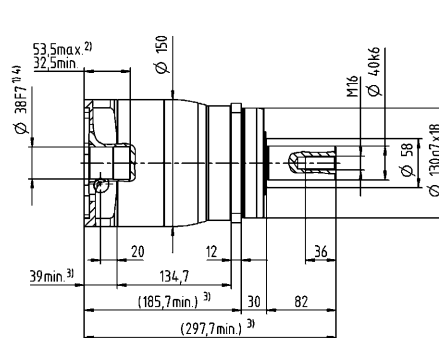
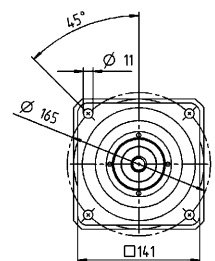
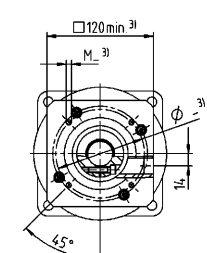
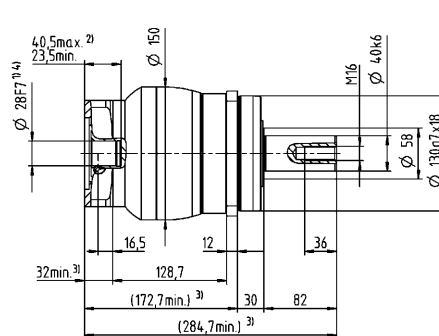
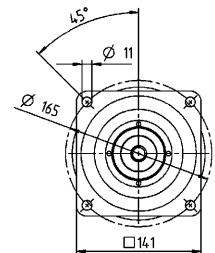
# 1-stage

up to 38<sup>4)</sup> (K)<sup>5)</sup>  
clamping hub  
diameter



# 2-stage

up to 28<sup>4)</sup> (H)<sup>5)</sup>  
clamping hub  
diameter



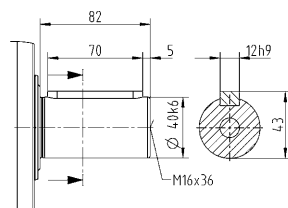
Motor shaft diameter [mm]

up to 38<sup>4)</sup> (K)  
clamping hub  
diameter

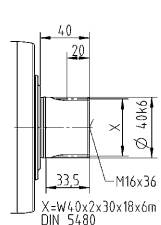
Planetary Gearboxes  
Value Line

## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPS 015 MA 1-/2-stage

|                                                                                                            |              |                 | 1-stage                       |                                       | 2-stage    |       |       |       |       |       |       |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|-------------------------------|---------------------------------------|------------|-------|-------|-------|-------|-------|-------|------|------|
| Ratio                                                                                                      | i            |                 | 3                             | 4                                     | 12         | 15    | 16    | 20    | 28    | 30    | 40    |      |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 80                            | 67                                    | 62         | 67    | 67    | 67    | 67    | 62    | 67    |      |      |
|                                                                                                            |              | in.lb           | 708                           | 593                                   | 549        | 593   | 593   | 593   | 593   | 549   | 593   |      |      |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 55                            | 42                                    | 39         | 42    | 42    | 42    | 42    | 39    | 42    |      |      |
|                                                                                                            |              | in.lb           | 487                           | 372                                   | 345        | 372   | 372   | 372   | 372   | 345   | 372   |      |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 80                            | 80                                    | 80         | 80    | 80    | 80    | 80    | 80    | 80    |      |      |
|                                                                                                            |              | in.lb           | 708                           | 708                                   | 708        | 708   | 708   | 708   | 708   | 708   | 708   |      |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 2900                          | 3100                                  | 3800       | 4000  | 3800  | 4000  | 4300  | 4600  | 4600  |      |      |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 8000                          | 8000                                  | 10000      | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$    | Nm              | 0.92                          | 0.74                                  | 0.34       | 0.29  | 0.29  | 0.25  | 0.21  | 0.21  | 0.19  |      |      |
|                                                                                                            |              | in.lb           | 8.1                           | 6.5                                   | 3          | 2.6   | 2.6   | 2.2   | 1.9   | 1.9   | 1.7   |      |      |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 8                           |                                       | ≤ 10       |       |       |       |       |       |       |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 4                             | 4                                     | 4          | 4     | 4     | 4     | 4     | 4     | 4     |      |      |
|                                                                                                            |              | in.lb/arcmin    | 35                            | 35                                    | 35         | 35    | 35    | 35    | 35    | 35    | 35    |      |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 2400                          |                                       | 2400       |       |       |       |       |       |       |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 540                           |                                       | 540        |       |       |       |       |       |       |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 2800                          |                                       | 2800       |       |       |       |       |       |       |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 630                           |                                       | 630        |       |       |       |       |       |       |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ | Nm              | 152                           |                                       | 152        |       |       |       |       |       |       |      |      |
|                                                                                                            |              | in.lb           | 1345                          |                                       | 1345       |       |       |       |       |       |       |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 97                            |                                       | 95         |       |       |       |       |       |       |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                       |                                       | > 20000    |       |       |       |       |       |       |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 1.8                           |                                       | 1.9        |       |       |       |       |       |       |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 4                             |                                       | 4.2        |       |       |       |       |       |       |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 59                          |                                       | ≤ 58       |       |       |       |       |       |       |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                           |                                       | +90        |       |       |       |       |       |       |      |      |
|                                                                                                            |              | °F              | +194                          |                                       | +194       |       |       |       |       |       |       |      |      |
| Ambient temperature                                                                                        |              | °C              | –15 to +40                    |                                       | –15 to +40 |       |       |       |       |       |       |      |      |
|                                                                                                            |              | °F              | +5 to +104                    |                                       | +5 to +104 |       |       |       |       |       |       |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life           |                                       |            |       |       |       |       |       |       |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction |                                       |            |       |       |       |       |       |       |      |      |
| Protection class                                                                                           |              |                 | IP 65                         |                                       |            |       |       |       |       |       |       |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA016.000-X           |                                       |            |       |       |       |       |       |       |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 012.000 - 032.000         |                                       |            |       |       |       |       |       |       |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | Z            | 8               | $J_1$                         | kgcm <sup>2</sup>                     | –          | –     | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 |      |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –          | –     | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 | 0.03 |
|                                                                                                            | A            | 9               | $J_1$                         | kgcm <sup>2</sup>                     | 0.25       | 0.19  | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 |      |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.22       | 0.17  | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 | 0.03 |
|                                                                                                            | B            | 11              | $J_1$                         | kgcm <sup>2</sup>                     | 0.26       | 0.21  | 0.06  | 0.06  | 0.05  | 0.05  | 0.05  | 0.05 |      |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.23       | 0.19  | 0.05  | 0.05  | 0.04  | 0.04  | 0.04  | 0.04 | 0.04 |
|                                                                                                            | C            | 14              | $J_1$                         | kgcm <sup>2</sup>                     | 0.34       | 0.28  | 0.14  | 0.14  | 0.14  | 0.13  | 0.13  | 0.14 |      |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.3        | 0.25  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12 | 0.12 |
|                                                                                                            | D            | 16              | $J_1$                         | kgcm <sup>2</sup>                     | 0.47       | 0.41  | –     | –     | –     | –     | –     | –    | –    |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.42       | 0.36  | –     | –     | –     | –     | –     | –    | –    |
|                                                                                                            | E            | 19              | $J_1$                         | kgcm <sup>2</sup>                     | 0.55       | 0.49  | –     | –     | –     | –     | –     | –    | –    |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.49       | 0.43  | –     | –     | –     | –     | –     | –    | –    |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

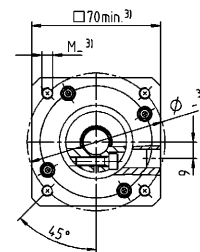
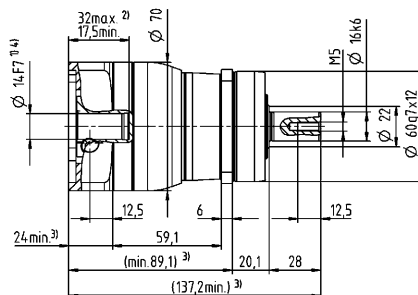
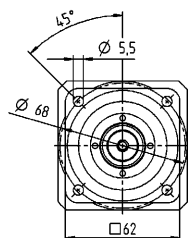
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

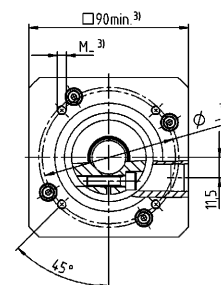
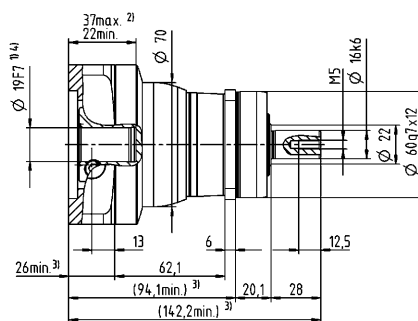
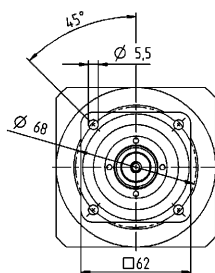
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter

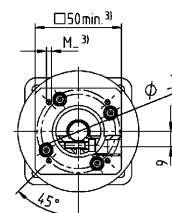
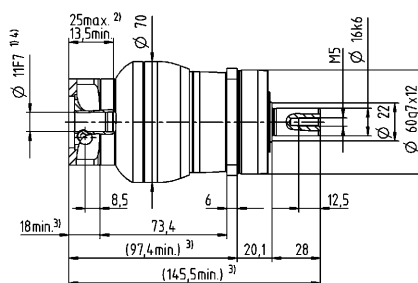
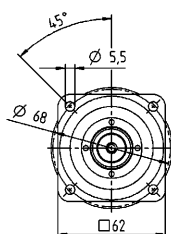


up to 19<sup>4)</sup> (E)  
clamping hub  
diameter

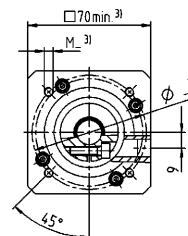
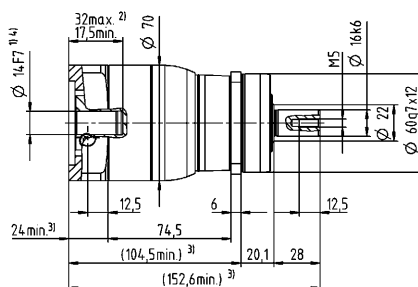
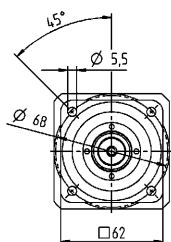


# 2-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



up to 14<sup>4)</sup> (C)  
clamping hub  
diameter

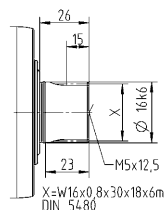
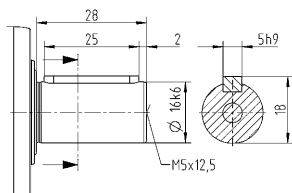


Motor shaft diameter [mm]

## Other output variants

Shaft with key

Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPS 025 MA 1-/2-stage

|                                                                                                            |             |    |                 |                                       | 1-stage |            | 2-stage |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|----|-----------------|---------------------------------------|---------|------------|---------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i           |    |                 | 3                                     | 4       | 9          | 12      | 15   | 16   | 20   | 28   | 30   | 40   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    |    | Nm              | 185                                   | 185     | 185        | 185     | 185  | 185  | 185  | 185  | 168  | 185  |      |
|                                                                                                            |             |    | in.lb           | 1637                                  | 1637    | 1637       | 1637    | 1637 | 1637 | 1637 | 1637 | 1637 | 1487 | 1637 |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    |    | Nm              | 125                                   | 115     | 125        | 125     | 120  | 115  | 115  | 115  | 105  | 115  |      |
|                                                                                                            |             |    | in.lb           | 1106                                  | 1018    | 1106       | 1106    | 1062 | 1018 | 1018 | 1018 | 929  | 1018 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  |    | Nm              | 190                                   | 190     | 190        | 190     | 190  | 190  | 190  | 190  | 190  | 190  |      |
|                                                                                                            |             |    | in.lb           | 1682                                  | 1682    | 1682       | 1682    | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    |    | rpm             | 2700                                  | 2900    | 2900       | 3500    | 3700 | 3500 | 3700 | 4000 | 4300 | 4300 |      |
| Max. input speed                                                                                           | $n_{1Max}$  |    | rpm             | 7000                                  | 7000    | 8000       | 8000    | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$   |    | Nm              | 1.8                                   | 1.5     | 0.67       | 0.55    | 0.47 | 0.46 | 0.4  | 0.34 | 0.33 | 0.29 |      |
|                                                                                                            |             |    | in.lb           | 16                                    | 13      | 5.9        | 4.9     | 4.2  | 4.1  | 3.5  | 3    | 2.9  | 2.6  |      |
| Max. backlash                                                                                              | $j_t$       |    | arcmin          | ≤ 8                                   |         | ≤ 10       |         |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   |    | Nm/arcmin       | 12                                    | 12      | 12         | 12      | 12   | 12   | 12   | 12   | 12   | 12   |      |
|                                                                                                            |             |    | in.lb/arcmin    | 106                                   | 106     | 106        | 106     | 106  | 106  | 106  | 106  | 106  | 106  |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ |    | N               | 3350                                  |         | 3350       |         |      |      |      |      |      |      |      |
|                                                                                                            |             |    | lb <sub>f</sub> | 754                                   |         | 754        |         |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ |    | N               | 4200                                  |         | 4200       |         |      |      |      |      |      |      |      |
|                                                                                                            |             |    | lb <sub>f</sub> | 945                                   |         | 945        |         |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ |    | Nm              | 236                                   |         | 236        |         |      |      |      |      |      |      |      |
|                                                                                                            |             |    | in.lb           | 2089                                  |         | 2089       |         |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      |    | %               | 97                                    |         | 95         |         |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$       |    | h               | > 20000                               |         | > 20000    |         |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         |    | kg              | 3.6                                   |         | 3.9        |         |      |      |      |      |      |      |      |
|                                                                                                            |             |    | lb <sub>m</sub> | 8                                     |         | 8.6        |         |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    |    | dB(A)           | ≤ 61                                  |         | ≤ 59       |         |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             |    | °C              | +90                                   |         | +90        |         |      |      |      |      |      |      |      |
|                                                                                                            |             |    | °F              | +194                                  |         | +194       |         |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |             |    | °C              | −15 to +40                            |         | −15 to +40 |         |      |      |      |      |      |      |      |
|                                                                                                            |             |    | °F              | +5 to +104                            |         | +5 to +104 |         |      |      |      |      |      |      |      |
| Lubrication                                                                                                |             |    |                 | Lubricated for life                   |         |            |         |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |             |    |                 | In- and output same direction         |         |            |         |      |      |      |      |      |      |      |
| Protection class                                                                                           |             |    |                 | IP 65                                 |         |            |         |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |    |                 | ELC-0060BA022.000-X                   |         |            |         |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             |    |                 | X = 012.000 - 032.000                 |         |            |         |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | A           | 9  | $J_1$           | kgcm <sup>2</sup>                     | –       | –          | 0.26    | 0.22 | 0.21 | 0.21 | 0.2  | 0.19 | 0.19 | 0.19 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –       | –          | 0.23    | 0.19 | 0.19 | 0.19 | 0.18 | 0.17 | 0.17 | 0.17 |
|                                                                                                            | B           | 11 | $J_1$           | kgcm <sup>2</sup>                     | –       | –          | 0.28    | 0.24 | 0.23 | 0.23 | 0.22 | 0.21 | 0.21 | 0.21 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –       | –          | 0.25    | 0.21 | 0.2  | 0.2  | 0.19 | 0.19 | 0.19 | 0.19 |
|                                                                                                            | C           | 14 | $J_1$           | kgcm <sup>2</sup>                     | 0.58    | 0.47       | 0.35    | 0.31 | 0.3  | 0.3  | 0.3  | 0.29 | 0.28 | 0.28 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.51    | 0.42       | 0.31    | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.25 | 0.25 |
|                                                                                                            | D           | 16 | $J_1$           | kgcm <sup>2</sup>                     | 0.73    | 0.62       | 0.48    | 0.44 | 0.43 | 0.43 | 0.42 | 0.41 | 0.41 | 0.41 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.65    | 0.55       | 0.42    | 0.39 | 0.38 | 0.38 | 0.37 | 0.36 | 0.36 | 0.36 |
|                                                                                                            | E           | 19 | $J_1$           | kgcm <sup>2</sup>                     | 0.81    | 0.71       | 0.56    | 0.52 | 0.51 | 0.52 | 0.51 | 0.5  | 0.5  | 0.49 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.72    | 0.63       | 0.5     | 0.46 | 0.45 | 0.46 | 0.45 | 0.44 | 0.44 | 0.43 |
|                                                                                                            | G           | 24 | $J_1$           | kgcm <sup>2</sup>                     | 1.8     | 1.7        | –       | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.6     | 1.5        | –       | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            | H           | 28 | $J_1$           | kgcm <sup>2</sup>                     | 1.6     | 1.4        | –       | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.4     | 1.2        | –       | –    | –    | –    | –    | –    | –    | –    |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

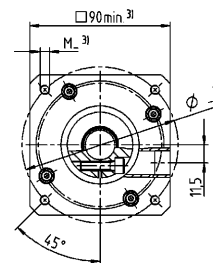
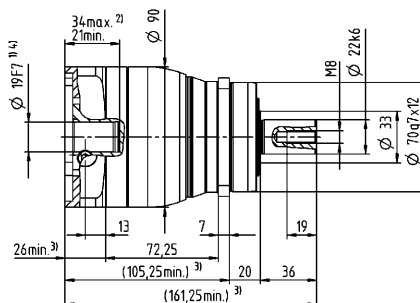
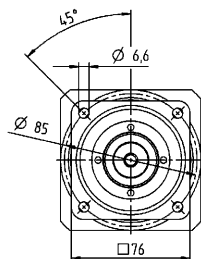
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

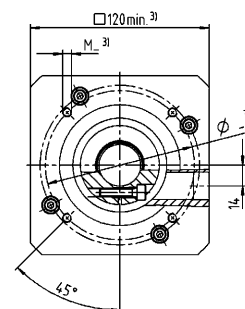
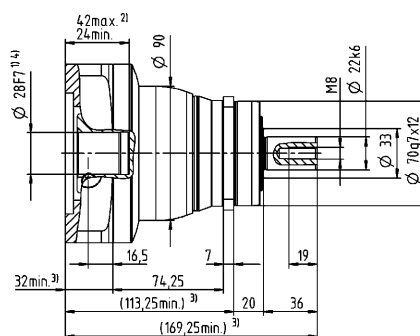
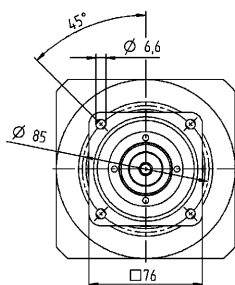


# 1-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter

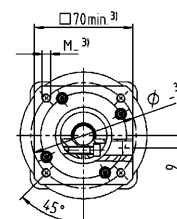
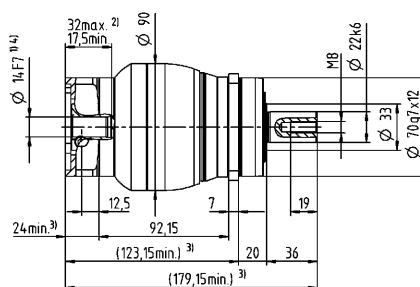
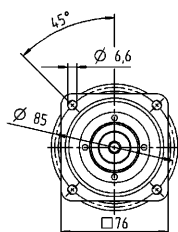


up to 28<sup>4)</sup> (H)  
clamping hub  
diameter

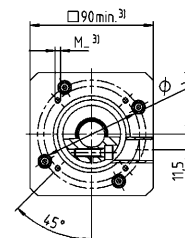
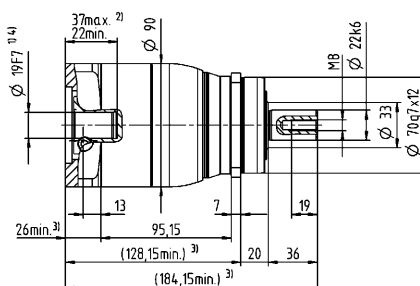
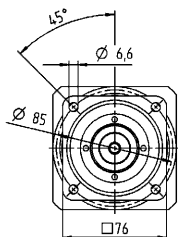


# 2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



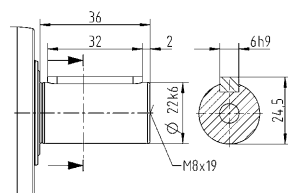
up to 19<sup>4)</sup> (E)  
clamping hub  
diameter



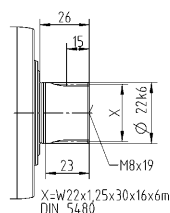
Motor shaft diameter [mm]

## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPS 035 MA 1-/2-stage

|                                                                                                            |              |    |                 | 1-stage                               |      |            | 2-stage |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|----|-----------------|---------------------------------------|------|------------|---------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |    |                 | 3                                     | 4    | 9          | 12      | 15   | 16   | 20   | 28   | 30   | 40   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     |    | Nm              | 480                                   | 480  | 480        | 480     | 480  | 480  | 480  | 480  | 432  | 480  |      |
|                                                                                                            |              |    | in.lb           | 4248                                  | 4248 | 4248       | 4248    | 4248 | 4248 | 4248 | 4248 | 4248 | 3824 | 4248 |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     |    | Nm              | 305                                   | 305  | 305        | 305     | 300  | 305  | 305  | 305  | 270  | 305  |      |
|                                                                                                            |              |    | in.lb           | 2699                                  | 2699 | 2699       | 2699    | 2655 | 2699 | 2699 | 2699 | 2699 | 2390 | 2699 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   |    | Nm              | 500                                   | 500  | 500        | 500     | 500  | 500  | 500  | 500  | 500  | 500  |      |
|                                                                                                            |              |    | in.lb           | 4425                                  | 4425 | 4425       | 4425    | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     |    | rpm             | 2000                                  | 2200 | 2700       | 3300    | 3400 | 3300 | 3400 | 3600 | 3900 | 3900 |      |
| Max. input speed                                                                                           | $n_{1Max}$   |    | rpm             | 6000                                  | 6000 | 7000       | 7000    | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$    |    | Nm              | 3.3                                   | 2.7  | 1.7        | 1.4     | 1.2  | 1.2  | 1.1  | 0.93 | 0.88 | 0.81 |      |
|                                                                                                            |              |    | in.lb           | 29                                    | 24   | 15         | 12      | 11   | 11   | 9.7  | 8.2  | 7.8  | 7.2  |      |
| Max. backlash                                                                                              | $j_t$        |    | arcmin          | ≤ 8                                   |      | ≤ 10       |         |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    |    | Nm/arcmin       | 30                                    | 30   | 30         | 30      | 30   | 30   | 30   | 30   | 30   | 30   |      |
|                                                                                                            |              |    | in.lb/arcmin    | 266                                   | 266  | 266        | 266     | 266  | 266  | 266  | 266  | 266  | 266  |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  |    | N               | 5650                                  |      | 5650       |         |      |      |      |      |      |      |      |
|                                                                                                            |              |    | lb <sub>f</sub> | 1271                                  |      | 1271       |         |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$  |    | N               | 6600                                  |      | 6600       |         |      |      |      |      |      |      |      |
|                                                                                                            |              |    | lb <sub>f</sub> | 1485                                  |      | 1485       |         |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ |    | Nm              | 487                                   |      | 487        |         |      |      |      |      |      |      |      |
|                                                                                                            |              |    | in.lb           | 4310                                  |      | 4310       |         |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       |    | %               | 97                                    |      | 95         |         |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        |    | h               | > 20000                               |      | > 20000    |         |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          |    | kg              | 8.4                                   |      | 8.8        |         |      |      |      |      |      |      |      |
|                                                                                                            |              |    | lb <sub>m</sub> | 19                                    |      | 19         |         |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     |    | dB(A)           | ≤ 65                                  |      | ≤ 61       |         |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              |    | °C              | +90                                   |      | +90        |         |      |      |      |      |      |      |      |
|                                                                                                            |              |    | °F              | +194                                  |      | +194       |         |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              |    | °C              | –15 to +40                            |      | –15 to +40 |         |      |      |      |      |      |      |      |
|                                                                                                            |              |    | °F              | +5 to +104                            |      | +5 to +104 |         |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |    |                 | Lubricated for life                   |      |            |         |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |    |                 | In- and output same direction         |      |            |         |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |    |                 | IP 65                                 |      |            |         |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |    |                 | ELC-0150BA032.000-X                   |      |            |         |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              |    | mm              | X = 019.000 - 036.000                 |      |            |         |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C            | 14 | $J_1$           | kgcm <sup>2</sup>                     | –    | –          | 0.6     | 0.59 | 0.6  | 0.43 | 0.42 | 0.37 | 0.52 | 0.36 |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –          | 0.53    | 0.52 | 0.53 | 0.38 | 0.37 | 0.33 | 0.46 | 0.32 |
|                                                                                                            | D            | 16 | $J_1$           | kgcm <sup>2</sup>                     | –    | –          | 0.75    | 0.74 | 0.74 | 0.58 | 0.57 | 0.5  | 0.67 | 0.51 |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –          | 0.66    | 0.65 | 0.65 | 0.51 | 0.5  | 0.44 | 0.59 | 0.45 |
|                                                                                                            | E            | 19 | $J_1$           | kgcm <sup>2</sup>                     | 2.5  | 1.7        | 0.84    | 0.83 | 0.83 | 0.66 | 0.65 | 0.6  | 0.75 | 0.6  |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.2  | 1.5        | 0.74    | 0.73 | 0.73 | 0.58 | 0.58 | 0.53 | 0.66 | 0.53 |
|                                                                                                            | G            | 24 | $J_1$           | kgcm <sup>2</sup>                     | 3.3  | 2.4        | 1.9     | 1.9  | 1.9  | 1.7  | 1.7  | 1.6  | 1.8  | 1.6  |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.9  | 2.1        | 1.7     | 1.6  | 1.7  | 1.5  | 1.5  | 1.5  | 1.6  | 1.4  |
|                                                                                                            | H            | 28 | $J_1$           | kgcm <sup>2</sup>                     | 3    | 2.2        | 1.6     | 1.6  | 1.6  | 1.4  | 1.4  | 1.3  | 1.5  | 1.3  |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.7  | 1.9        | 1.4     | 1.4  | 1.4  | 1.2  | 1.2  | 1.2  | 1.3  | 1.2  |
|                                                                                                            | I            | 32 | $J_1$           | kgcm <sup>2</sup>                     | 7.1  | 6.2        | –       | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 6.3  | 5.5        | –       | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            | K            | 38 | $J_1$           | kgcm <sup>2</sup>                     | 8.3  | 7.4        | –       | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 7.3  | 6.5        | –       | –    | –    | –    | –    | –    | –    | –    |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

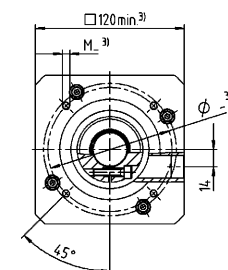
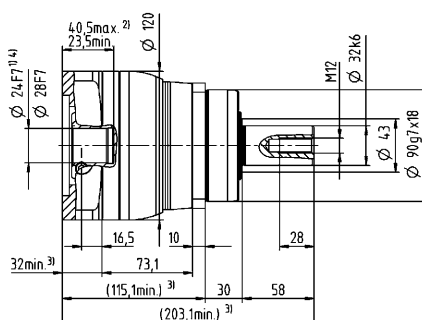
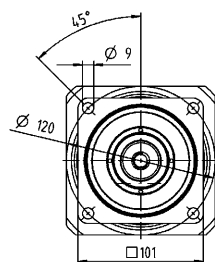
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

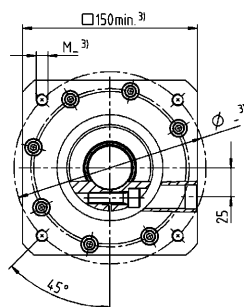
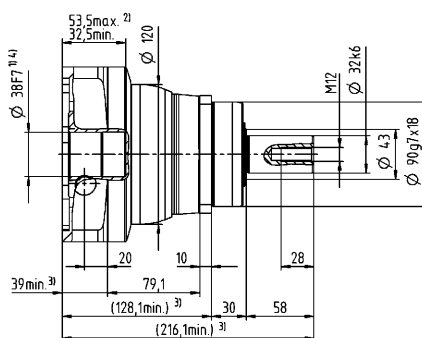
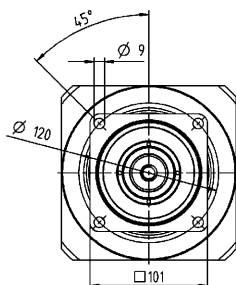
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 24<sup>4)</sup> (G<sup>5)</sup>/H)  
clamping hub  
diameter

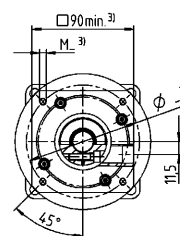
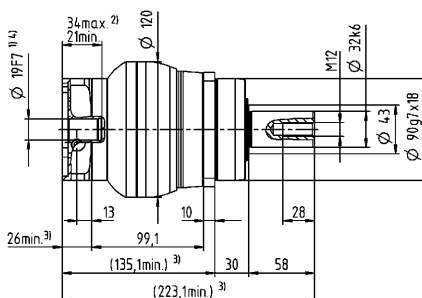
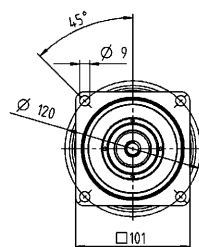


up to 38<sup>4)</sup> (K)  
clamping hub  
diameter

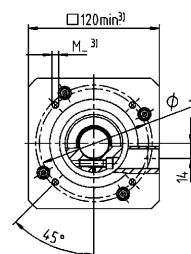
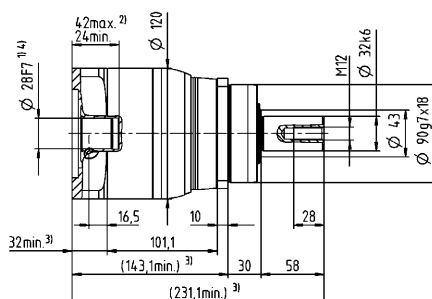
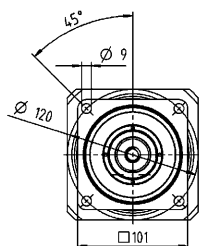


# 2-stage

up to 19<sup>4)</sup> (E<sup>5)</sup>  
clamping hub  
diameter



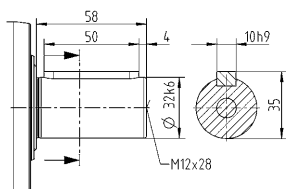
up to 28<sup>4)</sup> (H)  
clamping hub  
diameter



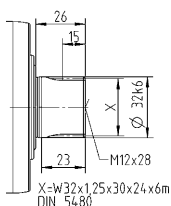
Motor shaft diameter [mm]

## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPT 005 MF 1-stage

|                                                                                                         |   |             |                 | 1-stage                               |       |       |       |       |      |
|---------------------------------------------------------------------------------------------------------|---|-------------|-----------------|---------------------------------------|-------|-------|-------|-------|------|
| Ratio                                                                                                   |   | i           |                 | 4                                     | 5     | 7     | 8     | 10    |      |
| Max. torque <sup>a) b)</sup>                                                                            |   | $T_{2a}$    | Nm              | 18                                    | 22    | 22    | 21    | 21    |      |
|                                                                                                         |   |             | in.lb           | 159                                   | 195   | 195   | 186   | 186   |      |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 |   | $T_{2B}$    | Nm              | 11                                    | 14    | 14    | 13    | 13    |      |
|                                                                                                         |   |             | in.lb           | 97                                    | 124   | 124   | 115   | 115   |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$  | Nm              | 26                                    | 26    | 26    | 26    | 26    |      |
|                                                                                                         |   |             | in.lb           | 230                                   | 230   | 230   | 230   | 230   |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)              |   | $n_{1N}$    | rpm             | 3800                                  | 4000  | 4300  | 4400  | 4600  |      |
| Max. input speed                                                                                        |   | $n_{1Max}$  | rpm             | 10000                                 | 10000 | 10000 | 10000 | 10000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)         |   | $T_{012}$   | Nm              | 0.08                                  | 0.07  | 0.05  | 0.05  | 0.05  |      |
|                                                                                                         |   |             | in.lb           | 0.71                                  | 0.62  | 0.44  | 0.44  | 0.44  |      |
| Max. backlash                                                                                           |   | $j_t$       | arcmin          | ≤ 10                                  |       |       |       |       |      |
| Torsional rigidity <sup>b)</sup>                                                                        |   | $C_{t21}$   | Nm/arcmin       | 1.2                                   | 1.2   | 1.2   | 0.85  | 0.85  |      |
|                                                                                                         |   |             | in.lb/arcmin    | 11                                    | 11    | 11    | 7.5   | 7.5   |      |
| Max. axial force <sup>c)</sup>                                                                          |   | $F_{2AMax}$ | N               | 600                                   |       |       |       |       |      |
|                                                                                                         |   |             | lb <sub>f</sub> | 135                                   |       |       |       |       |      |
| Max. tilting moment                                                                                     |   | $M_{2KMax}$ | Nm              | 17                                    |       |       |       |       |      |
|                                                                                                         |   |             | in.lb           | 150                                   |       |       |       |       |      |
| Efficiency at full load                                                                                 |   | $\eta$      | %               | 97                                    |       |       |       |       |      |
| Service life                                                                                            |   | $L_h$       | h               | > 20000                               |       |       |       |       |      |
| Weight<br>(incl. standard adapter plate)                                                                |   | $m$         | kg              | 0.9                                   |       |       |       |       |      |
|                                                                                                         |   |             | lb <sub>m</sub> | 2.0                                   |       |       |       |       |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) |   | $L_{PA}$    | dB(A)           | ≤ 58                                  |       |       |       |       |      |
| Max. permitted housing temperature                                                                      |   |             | °C              | +90                                   |       |       |       |       |      |
|                                                                                                         |   |             | °F              | +194                                  |       |       |       |       |      |
| Ambient temperature                                                                                     |   |             | °C              | –15 to +40                            |       |       |       |       |      |
|                                                                                                         |   |             | °F              | +5 to +104                            |       |       |       |       |      |
| Lubrication                                                                                             |   |             |                 | Lubricated for life                   |       |       |       |       |      |
| Direction of rotation                                                                                   |   |             |                 | In- and output same direction         |       |       |       |       |      |
| Protection class                                                                                        |   |             |                 | IP 64                                 |       |       |       |       |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          | Z | 8           | $J_1$           | kgcm <sup>2</sup>                     | 0.04  | 0.03  | 0.03  | 0.03  | 0.02 |
|                                                                                                         |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.04  | 0.03  | 0.03  | 0.03  | 0.02 |
|                                                                                                         | A | 9           | $J_1$           | kgcm <sup>2</sup>                     | 0.04  | 0.03  | 0.03  | 0.03  | 0.02 |
|                                                                                                         |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.04  | 0.03  | 0.03  | 0.03  | 0.02 |
|                                                                                                         | B | 11          | $J_1$           | kgcm <sup>2</sup>                     | 0.06  | 0.05  | 0.05  | 0.04  | 0.04 |
|                                                                                                         |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.05  | 0.04  | 0.04  | 0.04  | 0.04 |
|                                                                                                         | C | 14          | $J_1$           | kgcm <sup>2</sup>                     | 0.14  | 0.14  | 0.13  | 0.13  | 0.13 |
|                                                                                                         |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.12  | 0.12  | 0.12  | 0.12  | 0.12 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

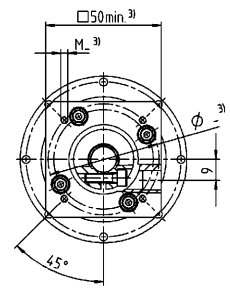
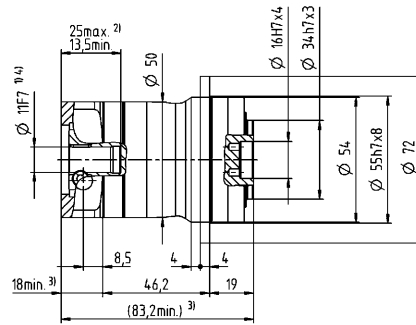
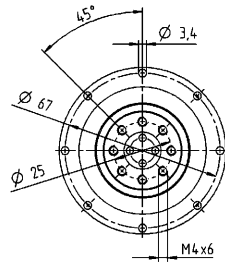
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

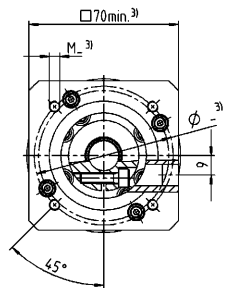
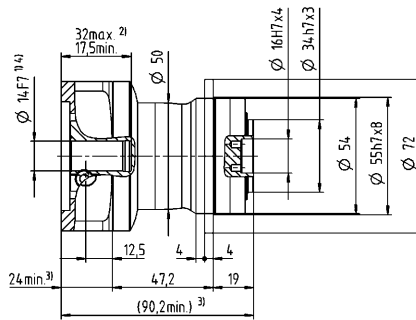
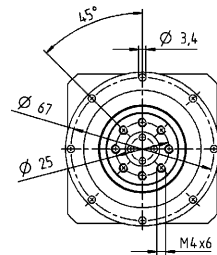
# 1-stage

Motor shaft diameter [mm]

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



up to 14<sup>4)</sup> (C)  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPT 005 MF 2-stage

|                                                                                                         |  |             |    | 2-stage         |                                       |       |       |       |       |       |       |       |       |       |      |
|---------------------------------------------------------------------------------------------------------|--|-------------|----|-----------------|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Ratio                                                                                                   |  | i           |    |                 | 16                                    | 20    | 25    | 28    | 35    | 40    | 50    | 64    | 70    | 100   |      |
| Max. torque <sup>a) b)</sup>                                                                            |  | $T_{2a}$    |    | Nm              | 18                                    | 18    | 22    | 18    | 22    | 18    | 22    | 21    | 22    | 21    |      |
|                                                                                                         |  |             |    | in.lb           | 159                                   | 159   | 195   | 159   | 195   | 159   | 195   | 186   | 195   | 186   |      |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 |  | $T_{2B}$    |    | Nm              | 11                                    | 11    | 14    | 11    | 14    | 11    | 14    | 13    | 14    | 13    |      |
|                                                                                                         |  |             |    | in.lb           | 97                                    | 97    | 124   | 97    | 124   | 97    | 124   | 115   | 124   | 115   |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) |  | $T_{2Not}$  |    | Nm              | 26                                    | 26    | 26    | 26    | 26    | 26    | 26    | 26    | 26    | 26    |      |
|                                                                                                         |  |             |    | in.lb           | 230                                   | 230   | 230   | 230   | 230   | 230   | 230   | 230   | 230   | 230   |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)              |  | $n_{1N}$    |    | rpm             | 4000                                  | 4000  | 4000  | 4300  | 4300  | 4600  | 4600  | 4400  | 4600  | 4600  |      |
| Max. input speed                                                                                        |  | $n_{1Max}$  |    | rpm             | 10000                                 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)         |  | $T_{012}$   |    | Nm              | 0.04                                  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  |      |
|                                                                                                         |  |             |    | in.lb           | 0.35                                  | 0.35  | 0.27  | 0.27  | 0.27  | 0.27  | 0.27  | 0.27  | 0.27  | 0.27  |      |
| Max. backlash                                                                                           |  | $j_t$       |    | arcmin          | ≤ 13                                  |       |       |       |       |       |       |       |       |       |      |
| Torsional rigidity <sup>b)</sup>                                                                        |  | $C_{t21}$   |    | Nm/arcmin       | 1.2                                   | 1.2   | 1.2   | 1.2   | 1.2   | 1.2   | 1.2   | 0.85  | 1.2   | 0.85  |      |
|                                                                                                         |  |             |    | in.lb/arcmin    | 11                                    | 11    | 11    | 11    | 11    | 11    | 11    | 7.5   | 11    | 7.5   |      |
| Max. axial force <sup>c)</sup>                                                                          |  | $F_{2AMax}$ |    | N               | 600                                   |       |       |       |       |       |       |       |       |       |      |
|                                                                                                         |  |             |    | lb <sub>f</sub> | 135                                   |       |       |       |       |       |       |       |       |       |      |
| Max. tilting moment                                                                                     |  | $M_{2KMax}$ |    | Nm              | 17                                    |       |       |       |       |       |       |       |       |       |      |
|                                                                                                         |  |             |    | in.lb           | 150                                   |       |       |       |       |       |       |       |       |       |      |
| Efficiency at full load                                                                                 |  | $\eta$      |    | %               | 95                                    |       |       |       |       |       |       |       |       |       |      |
| Service life                                                                                            |  | $L_h$       |    | h               | > 20000                               |       |       |       |       |       |       |       |       |       |      |
| Weight<br>(incl. standard adapter plate)                                                                |  | $m$         |    | kg              | 1.1                                   |       |       |       |       |       |       |       |       |       |      |
|                                                                                                         |  |             |    | lb <sub>m</sub> | 2.4                                   |       |       |       |       |       |       |       |       |       |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) |  | $L_{PA}$    |    | dB(A)           | ≤ 58                                  |       |       |       |       |       |       |       |       |       |      |
| Max. permitted housing temperature                                                                      |  |             |    | °C              | +90                                   |       |       |       |       |       |       |       |       |       |      |
|                                                                                                         |  |             |    | °F              | +194                                  |       |       |       |       |       |       |       |       |       |      |
| Ambient temperature                                                                                     |  |             |    | °C              | –15 to +40                            |       |       |       |       |       |       |       |       |       |      |
|                                                                                                         |  |             |    | °F              | +5 to +104                            |       |       |       |       |       |       |       |       |       |      |
| Lubrication                                                                                             |  |             |    |                 | Lubricated for life                   |       |       |       |       |       |       |       |       |       |      |
| Direction of rotation                                                                                   |  |             |    |                 | In- and output same direction         |       |       |       |       |       |       |       |       |       |      |
| Protection class                                                                                        |  |             |    |                 | IP 64                                 |       |       |       |       |       |       |       |       |       |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          |  | Z           | 8  | $J_1$           | kgcm <sup>2</sup>                     | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  | 0.02  | 0.03 |
|                                                                                                         |  |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  | 0.02  | 0.03 |
|                                                                                                         |  | A           | 9  | $J_1$           | kgcm <sup>2</sup>                     | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  | 0.02  | 0.03 |
|                                                                                                         |  |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  | 0.02  | 0.03 |
|                                                                                                         |  | B           | 11 | $J_1$           | kgcm <sup>2</sup>                     | 0.05  | 0.05  | 0.04  | 0.05  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.05 |
|                                                                                                         |  |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04 |
|                                                                                                         |  | C           | 14 | $J_1$           | kgcm <sup>2</sup>                     | 0.13  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13 |
|                                                                                                         |  |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

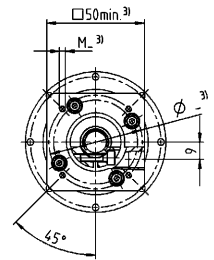
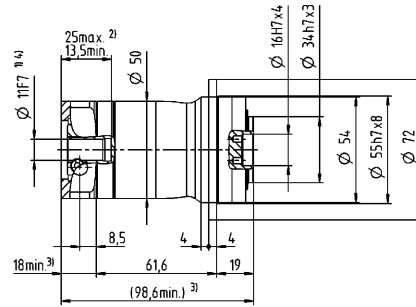
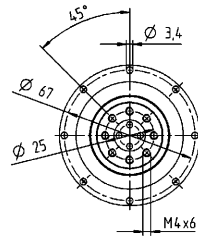
<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

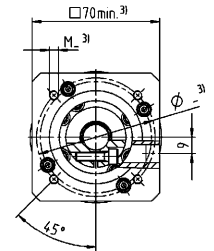
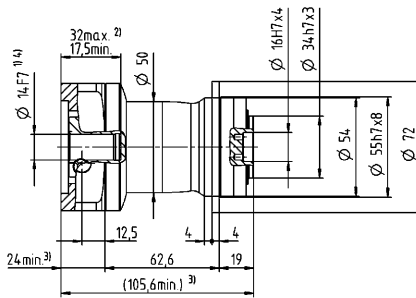
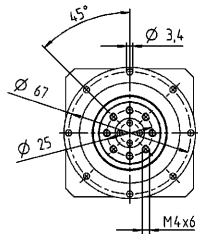
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

## 2-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



up to 14<sup>4)</sup> (C)  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPT 015 MF 1-stage

|                                                                                                         |    |             |                                       | 1-stage                               |      |      |      |      |      |      |
|---------------------------------------------------------------------------------------------------------|----|-------------|---------------------------------------|---------------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                   |    | i           |                                       | 3                                     | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b)</sup>                                                                            |    | $T_{2a}$    | Nm                                    | 51                                    | 56   | 60   | 60   | 56   | 56   |      |
|                                                                                                         |    |             | in.lb                                 | 451                                   | 496  | 531  | 531  | 496  | 496  |      |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 |    | $T_{2B}$    | Nm                                    | 32                                    | 35   | 40   | 40   | 35   | 35   |      |
|                                                                                                         |    |             | in.lb                                 | 283                                   | 310  | 354  | 354  | 310  | 310  |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) |    | $T_{2Not}$  | Nm                                    | 75                                    | 75   | 75   | 75   | 75   | 75   |      |
|                                                                                                         |    |             | in.lb                                 | 664                                   | 664  | 664  | 664  | 664  | 664  |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)              |    | $n_{1N}$    | rpm                                   | 3300                                  | 3500 | 3700 | 4000 | 4100 | 4300 |      |
| Max. input speed                                                                                        |    | $n_{1Max}$  | rpm                                   | 8000                                  | 8000 | 8000 | 8000 | 8000 | 8000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)        |    | $T_{012}$   | Nm                                    | 0.25                                  | 0.2  | 0.17 | 0.14 | 0.13 | 0.11 |      |
|                                                                                                         |    |             | in.lb                                 | 2.2                                   | 1.8  | 1.5  | 1.2  | 1.2  | 0.97 |      |
| Max. backlash                                                                                           |    | $j_t$       | arcmin                                | ≤ 8                                   |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                        |    | $C_{t21}$   | Nm/arcmin                             | 3.3                                   | 3.3  | 3.3  | 3.3  | 2.8  | 2.8  |      |
|                                                                                                         |    |             | in.lb/arcmin                          | 29                                    | 29   | 29   | 29   | 25   | 25   |      |
| Max. axial force <sup>c)</sup>                                                                          |    | $F_{2AMax}$ | N                                     | 1380                                  |      |      |      |      |      |      |
|                                                                                                         |    |             | lb <sub>f</sub>                       | 311                                   |      |      |      |      |      |      |
| Max. tilting moment                                                                                     |    | $M_{2KMax}$ | Nm                                    | 42                                    |      |      |      |      |      |      |
|                                                                                                         |    |             | in.lb                                 | 372                                   |      |      |      |      |      |      |
| Efficiency at full load                                                                                 |    | $\eta$      | %                                     | 97                                    |      |      |      |      |      |      |
| Service life                                                                                            |    | $L_h$       | h                                     | > 20000                               |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                |    | $m$         | kg                                    | 2                                     |      |      |      |      |      |      |
|                                                                                                         |    |             | lb <sub>m</sub>                       | 4.4                                   |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) |    | $L_{PA}$    | dB(A)                                 | ≤ 59                                  |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                      |    |             | °C                                    | +90                                   |      |      |      |      |      |      |
|                                                                                                         |    |             | °F                                    | +194                                  |      |      |      |      |      |      |
| Ambient temperature                                                                                     |    |             | °C                                    | −15 to +40                            |      |      |      |      |      |      |
|                                                                                                         |    |             | °F                                    | +5 to +104                            |      |      |      |      |      |      |
| Lubrication                                                                                             |    |             |                                       | Lubricated for life                   |      |      |      |      |      |      |
| Direction of rotation                                                                                   |    |             |                                       | In- and output same direction         |      |      |      |      |      |      |
| Protection class                                                                                        |    |             |                                       | IP 64                                 |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          | A  | 9           | $J_1$                                 | kgcm <sup>2</sup>                     | 0.31 | 0.23 | 0.19 | 0.16 | 0.15 | 0.14 |
|                                                                                                         |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.27 | 0.2  | 0.17 | 0.14 | 0.13 | 0.12 |
|                                                                                                         | B  | 11          | $J_1$                                 | kgcm <sup>2</sup>                     | 0.33 | 0.24 | 0.21 | 0.17 | 0.17 | 0.16 |
|                                                                                                         |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.29 | 0.21 | 0.19 | 0.15 | 0.15 | 0.14 |
|                                                                                                         | C  | 14          | $J_1$                                 | kgcm <sup>2</sup>                     | 0.41 | 0.32 | 0.28 | 0.25 | 0.24 | 0.23 |
|                                                                                                         |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.36 | 0.28 | 0.25 | 0.22 | 0.21 | 0.2  |
|                                                                                                         | D  | 16          | $J_1$                                 | kgcm <sup>2</sup>                     | 0.53 | 0.45 | 0.41 | 0.38 | 0.37 | 0.36 |
|                                                                                                         |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.47 | 0.4  | 0.36 | 0.34 | 0.33 | 0.32 |
| E                                                                                                       | 19 | $J_1$       | kgcm <sup>2</sup>                     | 0.62                                  | 0.53 | 0.49 | 0.46 | 0.45 | 0.44 |      |
|                                                                                                         |    |             | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.55                                  | 0.47 | 0.43 | 0.41 | 0.4  | 0.39 |      |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

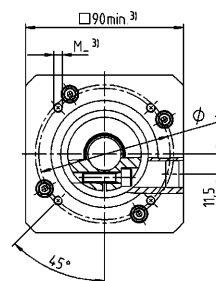
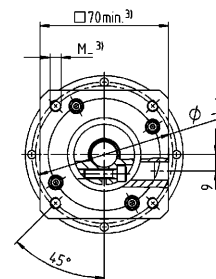
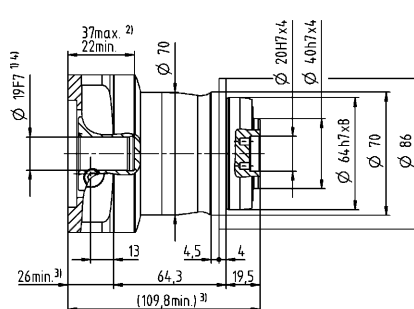
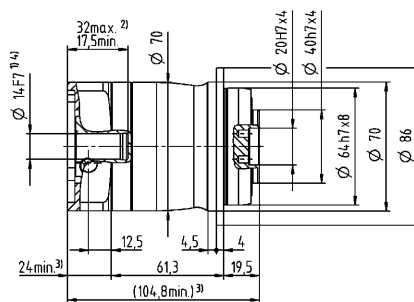
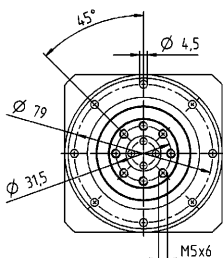
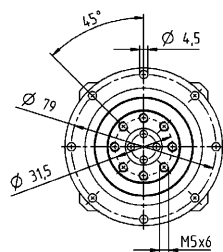


1-stage

up to 14 <sup>4)</sup> (C) <sup>5)</sup>  
clamping hub  
diameter

Motor shaft diameter [mm]

up to 19<sup>4)</sup> (E)  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

- 1) Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPT 015 MF 2-stage

|                                                                                                         |             |                 |       | 2-stage                               |       |       |       |       |       |       |       |       |       |       |       |       |       |
|---------------------------------------------------------------------------------------------------------|-------------|-----------------|-------|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ratio                                                                                                   | i           |                 |       | 12                                    | 15    | 16    | 20    | 25    | 28    | 30    | 32    | 35    | 40    | 50    | 64    | 70    | 100   |
| Max. torque <sup>a) b)</sup>                                                                            | $T_{2a}$    | Nm              |       | 51                                    | 51    | 56    | 56    | 60    | 56    | 51    | 56    | 60    | 56    | 60    | 56    | 60    | 56    |
|                                                                                                         |             | in.lb           |       | 451                                   | 451   | 496   | 496   | 531   | 496   | 451   | 496   | 531   | 496   | 531   | 496   | 531   | 496   |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 | $T_{2B}$    | Nm              |       | 32                                    | 32    | 35    | 35    | 40    | 35    | 32    | 35    | 40    | 35    | 40    | 35    | 40    | 35    |
|                                                                                                         |             | in.lb           |       | 283                                   | 283   | 310   | 310   | 354   | 310   | 283   | 310   | 354   | 310   | 354   | 310   | 354   | 310   |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              |       | 75                                    | 75    | 75    | 75    | 75    | 75    | 75    | 75    | 75    | 75    | 75    | 75    | 75    | 75    |
|                                                                                                         |             | in.lb           |       | 664                                   | 664   | 664   | 664   | 664   | 664   | 664   | 664   | 664   | 664   | 664   | 664   | 664   | 664   |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)              | $n_{1N}$    | rpm             |       | 3800                                  | 4000  | 3800  | 4000  | 4000  | 4300  | 4600  | 4400  | 4300  | 4600  | 4600  | 4400  | 4600  | 4600  |
| Max. input speed                                                                                        | $n_{1Max}$  | rpm             |       | 10000                                 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)          | $T_{012}$   | Nm              |       | 0.08                                  | 0.07  | 0.06  | 0.06  | 0.05  | 0.05  | 0.05  | 0.04  | 0.04  | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  |
|                                                                                                         |             | in.lb           |       | 0.71                                  | 0.62  | 0.53  | 0.53  | 0.44  | 0.44  | 0.44  | 0.35  | 0.35  | 0.35  | 0.35  | 0.27  | 0.27  | 0.27  |
| Max. backlash                                                                                           | $j_t$       | arcmin          |       | $\leq 10$                             |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Torsional rigidity <sup>b)</sup>                                                                        | $C_{t21}$   | Nm/arcmin       |       | 3.3                                   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 2.8   | 3.3   | 2.8   |
|                                                                                                         |             | in.lb/arcmin    |       | 29                                    | 29    | 29    | 29    | 29    | 29    | 29    | 29    | 29    | 29    | 29    | 25    | 29    | 25    |
| Max. axial force <sup>c)</sup>                                                                          | $F_{2AMax}$ | N               |       | 1380                                  |       |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                         |             | lb <sub>f</sub> |       | 311                                   |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Max. tilting moment                                                                                     | $M_{2KMax}$ | Nm              |       | 42                                    |       |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                         |             | in.lb           |       | 372                                   |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Efficiency at full load                                                                                 | $\eta$      | %               |       | 95                                    |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Service life                                                                                            | $L_h$       | h               |       | > 20000                               |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Weight<br>(incl. standard adapter plate)                                                                | $m$         | kg              |       | 2.1                                   |       |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                         |             | lb <sub>m</sub> |       | 4.6                                   |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) | $L_{PA}$    | dB(A)           |       | $\leq 58$                             |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Max. permitted housing temperature                                                                      |             | °C              |       | +90                                   |       |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                         |             | °F              |       | +194                                  |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Ambient temperature                                                                                     |             | °C              |       | -15 to +40                            |       |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                                         |             | °F              |       | +5 to +104                            |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Lubrication                                                                                             |             |                 |       | Lubricated for life                   |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Direction of rotation                                                                                   |             |                 |       | In- and output same direction         |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Protection class                                                                                        |             |                 |       | IP 64                                 |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          | Z           | 8               | $J_1$ | kgcm <sup>2</sup>                     | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                         |             |                 |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                         | A           | 9               | $J_1$ | kgcm <sup>2</sup>                     | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                         |             |                 |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  |
|                                                                                                         | B           | 11              | $J_1$ | kgcm <sup>2</sup>                     | 0.06  | 0.06  | 0.05  | 0.05  | 0.05  | 0.05  | 0.05  | 0.05  | 0.05  | 0.05  | 0.04  | 0.04  | 0.04  |
|                                                                                                         |             |                 |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.05  | 0.05  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  |
|                                                                                                         | C           | 14              | $J_1$ | kgcm <sup>2</sup>                     | 0.15  | 0.14  | 0.14  | 0.14  | 0.13  | 0.13  | 0.14  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13  |
|                                                                                                         |             |                 |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.13  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

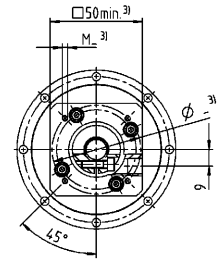
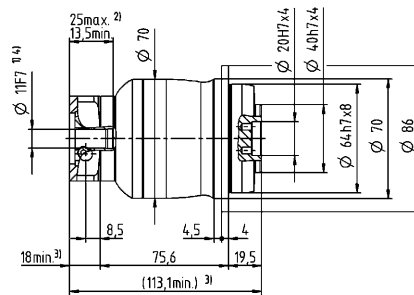
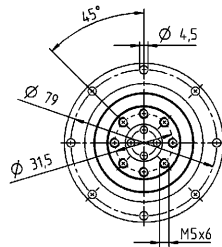
<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

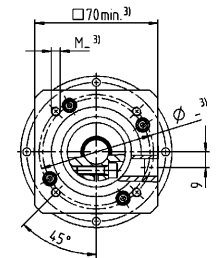
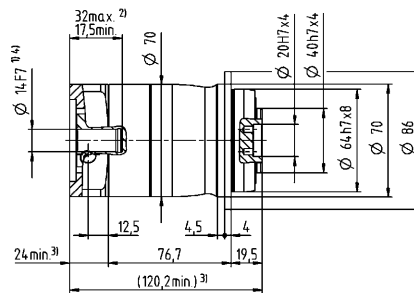
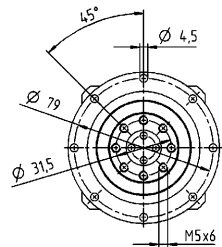
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

## 2-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



up to 14<sup>4)</sup> (C)  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPT 025 MF 1-stage

|                                                                                                         |    |             |                                       | 1-stage         |                                       |      |      |      |      |      |      |
|---------------------------------------------------------------------------------------------------------|----|-------------|---------------------------------------|-----------------|---------------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                   |    | i           |                                       |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b)</sup>                                                                            |    | $T_{2a}$    |                                       | Nm              | 128                                   | 152  | 160  | 160  | 144  | 144  |      |
|                                                                                                         |    |             |                                       | in.lb           | 1133                                  | 1345 | 1416 | 1416 | 1275 | 1275 |      |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 |    | $T_{2B}$    |                                       | Nm              | 80                                    | 95   | 100  | 100  | 90   | 90   |      |
|                                                                                                         |    |             |                                       | in.lb           | 708                                   | 841  | 885  | 885  | 797  | 797  |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) |    | $T_{2Not}$  |                                       | Nm              | 190                                   | 190  | 190  | 190  | 190  | 190  |      |
|                                                                                                         |    |             |                                       | in.lb           | 1682                                  | 1682 | 1682 | 1682 | 1682 | 1682 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)              |    | $n_{1N}$    |                                       | rpm             | 3100                                  | 3300 | 3400 | 3600 | 3700 | 3900 |      |
| Max. input speed                                                                                        |    | $n_{1Max}$  |                                       | rpm             | 7000                                  | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)        |    | $T_{012}$   |                                       | Nm              | 0.43                                  | 0.35 | 0.3  | 0.24 | 0.23 | 0.2  |      |
|                                                                                                         |    |             |                                       | in.lb           | 3.8                                   | 3.1  | 2.7  | 2.1  | 2    | 1.8  |      |
| Max. backlash                                                                                           |    | $j_t$       |                                       | arcmin          | ≤ 8                                   |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                        |    | $C_{21}$    |                                       | Nm/arcmin       | 9.5                                   | 9.5  | 9.5  | 9.5  | 8.5  | 8.5  |      |
|                                                                                                         |    |             |                                       | in.lb/arcmin    | 84                                    | 84   | 84   | 84   | 75   | 75   |      |
| Max. axial force <sup>c)</sup>                                                                          |    | $F_{2AMax}$ |                                       | N               | 1900                                  |      |      |      |      |      |      |
|                                                                                                         |    |             |                                       | lb <sub>f</sub> | 428                                   |      |      |      |      |      |      |
| Max. tilting moment                                                                                     |    | $M_{2KMax}$ |                                       | Nm              | 79                                    |      |      |      |      |      |      |
|                                                                                                         |    |             |                                       | in.lb           | 699                                   |      |      |      |      |      |      |
| Efficiency at full load                                                                                 |    | $\eta$      |                                       | %               | 97                                    |      |      |      |      |      |      |
| Service life                                                                                            |    | $L_h$       |                                       | h               | > 20000                               |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                |    | $m$         |                                       | kg              | 4.4                                   |      |      |      |      |      |      |
|                                                                                                         |    |             |                                       | lb <sub>m</sub> | 9.7                                   |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) |    | $L_{PA}$    |                                       | dB(A)           | ≤ 61                                  |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                      |    |             |                                       | °C              | +90                                   |      |      |      |      |      |      |
|                                                                                                         |    |             |                                       | °F              | +194                                  |      |      |      |      |      |      |
| Ambient temperature                                                                                     |    |             |                                       | °C              | −15 to +40                            |      |      |      |      |      |      |
|                                                                                                         |    |             |                                       | °F              | +5 to +104                            |      |      |      |      |      |      |
| Lubrication                                                                                             |    |             |                                       |                 | Lubricated for life                   |      |      |      |      |      |      |
| Direction of rotation                                                                                   |    |             |                                       |                 | In- and output same direction         |      |      |      |      |      |      |
| Protection class                                                                                        |    |             |                                       |                 | IP 64                                 |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          |    | C           | 14                                    | $J_1$           | kgcm <sup>2</sup>                     | 0.75 | 0.57 | 0.44 | 0.33 | 0.3  | 0.27 |
|                                                                                                         |    |             |                                       |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.66 | 0.5  | 0.39 | 0.29 | 0.27 | 0.24 |
|                                                                                                         |    | D           | 16                                    | $J_1$           | kgcm <sup>2</sup>                     | 0.9  | 0.72 | 0.59 | 0.46 | 0.45 | 0.42 |
|                                                                                                         |    |             |                                       |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.8  | 0.64 | 0.52 | 0.41 | 0.4  | 0.37 |
|                                                                                                         |    | E           | 19                                    | $J_1$           | kgcm <sup>2</sup>                     | 0.99 | 0.8  | 0.67 | 0.56 | 0.53 | 0.5  |
|                                                                                                         |    |             |                                       |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.88 | 0.71 | 0.59 | 0.5  | 0.47 | 0.44 |
|                                                                                                         |    | G           | 24                                    | $J_1$           | kgcm <sup>2</sup>                     | 2    | 1.8  | 1.7  | 1.6  | 1.6  | 1.5  |
|                                                                                                         |    |             |                                       |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.8  | 1.6  | 1.5  | 1.4  | 1.4  | 1.3  |
| H                                                                                                       | 28 | $J_1$       | kgcm <sup>2</sup>                     | 1.7             | 1.5                                   | 1.4  | 1.3  | 1.3  | 1.2  |      |      |
|                                                                                                         |    |             | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.5             | 1.3                                   | 1.2  | 1.2  | 1.2  | 1.1  |      |      |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

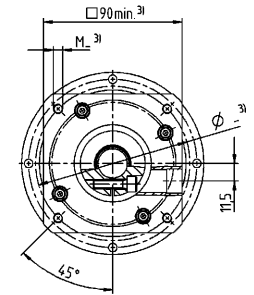
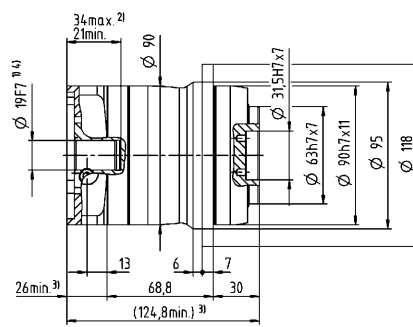
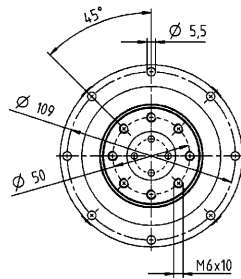
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

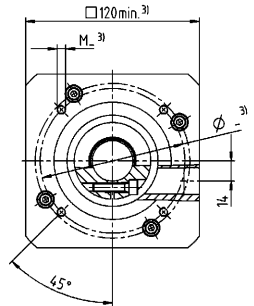
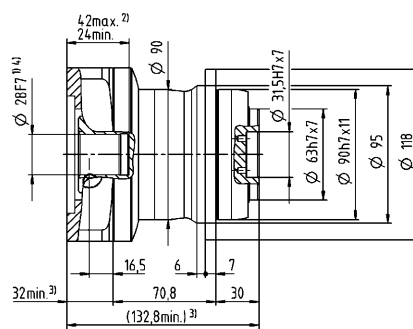
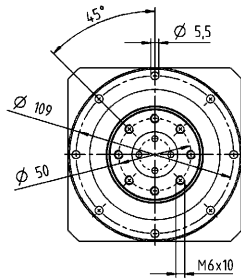
# 1-stage

Motor shaft diameter [mm]

up to 19 <sup>4)</sup> (E) <sup>5)</sup>  
clamping hub  
diameter



up to 28 <sup>4)</sup> (H)  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPT 025 MF 2-stage

|                                                                                                         |             |    |                 | 2-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------------------------------------------------------------------------------------|-------------|----|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                   | i           |    |                 | 9                                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b)</sup>                                                                            | $T_{2a}$    |    | Nm              | 128                                   | 128  | 128  | 152  | 152  | 160  | 152  | 128  | 152  | 160  | 152  | 160  | 144  | 160  | 144  |
|                                                                                                         |             |    | in.lb           | 1133                                  | 1133 | 1133 | 1345 | 1345 | 1416 | 1345 | 1133 | 1345 | 1416 | 1345 | 1416 | 1275 | 1416 | 1275 |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 | $T_{2B}$    |    | Nm              | 80                                    | 80   | 80   | 95   | 95   | 100  | 95   | 80   | 95   | 100  | 95   | 100  | 90   | 100  | 90   |
|                                                                                                         |             |    | in.lb           | 708                                   | 708  | 708  | 841  | 841  | 885  | 841  | 708  | 841  | 885  | 841  | 885  | 797  | 885  | 797  |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  |    | Nm              | 190                                   | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  |
|                                                                                                         |             |    | in.lb           | 1682                                  | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)              | $n_{1N}$    |    | rpm             | 3300                                  | 3500 | 3700 | 3500 | 3700 | 3700 | 4000 | 4300 | 4100 | 4000 | 4300 | 4300 | 4100 | 4300 | 4300 |
| Max. input speed                                                                                        | $n_{1Max}$  |    | rpm             | 8000                                  | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)         | $T_{012}$   |    | Nm              | 0.16                                  | 0.13 | 0.12 | 0.11 | 0.1  | 0.09 | 0.09 | 0.08 | 0.08 | 0.08 | 0.08 | 0.07 | 0.07 | 0.06 | 0.06 |
|                                                                                                         |             |    | in.lb           | 1.4                                   | 1.2  | 1.1  | 0.97 | 0.89 | 0.8  | 0.8  | 0.71 | 0.71 | 0.71 | 0.71 | 0.62 | 0.62 | 0.53 | 0.53 |
| Max. backlash                                                                                           | $j_t$       |    | arcmin          | ≤ 10                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                        | $C_{21}$    |    | Nm/arcmin       | 10                                    | 10   | 10   | 10   | 10   | 9.5  | 10   | 10   | 10   | 9.5  | 10   | 9.5  | 8.5  | 9.5  | 8.5  |
|                                                                                                         |             |    | in.lb/arcmin    | 89                                    | 89   | 89   | 89   | 89   | 84   | 89   | 89   | 89   | 84   | 89   | 84   | 75   | 84   | 75   |
| Max. axial force <sup>c)</sup>                                                                          | $F_{2AMax}$ |    | N               | 1900                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |             |    | lb <sub>f</sub> | 428                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                     | $M_{2KMax}$ |    | Nm              | 79                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |             |    | in.lb           | 699                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                 | $\eta$      |    | %               | 95                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                            | $L_h$       |    | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                | $m$         |    | kg              | 4.7                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |             |    | lb <sub>m</sub> | 10                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) | $L_{PA}$    |    | dB(A)           | ≤ 59                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                      |             |    | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |             |    | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                     |             |    | °C              | –15 to +40                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |             |    | °F              | +5 to +104                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                             |             |    |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                   |             |    |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                        |             |    |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          | A           | 9  | $J_1$           | kgcm <sup>2</sup>                     | 0.28 | 0.23 | 0.22 | 0.22 | 0.21 | 0.2  | 0.2  | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
|                                                                                                         |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.25 | 0.2  | 0.19 | 0.19 | 0.19 | 0.18 | 0.18 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
|                                                                                                         | B           | 11 | $J_1$           | kgcm <sup>2</sup>                     | 0.3  | 0.25 | 0.23 | 0.24 | 0.23 | 0.22 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
|                                                                                                         |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.27 | 0.22 | 0.2  | 0.21 | 0.2  | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
|                                                                                                         | C           | 14 | $J_1$           | kgcm <sup>2</sup>                     | 0.37 | 0.32 | 0.31 | 0.31 | 0.3  | 0.29 | 0.29 | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 |
|                                                                                                         |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.33 | 0.28 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 |
|                                                                                                         | D           | 16 | $J_1$           | kgcm <sup>2</sup>                     | 0.5  | 0.45 | 0.44 | 0.44 | 0.43 | 0.42 | 0.42 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 |
|                                                                                                         |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.44 | 0.4  | 0.39 | 0.39 | 0.38 | 0.37 | 0.37 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
|                                                                                                         | E           | 19 | $J_1$           | kgcm <sup>2</sup>                     | 0.58 | 0.53 | 0.52 | 0.52 | 0.51 | 0.51 | 0.5  | 0.5  | 0.5  | 0.5  | 0.49 | 0.49 | 0.49 | 0.49 |
|                                                                                                         |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.51 | 0.47 | 0.46 | 0.46 | 0.45 | 0.45 | 0.44 | 0.44 | 0.44 | 0.44 | 0.43 | 0.43 | 0.43 | 0.43 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

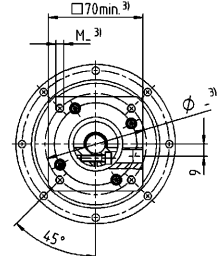
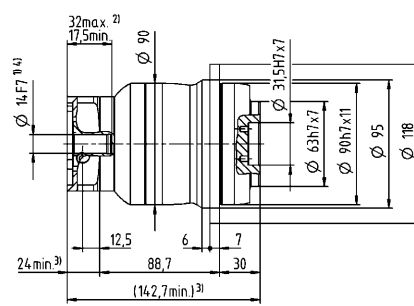
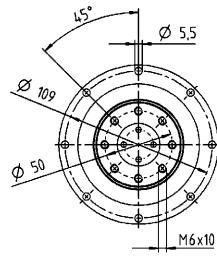
<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

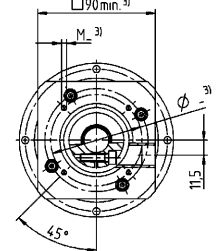
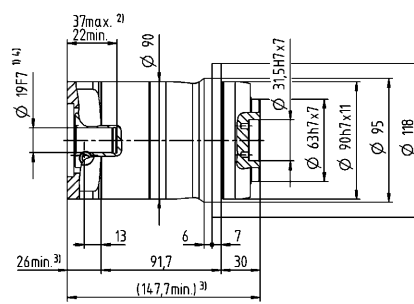
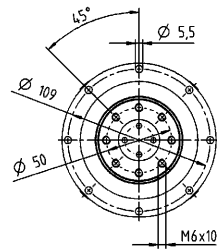
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

## 2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



up to 19<sup>4)</sup> (E)  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPT 035 MF 1-stage

|                                                                                                         |    |             |                                       | 1-stage         |                                       |      |      |      |      |      |      |
|---------------------------------------------------------------------------------------------------------|----|-------------|---------------------------------------|-----------------|---------------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                   |    | i           |                                       |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b)</sup>                                                                            |    | $T_{2a}$    |                                       | Nm              | 320                                   | 365  | 365  | 365  | 352  | 352  |      |
|                                                                                                         |    |             |                                       | in.lb           | 2832                                  | 3231 | 3231 | 3231 | 3115 | 3115 |      |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 |    | $T_{2B}$    |                                       | Nm              | 200                                   | 255  | 250  | 250  | 220  | 220  |      |
|                                                                                                         |    |             |                                       | in.lb           | 1770                                  | 2257 | 2213 | 2213 | 1947 | 1947 |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) |    | $T_{2Not}$  |                                       | Nm              | 480                                   | 480  | 480  | 480  | 480  | 480  |      |
|                                                                                                         |    |             |                                       | in.lb           | 4248                                  | 4248 | 4248 | 4248 | 4248 | 4248 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)              |    | $n_{1N}$    |                                       | rpm             | 2300                                  | 2500 | 2600 | 2800 | 2900 | 3000 |      |
| Max. input speed                                                                                        |    | $n_{1Max}$  |                                       | rpm             | 6000                                  | 6000 | 6000 | 6000 | 6000 | 6000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)        |    | $T_{012}$   |                                       | Nm              | 1.7                                   | 1.3  | 1.1  | 0.79 | 0.71 | 0.6  |      |
|                                                                                                         |    |             |                                       | in.lb           | 15                                    | 12   | 9.7  | 7    | 6.3  | 5.3  |      |
| Max. backlash                                                                                           |    | $j_t$       |                                       | arcmin          | ≤ 8                                   |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                        |    | $C_{21}$    |                                       | Nm/arcmin       | 25                                    | 25   | 25   | 25   | 22   | 22   |      |
|                                                                                                         |    |             |                                       | in.lb/arcmin    | 221                                   | 221  | 221  | 221  | 195  | 195  |      |
| Max. axial force <sup>c)</sup>                                                                          |    | $F_{2AMax}$ |                                       | N               | 3500                                  |      |      |      |      |      |      |
|                                                                                                         |    |             |                                       | lb <sub>f</sub> | 788                                   |      |      |      |      |      |      |
| Max. tilting moment                                                                                     |    | $M_{2KMax}$ |                                       | Nm              | 134                                   |      |      |      |      |      |      |
|                                                                                                         |    |             |                                       | in.lb           | 1186                                  |      |      |      |      |      |      |
| Efficiency at full load                                                                                 |    | $\eta$      |                                       | %               | 97                                    |      |      |      |      |      |      |
| Service life                                                                                            |    | $L_h$       |                                       | h               | > 20000                               |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                |    | $m$         |                                       | kg              | 9.4                                   |      |      |      |      |      |      |
|                                                                                                         |    |             |                                       | lb <sub>m</sub> | 21                                    |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) |    | $L_{PA}$    |                                       | dB(A)           | ≤ 65                                  |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                      |    |             |                                       | °C              | +90                                   |      |      |      |      |      |      |
|                                                                                                         |    |             |                                       | °F              | +194                                  |      |      |      |      |      |      |
| Ambient temperature                                                                                     |    |             |                                       | °C              | −15 to +40                            |      |      |      |      |      |      |
|                                                                                                         |    |             |                                       | °F              | +5 to +104                            |      |      |      |      |      |      |
| Lubrication                                                                                             |    |             |                                       |                 | Lubricated for life                   |      |      |      |      |      |      |
| Direction of rotation                                                                                   |    |             |                                       |                 | In- and output same direction         |      |      |      |      |      |      |
| Protection class                                                                                        |    |             |                                       |                 | IP 64                                 |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          |    | E           | 19                                    | $J_1$           | kgcm <sup>2</sup>                     | 3.2  | 2    | 1.6  | 1.2  | 1    | 0.93 |
|                                                                                                         |    |             |                                       |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.8  | 1.8  | 1.4  | 1.1  | 0.89 | 0.82 |
|                                                                                                         |    | G           | 24                                    | $J_1$           | kgcm <sup>2</sup>                     | 4    | 2.8  | 2.4  | 1.9  | 1.8  | 1.7  |
|                                                                                                         |    |             |                                       |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 3.5  | 2.5  | 2.1  | 1.7  | 1.6  | 1.5  |
|                                                                                                         |    | H           | 28                                    | $J_1$           | kgcm <sup>2</sup>                     | 3.7  | 2.5  | 2.1  | 1.6  | 1.5  | 1.4  |
|                                                                                                         |    |             |                                       |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 3.3  | 2.2  | 1.9  | 1.4  | 1.3  | 1.2  |
|                                                                                                         |    | I           | 32                                    | $J_1$           | kgcm <sup>2</sup>                     | 7.7  | 6.6  | 6.1  | 5.7  | 5.6  | 5.5  |
|                                                                                                         |    |             |                                       |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 6.8  | 5.8  | 5.4  | 5    | 5    | 4.9  |
| K                                                                                                       | 38 | $J_1$       | kgcm <sup>2</sup>                     | 8.9             | 7.8                                   | 7.3  | 6.9  | 6.7  | 6.6  |      |      |
|                                                                                                         |    |             | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 7.9             | 6.9                                   | 6.5  | 6.1  | 5.9  | 5.8  |      |      |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

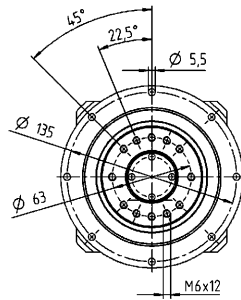
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

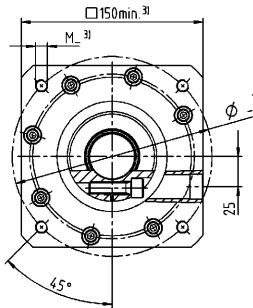
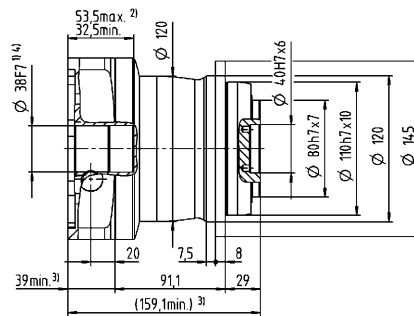
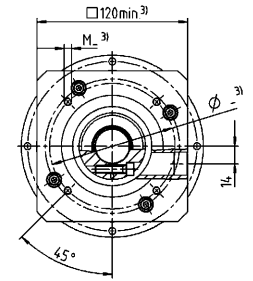
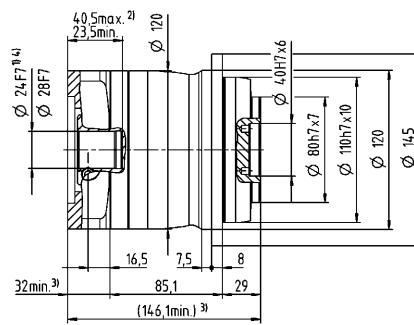
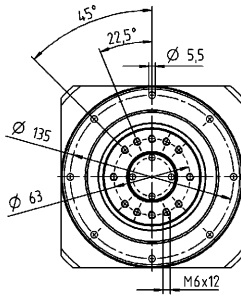


# 1-stage

up to 24/28<sup>4)</sup>  
(G<sup>5)</sup>/H)  
clamping hub  
diameter



up to 38<sup>4)</sup> (K)  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPT 035 MF 2-stage

|                                                                                                         |             |    |                 | 2-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------------------------------------------------------------------------------------|-------------|----|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                   | i           |    |                 | 9                                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |      |
| Max. torque <sup>a) b)</sup>                                                                            | $T_{2a}$    |    | Nm              | 320                                   | 320  | 320  | 365  | 365  | 365  | 365  | 320  | 365  | 365  | 365  | 365  | 352  | 365  | 352  |      |
|                                                                                                         |             |    | in.lb           | 2832                                  | 2832 | 2832 | 3231 | 3231 | 3231 | 3231 | 2832 | 3231 | 3231 | 3231 | 3231 | 3115 | 3231 | 3115 |      |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 | $T_{2B}$    |    | Nm              | 200                                   | 200  | 200  | 255  | 255  | 250  | 255  | 200  | 255  | 250  | 255  | 250  | 220  | 250  | 220  |      |
|                                                                                                         |             |    | in.lb           | 1770                                  | 1770 | 1770 | 2257 | 2257 | 2213 | 2257 | 1770 | 2257 | 2213 | 2257 | 2213 | 1947 | 2213 | 1947 |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  |    | Nm              | 480                                   | 480  | 480  | 480  | 480  | 480  | 480  | 480  | 480  | 480  | 480  | 480  | 480  | 480  | 480  |      |
|                                                                                                         |             |    | in.lb           | 4248                                  | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)              | $n_{1N}$    |    | rpm             | 3100                                  | 3300 | 3400 | 3300 | 3400 | 3400 | 3600 | 3900 | 3700 | 3600 | 3900 | 3900 | 3700 | 3900 | 3900 |      |
| Max. input speed                                                                                        | $n_{1Max}$  |    | rpm             | 7000                                  | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)         | $T_{012}$   |    | Nm              | 0.6                                   | 0.48 | 0.4  | 0.38 | 0.33 | 0.28 | 0.26 | 0.25 | 0.24 | 0.23 | 0.21 | 0.19 | 0.17 | 0.16 | 0.15 |      |
|                                                                                                         |             |    | in.lb           | 5.3                                   | 4.2  | 3.5  | 3.4  | 2.9  | 2.5  | 2.3  | 2.2  | 2.1  | 2    | 1.9  | 1.7  | 1.5  | 1.4  | 1.3  |      |
| Max. backlash                                                                                           | $j_t$       |    | arcmin          | ≤ 10                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                        | $C_{21}$    |    | Nm/arcmin       | 25                                    | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 22   | 25   | 22   |      |
|                                                                                                         |             |    | in.lb/arcmin    | 221                                   | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 195  | 221  | 195  |      |
| Max. axial force <sup>c)</sup>                                                                          | $F_{2AMax}$ |    | N               | 3500                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |             |    | lb <sub>f</sub> | 788                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                     | $M_{2KMax}$ |    | Nm              | 134                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |             |    | in.lb           | 1186                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                 | $\eta$      |    | %               | 95                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                            | $L_h$       |    | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                | $m$         |    | kg              | 9.8                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |             |    | lb <sub>m</sub> | 22                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) | $L_{PA}$    |    | dB(A)           | ≤ 61                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                      |             |    | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |             |    | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                     |             |    | °C              | -15 to +40                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |             |    | °F              | +5 to +104                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                             |             |    |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                   |             |    |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                        |             |    |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          | C           | 14 | $J_1$           | kgcm <sup>2</sup>                     | 0.68 | 0.63 | 0.62 | 0.45 | 0.44 | 0.37 | 0.38 | 0.52 | 0.38 | 0.32 | 0.37 | 0.31 | 0.26 | 0.27 | 0.24 |
|                                                                                                         |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.6  | 0.56 | 0.55 | 0.4  | 0.39 | 0.33 | 0.34 | 0.46 | 0.34 | 0.28 | 0.33 | 0.27 | 0.23 | 0.24 | 0.21 |
|                                                                                                         | D           | 16 | $J_1$           | kgcm <sup>2</sup>                     | 0.82 | 0.78 | 0.77 | 0.6  | 0.58 | 0.51 | 0.51 | 0.67 | 0.53 | 0.45 | 0.52 | 0.46 | 0.4  | 0.41 | 0.39 |
|                                                                                                         |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.73 | 0.69 | 0.68 | 0.53 | 0.51 | 0.45 | 0.45 | 0.59 | 0.47 | 0.4  | 0.46 | 0.41 | 0.35 | 0.36 | 0.35 |
|                                                                                                         | E           | 19 | $J_1$           | kgcm <sup>2</sup>                     | 0.91 | 0.87 | 0.86 | 0.69 | 0.67 | 0.6  | 0.61 | 0.76 | 0.61 | 0.55 | 0.6  | 0.55 | 0.49 | 0.5  | 0.48 |
|                                                                                                         |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.81 | 0.77 | 0.76 | 0.61 | 0.59 | 0.53 | 0.54 | 0.67 | 0.54 | 0.49 | 0.53 | 0.49 | 0.43 | 0.44 | 0.42 |
|                                                                                                         | G           | 24 | $J_1$           | kgcm <sup>2</sup>                     | 1.9  | 1.9  | 1.9  | 1.7  | 1.7  | 1.6  | 1.6  | 1.8  | 1.7  | 1.6  | 1.6  | 1.6  | 1.5  | 1.5  | 1.5  |
|                                                                                                         |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.7  | 1.7  | 1.7  | 1.5  | 1.5  | 1.4  | 1.4  | 1.6  | 1.5  | 1.4  | 1.4  | 1.4  | 1.3  | 1.3  | 1.3  |
|                                                                                                         | H           | 28 | $J_1$           | kgcm <sup>2</sup>                     | 1.7  | 1.6  | 1.6  | 1.4  | 1.4  | 1.3  | 1.4  | 1.5  | 1.4  | 1.3  | 1.3  | 1.3  | 1.2  | 1.2  | 1.2  |
|                                                                                                         |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.5  | 1.4  | 1.4  | 1.2  | 1.2  | 1.2  | 1.2  | 1.3  | 1.2  | 1.2  | 1.2  | 1.2  | 1.1  | 1.1  | 1.1  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

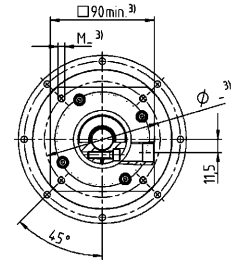
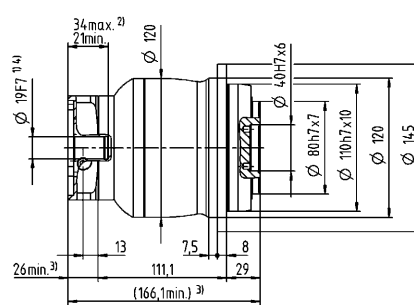
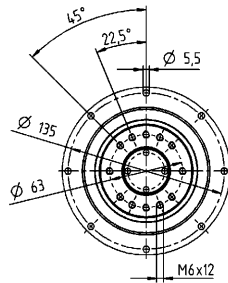
<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

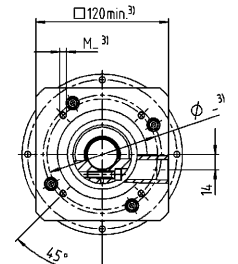
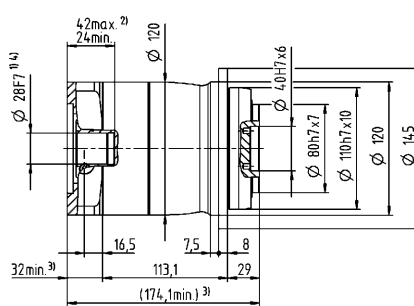
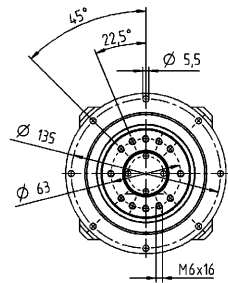
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

## 2-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter



up to 28<sup>4)</sup> (H)  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPT 045 MF 1-/2-stage

|                                                                                                         |             |                |       | 1-stage                       |      |      | 2-stage    |      |      |      |      |      |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|-------|-------------------------------|------|------|------------|------|------|------|------|------|
| Ratio                                                                                                   | i           |                |       | 5                             | 8    | 10   | 25         | 32   | 50   | 64   | 100  |      |
| Max. torque <sup>a) b)</sup>                                                                            | $T_{2a}$    | $Nm$           |       | 700                           | 640  | 640  | 700        | 640  | 700  | 640  | 640  |      |
|                                                                                                         |             | $in.lb$        |       | 6196                          | 5665 | 5665 | 6196       | 5665 | 6196 | 5665 | 5665 |      |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 | $T_{2B}$    | $Nm$           |       | 500                           | 400  | 400  | 500        | 400  | 500  | 400  | 400  |      |
|                                                                                                         |             | $in.lb$        |       | 4425                          | 3540 | 3540 | 4425       | 3540 | 4425 | 3540 | 3540 |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | $Nm$           |       | 1000                          | 1000 | 1000 | 1000       | 1000 | 1000 | 1000 | 1000 |      |
|                                                                                                         |             | $in.lb$        |       | 8851                          | 8851 | 8851 | 8851       | 8851 | 8851 | 8851 | 8851 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)              | $n_{1N}$    | $rpm$          |       | 2000                          | 2200 | 2300 | 2600       | 2500 | 3000 | 2900 | 3000 |      |
| Max. input speed                                                                                        | $n_{1Max}$  | $rpm$          |       | 4000                          | 4000 | 4000 | 6000       | 6000 | 6000 | 6000 | 6000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)         | $T_{012}$   | $Nm$           |       | 1.5                           | 1.1  | 0.9  | 0.39       | 0.34 | 0.27 | 0.24 | 0.21 |      |
|                                                                                                         |             | $in.lb$        |       | 13                            | 9.7  | 8    | 3.5        | 3    | 2.4  | 2.1  | 1.9  |      |
| Max. backlash                                                                                           | $j_t$       | $arcmin$       |       | ≤ 8                           |      |      | ≤ 10       |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                        | $C_{t21}$   | $Nm/arcmin$    |       | 55                            | 44   | 44   | 55         | 44   | 55   | 44   | 44   |      |
|                                                                                                         |             | $in.lb/arcmin$ |       | 487                           | 389  | 389  | 487        | 389  | 487  | 389  | 389  |      |
| Max. axial force <sup>c)</sup>                                                                          | $F_{2AMax}$ | $N$            |       | 3800                          |      |      | 3800       |      |      |      |      |      |
|                                                                                                         |             | $lb_f$         |       | 855                           |      |      | 855        |      |      |      |      |      |
| Max. tilting moment                                                                                     | $M_{2KMax}$ | $Nm$           |       | 256                           |      |      | 256        |      |      |      |      |      |
|                                                                                                         |             | $in.lb$        |       | 2266                          |      |      | 2266       |      |      |      |      |      |
| Efficiency at full load                                                                                 | $\eta$      | %              |       | 97                            |      |      | 95         |      |      |      |      |      |
| Service life                                                                                            | $L_h$       | $h$            |       | > 20000                       |      |      | > 20000    |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                | $m$         | $kg$           |       | 19                            |      |      | 20         |      |      |      |      |      |
|                                                                                                         |             | $lb_m$         |       | 42                            |      |      | 44         |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) | $L_{PA}$    | $dB(A)$        |       | ≤ 68                          |      |      | ≤ 65       |      |      |      |      |      |
| Max. permitted housing temperature                                                                      |             | °C             |       | +90                           |      |      | +90        |      |      |      |      |      |
|                                                                                                         |             | °F             |       | +194                          |      |      | +194       |      |      |      |      |      |
| Ambient temperature                                                                                     |             | °C             |       | –15 to +40                    |      |      | –15 to +40 |      |      |      |      |      |
|                                                                                                         |             | °F             |       | +5 to +104                    |      |      | +5 to +104 |      |      |      |      |      |
| Lubrication                                                                                             |             |                |       | Lubricated for life           |      |      |            |      |      |      |      |      |
| Direction of rotation                                                                                   |             |                |       | In- and output same direction |      |      |            |      |      |      |      |      |
| Protection class                                                                                        |             |                |       | IP 64                         |      |      |            |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          | E           | 19             | $J_1$ | $kgcm^2$                      | –    | –    | –          | 1.3  | 1.1  | 1.1  | 0.88 | 0.83 |
|                                                                                                         |             |                |       | $10^{-3} in.lb.s^2$           | –    | –    | –          | 1.2  | 0.97 | 0.97 | 0.78 | 0.73 |
|                                                                                                         | G           | 24             | $J_1$ | $kgcm^2$                      | –    | –    | –          | 2    | 1.9  | 1.8  | 1.7  | 1.6  |
|                                                                                                         |             |                |       | $10^{-3} in.lb.s^2$           | –    | –    | –          | 1.8  | 1.7  | 1.6  | 1.5  | 1.4  |
|                                                                                                         | H           | 28             | $J_1$ | $kgcm^2$                      | –    | –    | –          | 1.8  | 1.6  | 1.6  | 1.4  | 1.3  |
|                                                                                                         |             |                |       | $10^{-3} in.lb.s^2$           | –    | –    | –          | 1.6  | 1.4  | 1.4  | 1.2  | 1.2  |
|                                                                                                         | I           | 32             | $J_1$ | $kgcm^2$                      | –    | –    | –          | 5.8  | 5.7  | 5.6  | 5.4  | 5.4  |
|                                                                                                         |             |                |       | $10^{-3} in.lb.s^2$           | –    | –    | –          | 5.1  | 5    | 5    | 4.8  | 4.8  |
|                                                                                                         | K           | 38             | $J_1$ | $kgcm^2$                      | 9.8  | 7.8  | 7.4        | 7    | 6.9  | 6.8  | 6.6  | 6.5  |
|                                                                                                         |             |                |       | $10^{-3} in.lb.s^2$           | 8.7  | 6.9  | 6.5        | 6.2  | 6.1  | 6    | 5.8  | 5.8  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

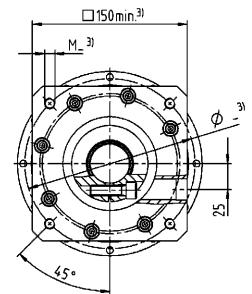
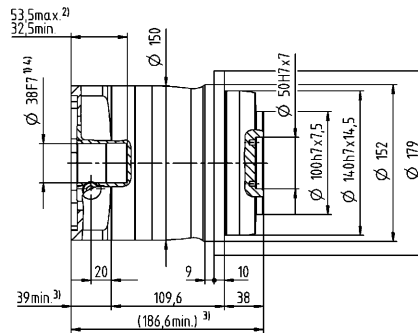
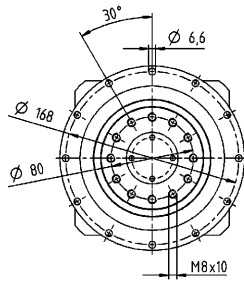
<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

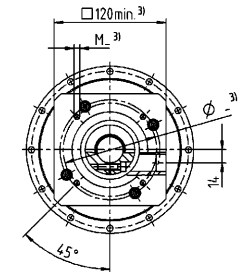
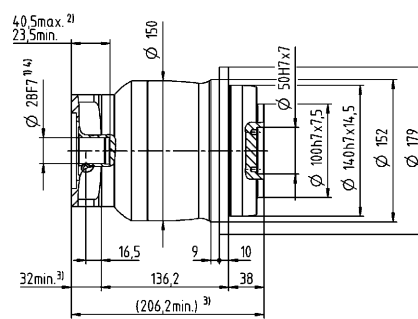
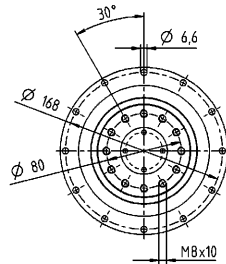
# 1-stage

up to 38<sup>4)</sup> (K)<sup>5)</sup>  
clamping hub  
diameter



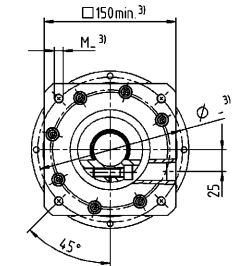
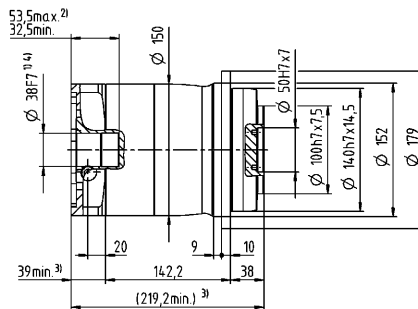
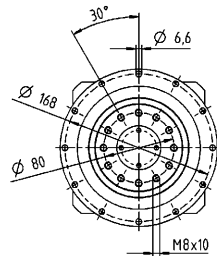
# 2-stage

up to 28<sup>4)</sup> (H)<sup>5)</sup>  
clamping hub  
diameter



Motor shaft diameter [mm]

up to 38<sup>4)</sup> (K)  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPT 015 MA 1-/2-stage

|                                                                                                         |    |             |                                       | 1-stage                               |                               |      | 2-stage    |       |       |       |       |       |       |      |
|---------------------------------------------------------------------------------------------------------|----|-------------|---------------------------------------|---------------------------------------|-------------------------------|------|------------|-------|-------|-------|-------|-------|-------|------|
| Ratio                                                                                                   |    | i           |                                       |                                       | 3                             | 4    | 12         | 15    | 16    | 20    | 28    | 30    | 40    |      |
| Max. torque <sup>a) b)</sup>                                                                            |    | $T_{2a}$    |                                       | Nm                                    | 62                            | 62   | 62         | 62    | 62    | 62    | 62    | 62    | 62    |      |
|                                                                                                         |    |             |                                       | in.lb                                 | 549                           | 549  | 549        | 549   | 549   | 549   | 549   | 549   | 549   | 549  |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 |    | $T_{2B}$    |                                       | Nm                                    | 55                            | 42   | 39         | 42    | 42    | 42    | 42    | 39    | 42    |      |
|                                                                                                         |    |             |                                       | in.lb                                 | 487                           | 372  | 345        | 372   | 372   | 372   | 372   | 345   | 372   | 372  |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) |    | $T_{2Not}$  |                                       | Nm                                    | 75                            | 75   | 75         | 75    | 75    | 75    | 75    | 75    | 75    |      |
|                                                                                                         |    |             |                                       | in.lb                                 | 664                           | 664  | 664        | 664   | 664   | 664   | 664   | 664   | 664   | 664  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)              |    | $n_{1N}$    |                                       | rpm                                   | 3300                          | 3500 | 3800       | 4000  | 3800  | 4000  | 4300  | 4600  | 4600  |      |
| Max. input speed                                                                                        |    | $n_{1Max}$  |                                       | rpm                                   | 8000                          | 8000 | 10000      | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)        |    | $T_{012}$   |                                       | Nm                                    | 0.25                          | 0.2  | 0.08       | 0.07  | 0.06  | 0.06  | 0.05  | 0.05  | 0.04  |      |
|                                                                                                         |    |             |                                       | in.lb                                 | 2.2                           | 1.8  | 0.71       | 0.62  | 0.53  | 0.53  | 0.44  | 0.44  | 0.35  | 0.35 |
| Max. backlash                                                                                           |    | $j_t$       |                                       | arcmin                                | ≤ 8                           |      | ≤ 10       |       |       |       |       |       |       |      |
| Torsional rigidity <sup>b)</sup>                                                                        |    | $C_{t21}$   |                                       | Nm/arcmin                             | 4                             | 4    | 4          | 4     | 4     | 4     | 4     | 4     | 4     |      |
|                                                                                                         |    |             |                                       | in.lb/arcmin                          | 35                            | 35   | 35         | 35    | 35    | 35    | 35    | 35    | 35    | 35   |
| Max. axial force <sup>c)</sup>                                                                          |    | $F_{2AMax}$ |                                       | N                                     | 1380                          |      | 1380       |       |       |       |       |       |       |      |
|                                                                                                         |    |             |                                       | lb <sub>f</sub>                       | 311                           |      | 311        |       |       |       |       |       |       |      |
| Max. tilting moment                                                                                     |    | $M_{2KMax}$ |                                       | Nm                                    | 42                            |      | 42         |       |       |       |       |       |       |      |
|                                                                                                         |    |             |                                       | in.lb                                 | 372                           |      | 372        |       |       |       |       |       |       |      |
| Efficiency at full load                                                                                 |    | $\eta$      |                                       | %                                     | 97                            |      | 95         |       |       |       |       |       |       |      |
| Service life                                                                                            |    | $L_h$       |                                       | h                                     | > 20000                       |      | > 20000    |       |       |       |       |       |       |      |
| Weight<br>(incl. standard adapter plate)                                                                |    | $m$         |                                       | kg                                    | 2                             |      | 2.1        |       |       |       |       |       |       |      |
|                                                                                                         |    |             |                                       | lb <sub>m</sub>                       | 4.4                           |      | 4.6        |       |       |       |       |       |       |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) |    | $L_{PA}$    |                                       | dB(A)                                 | ≤ 59                          |      | ≤ 58       |       |       |       |       |       |       |      |
| Max. permitted housing temperature                                                                      |    |             |                                       | °C                                    | +90                           |      | +90        |       |       |       |       |       |       |      |
|                                                                                                         |    |             |                                       | °F                                    | +194                          |      | +194       |       |       |       |       |       |       |      |
| Ambient temperature                                                                                     |    |             |                                       | °C                                    | –15 to +40                    |      | –15 to +40 |       |       |       |       |       |       |      |
|                                                                                                         |    |             |                                       | °F                                    | +5 to +104                    |      | +5 to +104 |       |       |       |       |       |       |      |
| Lubrication                                                                                             |    |             |                                       |                                       | Lubricated for life           |      |            |       |       |       |       |       |       |      |
| Direction of rotation                                                                                   |    |             |                                       |                                       | In- and output same direction |      |            |       |       |       |       |       |       |      |
| Protection class                                                                                        |    |             |                                       |                                       | IP 64                         |      |            |       |       |       |       |       |       |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          | Z  | 8           | $J_1$                                 | kgcm <sup>2</sup>                     | –                             | –    | 0.04       | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  |      |
|                                                                                                         |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –                             | –    | 0.04       | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03 |
|                                                                                                         | A  | 9           | $J_1$                                 | kgcm <sup>2</sup>                     | 0.31                          | 0.23 | 0.04       | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  |      |
|                                                                                                         |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.27                          | 0.2  | 0.04       | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03 |
|                                                                                                         | B  | 11          | $J_1$                                 | kgcm <sup>2</sup>                     | 0.33                          | 0.24 | 0.06       | 0.06  | 0.05  | 0.05  | 0.05  | 0.05  | 0.05  |      |
|                                                                                                         |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.29                          | 0.21 | 0.05       | 0.05  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04 |
|                                                                                                         | C  | 14          | $J_1$                                 | kgcm <sup>2</sup>                     | 0.41                          | 0.32 | 0.15       | 0.14  | 0.14  | 0.14  | 0.13  | 0.14  | 0.13  |      |
|                                                                                                         |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.36                          | 0.28 | 0.13       | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12 |
|                                                                                                         | D  | 16          | $J_1$                                 | kgcm <sup>2</sup>                     | 0.53                          | 0.45 | –          | –     | –     | –     | –     | –     | –     | –    |
|                                                                                                         |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.47                          | 0.4  | –          | –     | –     | –     | –     | –     | –     | –    |
| E                                                                                                       | 19 | $J_1$       | kgcm <sup>2</sup>                     | 0.62                                  | 0.53                          | –    | –          | –     | –     | –     | –     | –     | –     |      |
|                                                                                                         |    |             | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.55                                  | 0.47                          | –    | –          | –     | –     | –     | –     | –     | –     |      |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

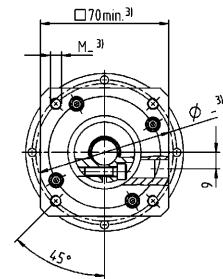
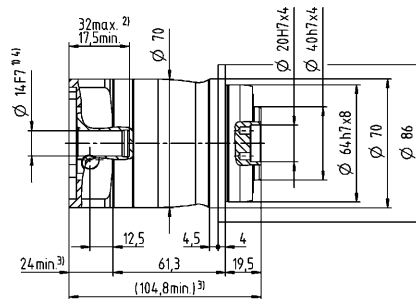
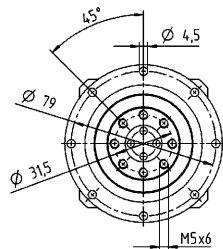
<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

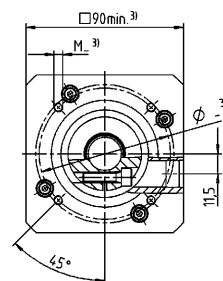
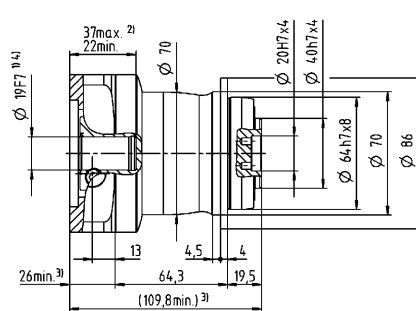
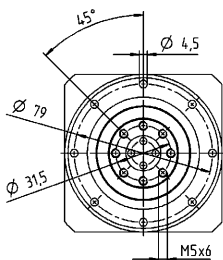
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

# 1-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter

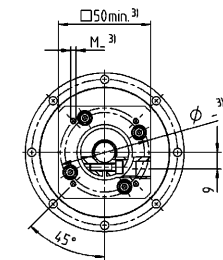
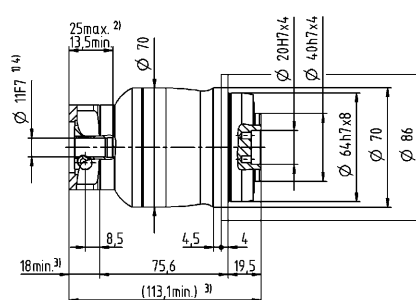
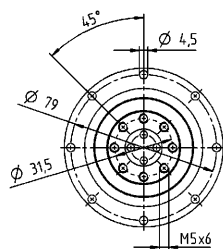


up to 19<sup>4)</sup> (E)  
clamping hub  
diameter

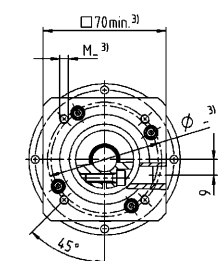
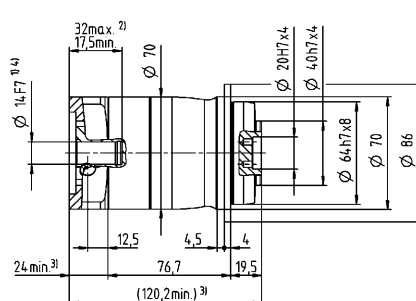
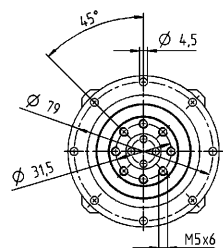


# 2-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



up to 14<sup>4)</sup> (C)  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPT 025 MA 1-/2-stage

|                                                                                                         |             |                |       | 1-stage                       |      | 2-stage    |      |      |      |      |      |      |      |      |
|---------------------------------------------------------------------------------------------------------|-------------|----------------|-------|-------------------------------|------|------------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                   | i           |                |       | 3                             | 4    | 9          | 12   | 15   | 16   | 20   | 28   | 30   | 40   |      |
| Max. torque <sup>a) b)</sup>                                                                            | $T_{2a}$    | $Nm$           |       | 185                           | 185  | 185        | 185  | 185  | 185  | 185  | 185  | 168  | 185  |      |
|                                                                                                         |             | $in.lb$        |       | 1637                          | 1637 | 1637       | 1637 | 1637 | 1637 | 1637 | 1637 | 1487 | 1637 |      |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 | $T_{2B}$    | $Nm$           |       | 125                           | 115  | 125        | 125  | 120  | 115  | 115  | 115  | 105  | 115  |      |
|                                                                                                         |             | $in.lb$        |       | 1106                          | 1018 | 1106       | 1106 | 1062 | 1018 | 1018 | 1018 | 929  | 1018 |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | $Nm$           |       | 190                           | 190  | 190        | 190  | 190  | 190  | 190  | 190  | 190  | 190  |      |
|                                                                                                         |             | $in.lb$        |       | 1682                          | 1682 | 1682       | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2n}$ and 20 °C ambient temperature)              | $n_{1N}$    | $rpm$          |       | 3100                          | 3300 | 3300       | 3500 | 3700 | 3500 | 3700 | 4000 | 4300 | 4300 |      |
| Max. input speed                                                                                        | $n_{1Max}$  | $rpm$          |       | 7000                          | 7000 | 8000       | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)         | $T_{012}$   | $Nm$           |       | 0.43                          | 0.35 | 0.16       | 0.13 | 0.12 | 0.11 | 0.1  | 0.09 | 0.08 | 0.08 |      |
|                                                                                                         |             | $in.lb$        |       | 3.8                           | 3.1  | 1.4        | 1.2  | 1.1  | 0.97 | 0.89 | 0.8  | 0.71 | 0.71 |      |
| Max. backlash                                                                                           | $j_t$       | $arcmin$       |       | ≤ 8                           |      | ≤ 10       |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                        | $C_{t21}$   | $Nm/arcmin$    |       | 12                            | 12   | 12         | 12   | 12   | 12   | 12   | 12   | 12   | 12   |      |
|                                                                                                         |             | $in.lb/arcmin$ |       | 106                           | 106  | 106        | 106  | 106  | 106  | 106  | 106  | 106  | 106  |      |
| Max. axial force <sup>c)</sup>                                                                          | $F_{2AMax}$ | $N$            |       | 1900                          |      | 1900       |      |      |      |      |      |      |      |      |
|                                                                                                         |             | $lb_f$         |       | 428                           |      | 428        |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                     | $M_{2KMax}$ | $Nm$           |       | 79                            |      | 79         |      |      |      |      |      |      |      |      |
|                                                                                                         |             | $in.lb$        |       | 699                           |      | 699        |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                 | $\eta$      | %              |       | 97                            |      | 95         |      |      |      |      |      |      |      |      |
| Service life                                                                                            | $L_n$       | $h$            |       | > 20000                       |      | > 20000    |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                | $m$         | $kg$           |       | 4.4                           |      | 4.7        |      |      |      |      |      |      |      |      |
|                                                                                                         |             | $lb_m$         |       | 9.7                           |      | 10         |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) | $L_{PA}$    | $dB(A)$        |       | ≤ 61                          |      | ≤ 59       |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                      |             | °C             |       | +90                           |      | +90        |      |      |      |      |      |      |      |      |
|                                                                                                         |             | °F             |       | +194                          |      | +194       |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                     |             | °C             |       | –15 to +40                    |      | –15 to +40 |      |      |      |      |      |      |      |      |
|                                                                                                         |             | °F             |       | +5 to +104                    |      | +5 to +104 |      |      |      |      |      |      |      |      |
| Lubrication                                                                                             |             |                |       | Lubricated for life           |      |            |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                   |             |                |       | In- and output same direction |      |            |      |      |      |      |      |      |      |      |
| Protection class                                                                                        |             |                |       | IP 64                         |      |            |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          | A           | 9              | $J_1$ | $kgcm^2$                      | –    | –          | 0.28 | 0.23 | 0.22 | 0.22 | 0.21 | 0.20 | 0.19 | 0.19 |
|                                                                                                         |             |                |       | $10^{-3} in.lb.s^2$           | –    | –          | 0.25 | 0.2  | 0.19 | 0.19 | 0.19 | 0.18 | 0.17 | 0.17 |
|                                                                                                         | B           | 11             | $J_1$ | $kgcm^2$                      | –    | –          | 0.3  | 0.25 | 0.23 | 0.24 | 0.23 | 0.21 | 0.21 | 0.21 |
|                                                                                                         |             |                |       | $10^{-3} in.lb.s^2$           | –    | –          | 0.27 | 0.22 | 0.2  | 0.21 | 0.2  | 0.19 | 0.19 | 0.19 |
|                                                                                                         | C           | 14             | $J_1$ | $kgcm^2$                      | 0.75 | 0.57       | 0.37 | 0.32 | 0.31 | 0.31 | 0.3  | 0.29 | 0.29 | 0.28 |
|                                                                                                         |             |                |       | $10^{-3} in.lb.s^2$           | 0.66 | 0.5        | 0.33 | 0.28 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 | 0.25 |
|                                                                                                         | D           | 16             | $J_1$ | $kgcm^2$                      | 0.9  | 0.72       | 0.5  | 0.45 | 0.44 | 0.44 | 0.43 | 0.42 | 0.41 | 0.41 |
|                                                                                                         |             |                |       | $10^{-3} in.lb.s^2$           | 0.8  | 0.64       | 0.44 | 0.4  | 0.39 | 0.39 | 0.38 | 0.37 | 0.36 | 0.36 |
|                                                                                                         | E           | 19             | $J_1$ | $kgcm^2$                      | 0.99 | 0.8        | 0.58 | 0.53 | 0.52 | 0.52 | 0.51 | 0.5  | 0.5  | 0.49 |
|                                                                                                         |             |                |       | $10^{-3} in.lb.s^2$           | 0.88 | 0.71       | 0.51 | 0.47 | 0.46 | 0.46 | 0.45 | 0.44 | 0.44 | 0.43 |
|                                                                                                         | G           | 24             | $J_1$ | $kgcm^2$                      | 2    | 1.8        | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                         |             |                |       | $10^{-3} in.lb.s^2$           | 1.8  | 1.6        | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                         | H           | 28             | $J_1$ | $kgcm^2$                      | 1.7  | 1.5        | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                         |             |                |       | $10^{-3} in.lb.s^2$           | 1.5  | 1.3        | –    | –    | –    | –    | –    | –    | –    | –    |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

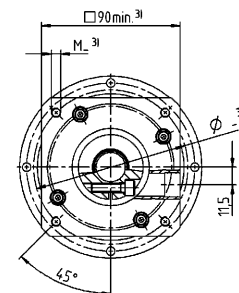
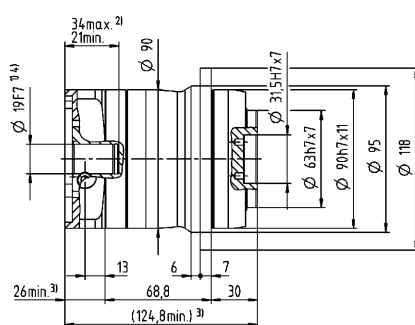
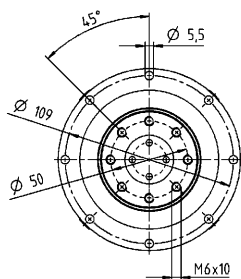
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

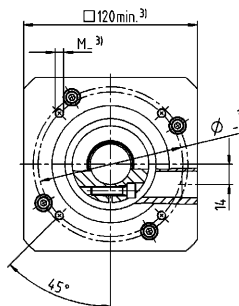
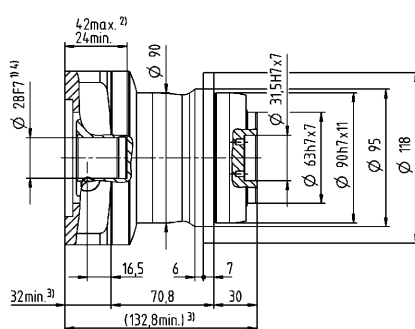
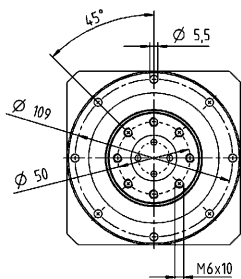


# 1-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter

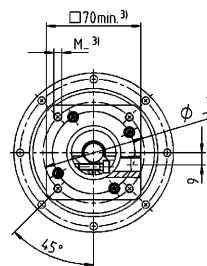
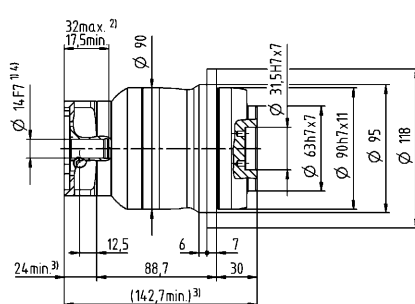
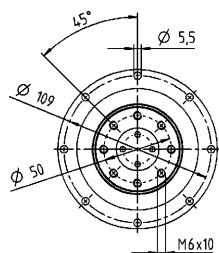


up to 28<sup>4)</sup> (H)  
clamping hub  
diameter

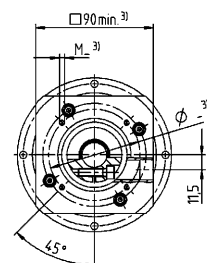
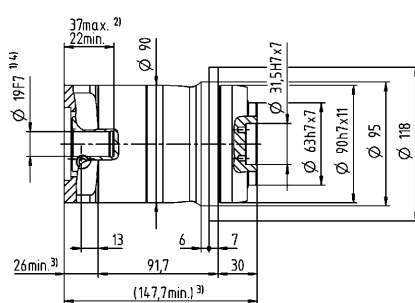
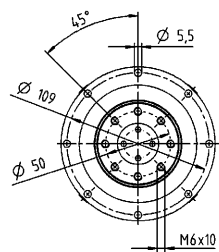


# 2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



up to 19<sup>4)</sup> (E)  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPT 035 MA 1-/2-stage

|                                                                                                         |  |             |    | 1-stage         |                                       |      | 2-stage    |      |      |      |      |      |      |      |      |
|---------------------------------------------------------------------------------------------------------|--|-------------|----|-----------------|---------------------------------------|------|------------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                   |  | i           |    |                 | 3                                     | 4    | 9          | 12   | 15   | 16   | 20   | 28   | 30   | 40   |      |
| Max. torque <sup>a) b)</sup>                                                                            |  | $T_{2a}$    |    | Nm              | 380                                   | 380  | 380        | 380  | 380  | 380  | 380  | 380  | 370  | 380  |      |
|                                                                                                         |  |             |    | in.lb           | 3363                                  | 3363 | 3363       | 3363 | 3363 | 3363 | 3363 | 3363 | 3363 | 3275 | 3363 |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 |  | $T_{2B}$    |    | Nm              | 305                                   | 305  | 305        | 305  | 300  | 305  | 305  | 305  | 270  | 305  |      |
|                                                                                                         |  |             |    | in.lb           | 2699                                  | 2699 | 2699       | 2699 | 2655 | 2699 | 2699 | 2699 | 2699 | 2390 | 2699 |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) |  | $T_{2Not}$  |    | Nm              | 480                                   | 480  | 480        | 480  | 480  | 480  | 480  | 480  | 480  | 480  |      |
|                                                                                                         |  |             |    | in.lb           | 4248                                  | 4248 | 4248       | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)              |  | $n_{1N}$    |    | rpm             | 2300                                  | 2500 | 3100       | 3300 | 3400 | 3300 | 3400 | 3600 | 3900 | 3900 |      |
| Max. input speed                                                                                        |  | $n_{1Max}$  |    | rpm             | 6000                                  | 6000 | 7000       | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)        |  | $T_{012}$   |    | Nm              | 1.7                                   | 1.3  | 0.6        | 0.48 | 0.4  | 0.38 | 0.33 | 0.26 | 0.25 | 0.21 |      |
|                                                                                                         |  |             |    | in.lb           | 15                                    | 12   | 5.3        | 4.2  | 3.5  | 3.4  | 2.9  | 2.3  | 2.2  | 1.9  |      |
| Max. backlash                                                                                           |  | $j_t$       |    | arcmin          | ≤ 8                                   |      | ≤ 10       |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                        |  | $C_{t21}$   |    | Nm/arcmin       | 30                                    | 30   | 30         | 30   | 30   | 30   | 30   | 30   | 30   | 30   |      |
|                                                                                                         |  |             |    | in.lb/arcmin    | 266                                   | 266  | 266        | 266  | 266  | 266  | 266  | 266  | 266  | 266  | 266  |
| Max. axial force <sup>c)</sup>                                                                          |  | $F_{2AMax}$ |    | N               | 3500                                  |      | 3500       |      |      |      |      |      |      |      |      |
|                                                                                                         |  |             |    | lb <sub>f</sub> | 788                                   |      | 788        |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                     |  | $M_{2KMax}$ |    | Nm              | 134                                   |      | 134        |      |      |      |      |      |      |      |      |
|                                                                                                         |  |             |    | in.lb           | 1186                                  |      | 1186       |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                 |  | $\eta$      |    | %               | 97                                    |      | 95         |      |      |      |      |      |      |      |      |
| Service life                                                                                            |  | $L_h$       |    | h               | > 20000                               |      | > 20000    |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                |  | $m$         |    | kg              | 9.4                                   |      | 9.8        |      |      |      |      |      |      |      |      |
|                                                                                                         |  |             |    | lb <sub>m</sub> | 21                                    |      | 22         |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) |  | $L_{PA}$    |    | dB(A)           | ≤ 65                                  |      | ≤ 61       |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                      |  |             |    | °C              | +90                                   |      | +90        |      |      |      |      |      |      |      |      |
|                                                                                                         |  |             |    | °F              | +194                                  |      | +194       |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                     |  |             |    | °C              | –15 to +40                            |      | –15 to +40 |      |      |      |      |      |      |      |      |
|                                                                                                         |  |             |    | °F              | +5 to +104                            |      | +5 to +104 |      |      |      |      |      |      |      |      |
| Lubrication                                                                                             |  |             |    |                 | Lubricated for life                   |      |            |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                   |  |             |    |                 | In- and output same direction         |      |            |      |      |      |      |      |      |      |      |
| Protection class                                                                                        |  |             |    |                 | IP 64                                 |      |            |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          |  | C           | 14 | $J_1$           | kgcm <sup>2</sup>                     | –    | –          | 0.68 | 0.63 | 0.62 | 0.45 | 0.44 | 0.38 | 0.52 | 0.37 |
|                                                                                                         |  |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –          | 0.6  | 0.56 | 0.55 | 0.4  | 0.39 | 0.34 | 0.46 | 0.33 |
|                                                                                                         |  | D           | 16 | $J_1$           | kgcm <sup>2</sup>                     | –    | –          | 0.82 | 0.78 | 0.77 | 0.6  | 0.58 | 0.51 | 0.67 | 0.52 |
|                                                                                                         |  |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –          | 0.73 | 0.69 | 0.68 | 0.53 | 0.51 | 0.45 | 0.59 | 0.46 |
|                                                                                                         |  | E           | 19 | $J_1$           | kgcm <sup>2</sup>                     | 3.2  | 2          | 0.91 | 0.87 | 0.86 | 0.69 | 0.67 | 0.61 | 0.76 | 0.6  |
|                                                                                                         |  |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.8  | 1.8        | 0.81 | 0.77 | 0.76 | 0.61 | 0.59 | 0.54 | 0.67 | 0.53 |
|                                                                                                         |  | G           | 24 | $J_1$           | kgcm <sup>2</sup>                     | 4    | 2.8        | 1.9  | 1.9  | 1.9  | 1.7  | 1.7  | 1.6  | 1.8  | 1.6  |
|                                                                                                         |  |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 3.5  | 2.5        | 1.7  | 1.7  | 1.7  | 1.5  | 1.5  | 1.4  | 1.6  | 1.4  |
|                                                                                                         |  | H           | 28 | $J_1$           | kgcm <sup>2</sup>                     | 3.7  | 2.5        | 1.7  | 1.6  | 1.6  | 1.4  | 1.4  | 1.4  | 1.5  | 1.3  |
|                                                                                                         |  |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 3.3  | 2.2        | 1.5  | 1.4  | 1.4  | 1.2  | 1.2  | 1.2  | 1.3  | 1.2  |
|                                                                                                         |  | I           | 32 | $J_1$           | kgcm <sup>2</sup>                     | 7.7  | 6.6        | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                         |  |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 6.8  | 5.8        | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                         |  | K           | 38 | $J_1$           | kgcm <sup>2</sup>                     | 8.9  | 7.8        | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                         |  |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 7.9  | 6.9        | –    | –    | –    | –    | –    | –    | –    | –    |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

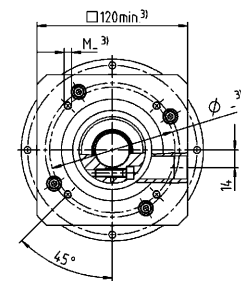
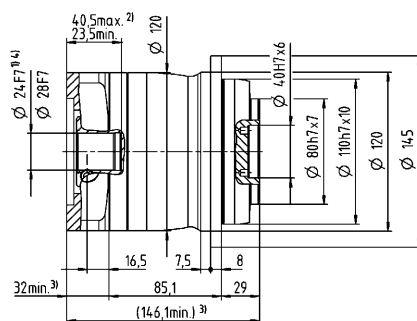
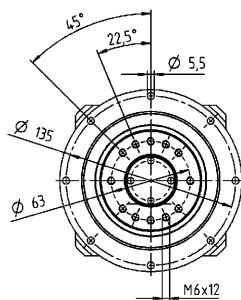
<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

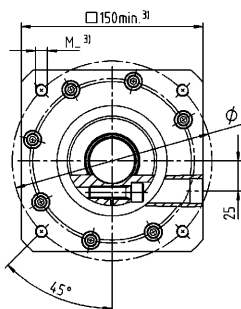
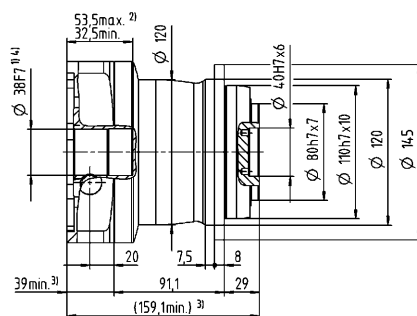
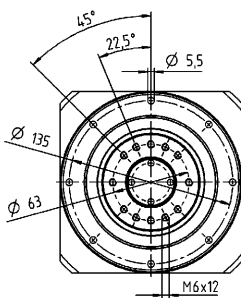
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

# 1-stage

up to 24/28<sup>4)</sup>  
(G<sup>5)</sup>/H)  
clamping hub  
diameter

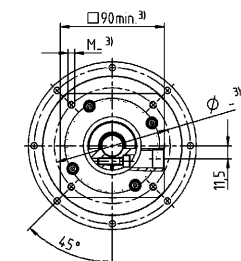
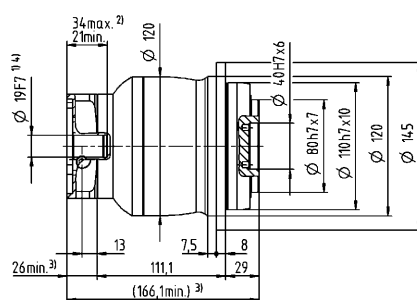
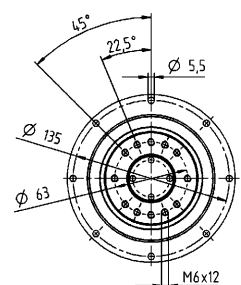


up to 38<sup>4)</sup> (K)  
clamping hub  
diameter

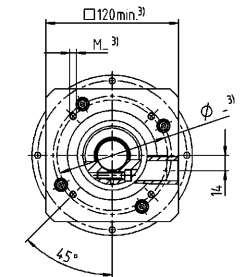
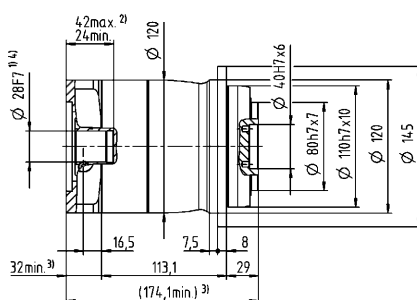
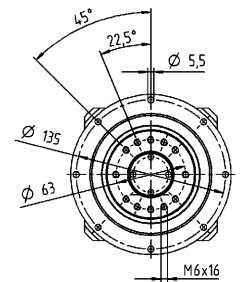


# 2-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter



up to 28<sup>4)</sup> (H)  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPR 015 MF 1-stage

|                                                                                                            |             |    |                 | 1-stage                               |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|----|-----------------|---------------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                      | i           |    |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    |    | Nm              | 51                                    | 56   | 64   | 64   | 56   | 56   |      |
|                                                                                                            |             |    | in.lb           | 451                                   | 496  | 566  | 566  | 496  | 496  |      |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    |    | Nm              | 32                                    | 35   | 40   | 40   | 35   | 35   |      |
|                                                                                                            |             |    | in.lb           | 283                                   | 310  | 354  | 354  | 310  | 310  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  |    | Nm              | 80                                    | 80   | 80   | 80   | 80   | 80   |      |
|                                                                                                            |             |    | in.lb           | 708                                   | 708  | 708  | 708  | 708  | 708  |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$    |    | rpm             | 2600                                  | 2800 | 2900 | 3400 | 3400 | 3600 |      |
| Max. input speed                                                                                           | $n_{1Max}$  |    | rpm             | 8000                                  | 8000 | 8000 | 8000 | 8000 | 8000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$   |    | Nm              | 0.98                                  | 0.78 | 0.66 | 0.52 | 0.48 | 0.42 |      |
|                                                                                                            |             |    | in.lb           | 8.7                                   | 6.9  | 5.8  | 4.6  | 4.2  | 3.7  |      |
| Max. backlash                                                                                              | $j_t$       |    | arcmin          | ≤ 8                                   |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   |    | Nm/arcmin       | 3.3                                   | 3.3  | 3.3  | 3.3  | 2.8  | 2.8  |      |
|                                                                                                            |             |    | in.lb/arcmin    | 29                                    | 29   | 29   | 29   | 25   | 25   |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ |    | N               | 2400                                  |      |      |      |      |      |      |
|                                                                                                            |             |    | lb <sub>f</sub> | 540                                   |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ |    | N               | 2800                                  |      |      |      |      |      |      |
|                                                                                                            |             |    | lb <sub>f</sub> | 630                                   |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ |    | Nm              | 152                                   |      |      |      |      |      |      |
|                                                                                                            |             |    | in.lb           | 1345                                  |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      |    | %               | 97                                    |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$       |    | h               | > 20000                               |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         |    | kg              | 1.9                                   |      |      |      |      |      |      |
|                                                                                                            |             |    | lb <sub>m</sub> | 4.2                                   |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    |    | dB(A)           | ≤ 59                                  |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             |    | °C              | +90                                   |      |      |      |      |      |      |
|                                                                                                            |             |    | °F              | +194                                  |      |      |      |      |      |      |
| Ambient temperature                                                                                        |             |    | °C              | –15 to +40                            |      |      |      |      |      |      |
|                                                                                                            |             |    | °F              | +5 to +104                            |      |      |      |      |      |      |
| Lubrication                                                                                                |             |    |                 | Lubricated for life                   |      |      |      |      |      |      |
| Direction of rotation                                                                                      |             |    |                 | In- and output same direction         |      |      |      |      |      |      |
| Protection class                                                                                           |             |    |                 | IP 65                                 |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |    |                 | ELC-0060BA016.000-X                   |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             |    | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | A           | 9  | $J_1$           | kgcm <sup>2</sup>                     | 0.25 | 0.19 | 0.17 | 0.14 | 0.14 | 0.13 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.22 | 0.17 | 0.15 | 0.12 | 0.12 | 0.12 |
|                                                                                                            | B           | 11 | $J_1$           | kgcm <sup>2</sup>                     | 0.26 | 0.21 | 0.18 | 0.16 | 0.16 | 0.15 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.23 | 0.19 | 0.16 | 0.14 | 0.14 | 0.13 |
|                                                                                                            | C           | 14 | $J_1$           | kgcm <sup>2</sup>                     | 0.34 | 0.28 | 0.26 | 0.24 | 0.23 | 0.23 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.3  | 0.25 | 0.23 | 0.21 | 0.2  | 0.2  |
|                                                                                                            | D           | 16 | $J_1$           | kgcm <sup>2</sup>                     | 0.47 | 0.41 | 0.39 | 0.36 | 0.36 | 0.35 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.42 | 0.36 | 0.35 | 0.32 | 0.32 | 0.31 |
|                                                                                                            | E           | 19 | $J_1$           | kgcm <sup>2</sup>                     | 0.55 | 0.49 | 0.47 | 0.45 | 0.44 | 0.44 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.49 | 0.43 | 0.42 | 0.4  | 0.39 | 0.39 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

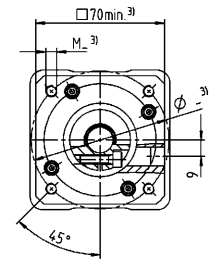
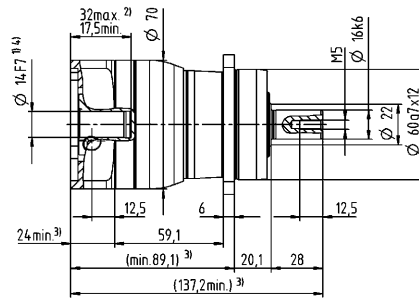
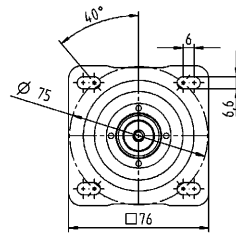
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

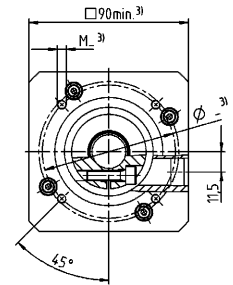
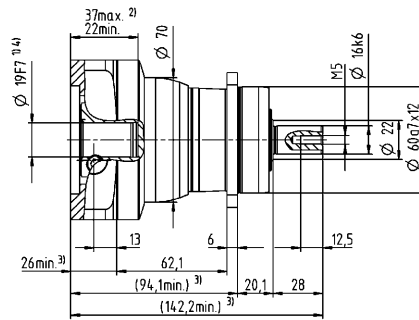
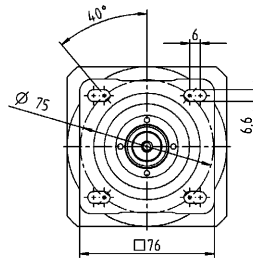
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



up to 19<sup>4)</sup> (E)  
clamping hub  
diameter



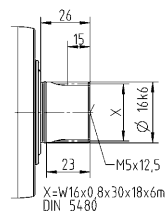
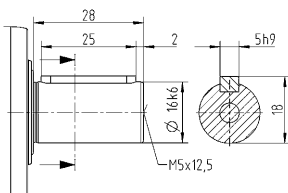
Motor shaft diameter [mm]

Planetary Gearboxes  
Value Line

## Other output variants

Shaft with key

Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPR 015 MF 2-stage

|                                                                                                            |              |                 | 2-stage                       |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|-------------------------------|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Ratio                                                                                                      | i            |                 | 12                            | 15                                    | 16    | 20    | 25    | 28    | 30    | 32    | 35    | 40    | 50    | 64    | 70    | 100   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 51                            | 51                                    | 56    | 56    | 64    | 56    | 51    | 56    | 64    | 56    | 64    | 56    | 64    | 56    |      |
|                                                                                                            |              | in.lb           | 451                           | 451                                   | 496   | 496   | 566   | 496   | 451   | 496   | 566   | 496   | 566   | 496   | 566   | 496   |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 32                            | 32                                    | 35    | 35    | 40    | 35    | 32    | 35    | 40    | 35    | 40    | 35    | 40    | 35    |      |
|                                                                                                            |              | in.lb           | 283                           | 283                                   | 310   | 310   | 354   | 310   | 283   | 310   | 354   | 310   | 354   | 310   | 354   | 310   |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 80                            | 80                                    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    |      |
|                                                                                                            |              | in.lb           | 708                           | 708                                   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   | 708   |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 3800                          | 4000                                  | 3800  | 4000  | 4000  | 4300  | 4600  | 4400  | 4300  | 4600  | 4600  | 4400  | 4600  | 4600  |      |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 10000                         | 10000                                 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$    | Nm              | 0.34                          | 0.29                                  | 0.29  | 0.25  | 0.23  | 0.21  | 0.21  | 0.2   | 0.2   | 0.19  | 0.17  | 0.17  | 0.16  | 0.15  |      |
|                                                                                                            |              | in.lb           | 3                             | 2.6                                   | 2.6   | 2.2   | 2     | 1.9   | 1.9   | 1.8   | 1.8   | 1.7   | 1.5   | 1.5   | 1.4   | 1.3   |      |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 10                          |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 3.3                           | 3.3                                   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 3.3   | 2.8   | 3.3   | 2.8   |      |
|                                                                                                            |              | in.lb/arcmin    | 29                            | 29                                    | 29    | 29    | 29    | 29    | 29    | 29    | 29    | 29    | 29    | 25    | 29    | 25    |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 2400                          |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
|                                                                                                            |              | lb <sub>f</sub> | 540                           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 2800                          |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
|                                                                                                            |              | lb <sub>f</sub> | 630                           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ | Nm              | 152                           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
|                                                                                                            |              | in.lb           | 1345                          |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 95                            |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                       |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 2.0                           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
|                                                                                                            |              | lb <sub>m</sub> | 4.4                           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 58                          |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
|                                                                                                            |              | °F              | +194                          |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Ambient temperature                                                                                        |              | °C              | −15 to +40                    |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
|                                                                                                            |              | °F              | +5 to +104                    |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Lubrication                                                                                                |              |                 | Lubricated for life           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Protection class                                                                                           |              |                 | IP 65                         |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA016.000-X           |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 012.000 - 032.000         |                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | Z            | 8               | $J_1$                         | kgcm <sup>2</sup>                     | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  | 0.02 |
|                                                                                                            |              |                 |                               | 10 <sup>−3</sup> in.lb.s <sup>2</sup> | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  | 0.02 |
|                                                                                                            | A            | 9               | $J_1$                         | kgcm <sup>2</sup>                     | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  | 0.02 |
|                                                                                                            |              |                 |                               | 10 <sup>−3</sup> in.lb.s <sup>2</sup> | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.02  | 0.02 |
|                                                                                                            | B            | 11              | $J_1$                         | kgcm <sup>2</sup>                     | 0.06  | 0.06  | 0.05  | 0.05  | 0.05  | 0.05  | 0.05  | 0.04  | 0.05  | 0.04  | 0.04  | 0.04  | 0.04 |
|                                                                                                            |              |                 |                               | 10 <sup>−3</sup> in.lb.s <sup>2</sup> | 0.05  | 0.05  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.04 |
|                                                                                                            | C            | 14              | $J_1$                         | kgcm <sup>2</sup>                     | 0.14  | 0.14  | 0.14  | 0.13  | 0.13  | 0.13  | 0.14  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13  | 0.13 |
|                                                                                                            |              |                 |                               | 10 <sup>−3</sup> in.lb.s <sup>2</sup> | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12 |

Please use our sizing software cymex<sup>®</sup> for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

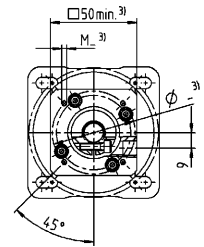
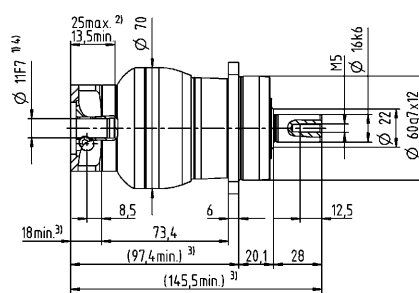
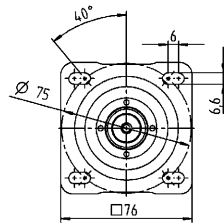
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

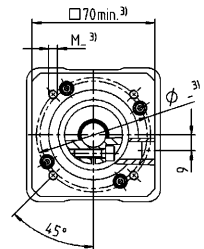
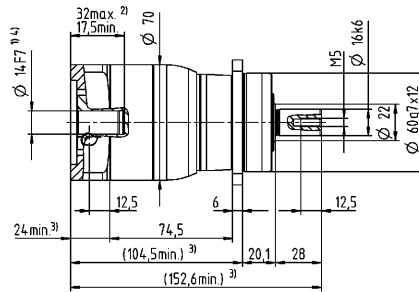
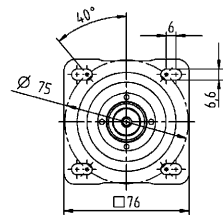
<sup>e)</sup> Valid for: Smooth shaft

## 2-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



up to 14<sup>4)</sup> (C)  
clamping hub  
diameter



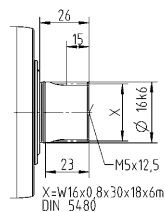
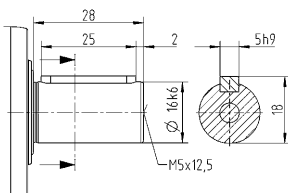
Motor shaft diameter [mm]

Planetary Gearboxes  
Value Line

### Other output variants

Shaft with key

Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPR 025 MF 1-stage

|                                                                                                                                     |   |             |                | 1-stage                       |      |      |      |      |      |      |
|-------------------------------------------------------------------------------------------------------------------------------------|---|-------------|----------------|-------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                                               |   | i           |                | 3                             | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b) e)</sup>                                                                                                     |   | $T_{2a}$    | $Nm$           | 128                           | 152  | 160  | 160  | 144  | 144  |      |
|                                                                                                                                     |   |             | $in.lb$        | 1133                          | 1345 | 1416 | 1416 | 1275 | 1275 |      |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                                               |   | $T_{2B}$    | $Nm$           | 80                            | 95   | 100  | 100  | 90   | 90   |      |
|                                                                                                                                     |   |             | $in.lb$        | 708                           | 841  | 885  | 885  | 797  | 797  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox)                          |   | $T_{2Not}$  | $Nm$           | 190                           | 190  | 190  | 190  | 190  | 190  |      |
|                                                                                                                                     |   |             | $in.lb$        | 1682                          | 1682 | 1682 | 1682 | 1682 | 1682 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                                          |   | $n_{1N}$    | $rpm$          | 2400                          | 2600 | 2700 | 3000 | 3100 | 3300 |      |
| Max. input speed                                                                                                                    |   | $n_{1Max}$  | $rpm$          | 7000                          | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)                                    |   | $T_{012}$   | $Nm$           | 1.9                           | 1.6  | 1.4  | 1.1  | 1.1  | 0.96 |      |
|                                                                                                                                     |   |             | $in.lb$        | 17                            | 14   | 12   | 9.7  | 9.7  | 8.5  |      |
| Max. backlash                                                                                                                       |   | $j_t$       | $arcmin$       | ≤ 8                           |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                                                    |   | $C_{t21}$   | $Nm/arcmin$    | 9.5                           | 9.5  | 9.5  | 9.5  | 8.5  | 8.5  |      |
|                                                                                                                                     |   |             | $in.lb/arcmin$ | 84                            | 84   | 84   | 84   | 75   | 75   |      |
| Max. axial force <sup>c)</sup>                                                                                                      |   | $F_{2AMax}$ | $N$            | 3350                          |      |      |      |      |      |      |
|                                                                                                                                     |   |             | $lb_f$         | 754                           |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                                                    |   | $F_{2QMax}$ | $N$            | 4200                          |      |      |      |      |      |      |
|                                                                                                                                     |   |             | $lb_f$         | 945                           |      |      |      |      |      |      |
| Max. tilting moment                                                                                                                 |   | $M_{2KMax}$ | $Nm$           | 236                           |      |      |      |      |      |      |
|                                                                                                                                     |   |             | $in.lb$        | 2089                          |      |      |      |      |      |      |
| Efficiency at full load                                                                                                             |   | $\eta$      | %              | 97                            |      |      |      |      |      |      |
| Service life                                                                                                                        |   | $L_h$       | $h$            | > 20000                       |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                                            |   | $m$         | $kg$           | 3.7                           |      |      |      |      |      |      |
|                                                                                                                                     |   |             | $lb_m$         | 8.2                           |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)                             |   | $L_{PA}$    | $dB(A)$        | ≤ 61                          |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                                                  |   |             | °C             | +90                           |      |      |      |      |      |      |
|                                                                                                                                     |   |             | °F             | +194                          |      |      |      |      |      |      |
| Ambient temperature                                                                                                                 |   |             | °C             | –15 to +40                    |      |      |      |      |      |      |
|                                                                                                                                     |   |             | °F             | +5 to +104                    |      |      |      |      |      |      |
| Lubrication                                                                                                                         |   |             |                | Lubricated for life           |      |      |      |      |      |      |
| Direction of rotation                                                                                                               |   |             |                | In- and output same direction |      |      |      |      |      |      |
| Protection class                                                                                                                    |   |             |                | IP 65                         |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)<br>Bore diameter of coupling on the application side |   |             |                | ELC-0060BA022.000-X           |      |      |      |      |      |      |
|                                                                                                                                     |   |             | $mm$           | X = 012.000 - 032.000         |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                                                      | C | 14          | $J_1$          | $kgcm^2$                      | 0.58 | 0.47 | 0.38 | 0.3  | 0.28 | 0.26 |
|                                                                                                                                     |   |             |                | $10^{-3} in.lb.s^2$           | 0.51 | 0.42 | 0.34 | 0.27 | 0.25 | 0.23 |
|                                                                                                                                     | D | 16          | $J_1$          | $kgcm^2$                      | 0.73 | 0.62 | 0.53 | 0.43 | 0.42 | 0.4  |
|                                                                                                                                     |   |             |                | $10^{-3} in.lb.s^2$           | 0.65 | 0.55 | 0.47 | 0.38 | 0.37 | 0.35 |
|                                                                                                                                     | E | 19          | $J_1$          | $kgcm^2$                      | 0.81 | 0.71 | 0.61 | 0.53 | 0.51 | 0.49 |
|                                                                                                                                     |   |             |                | $10^{-3} in.lb.s^2$           | 0.72 | 0.63 | 0.54 | 0.47 | 0.45 | 0.43 |
|                                                                                                                                     | G | 24          | $J_1$          | $kgcm^2$                      | 1.8  | 1.7  | 1.6  | 1.6  | 1.5  | 1.5  |
|                                                                                                                                     |   |             |                | $10^{-3} in.lb.s^2$           | 1.6  | 1.5  | 1.4  | 1.4  | 1.3  | 1.3  |
|                                                                                                                                     | H | 28          | $J_1$          | $kgcm^2$                      | 1.6  | 1.4  | 1.4  | 1.3  | 1.3  | 1.2  |
|                                                                                                                                     |   |             |                | $10^{-3} in.lb.s^2$           | 1.4  | 1.2  | 1.2  | 1.2  | 1.2  | 1.1  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

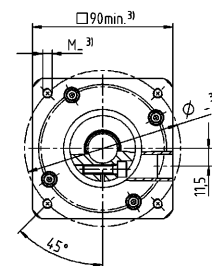
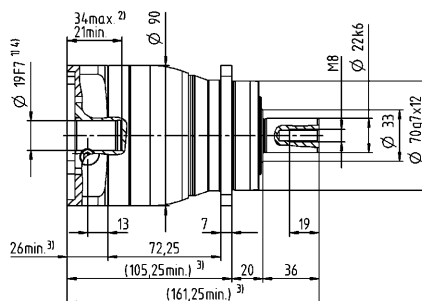
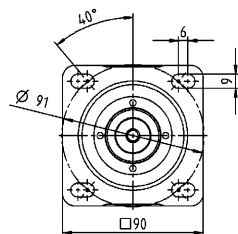
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

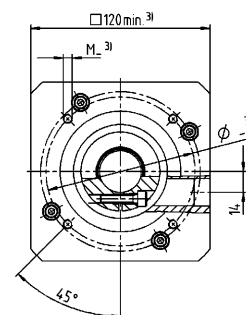
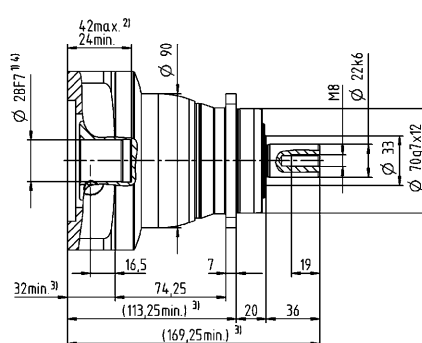
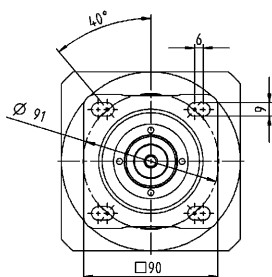


# 1-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter



up to 28<sup>4)</sup> (H)  
clamping hub  
diameter



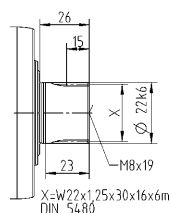
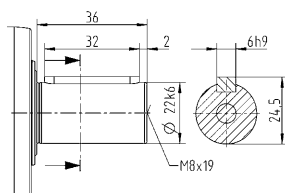
Motor shaft diameter [mm]

Planetary Gearboxes  
Value Line

## Other output variants

Shaft with key

Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPR 025 MF 2-stage

|                                                                                                            |              |                 | 2-stage                       |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|-------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 9                             | 12                                    | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 128                           | 128                                   | 128  | 152  | 152  | 160  | 152  | 128  | 144  | 160  | 152  | 160  | 144  | 160  | 144  |
|                                                                                                            |              | in.lb           | 1133                          | 1133                                  | 1133 | 1345 | 1345 | 1416 | 1345 | 1133 | 1275 | 1416 | 1345 | 1416 | 1275 | 1416 | 1275 |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 80                            | 80                                    | 80   | 95   | 95   | 100  | 95   | 80   | 90   | 100  | 95   | 100  | 90   | 100  | 90   |
|                                                                                                            |              | in.lb           | 708                           | 708                                   | 708  | 841  | 841  | 885  | 841  | 708  | 797  | 885  | 841  | 885  | 797  | 885  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 190                           | 190                                   | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  |
|                                                                                                            |              | in.lb           | 1682                          | 1682                                  | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 2800                          | 3500                                  | 3700 | 3500 | 3700 | 3700 | 4000 | 4300 | 4100 | 4000 | 4300 | 4300 | 4100 | 4300 | 4300 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 8000                          | 8000                                  | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1 = 3000$ rpm and 20 °C gearbox temperature)           | $T_{012}$    | Nm              | 0.67                          | 0.55                                  | 0.47 | 0.46 | 0.4  | 0.36 | 0.34 | 0.33 | 0.32 | 0.31 | 0.29 | 0.27 | 0.25 | 0.25 | 0.23 |
|                                                                                                            |              | in.lb           | 5.9                           | 4.9                                   | 4.2  | 4.1  | 3.5  | 3.2  | 3    | 2.9  | 2.8  | 2.7  | 2.6  | 2.4  | 2.2  | 2.2  | 2    |
| Max. backlash                                                                                              | $j_t$        | arcmin          | $\leq 10$                     |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 10                            | 10                                    | 10   | 10   | 10   | 9.5  | 10   | 10   | 10   | 9.5  | 10   | 9.5  | 8.5  | 9.5  | 8.5  |
|                                                                                                            |              | in.lb/arcmin    | 89                            | 89                                    | 89   | 89   | 89   | 84   | 89   | 89   | 89   | 84   | 89   | 84   | 75   | 84   | 75   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 3350                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 754                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 4200                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 945                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ | Nm              | 236                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 2089                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 95                            |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                       |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 4.0                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 8.8                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | $\leq 59$                     |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | -15 to +40                    |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +5 to +104                    |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 65                         |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA022.000-X           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 012.000 - 032.000         |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | A            | 9               | $J_1$                         | kgcm <sup>2</sup>                     | 0.26 | 0.22 | 0.21 | 0.21 | 0.2  | 0.2  | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.23 | 0.19 | 0.19 | 0.19 | 0.18 | 0.18 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
|                                                                                                            | B            | 11              | $J_1$                         | kgcm <sup>2</sup>                     | 0.28 | 0.24 | 0.23 | 0.23 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.25 | 0.21 | 0.2  | 0.2  | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
|                                                                                                            | C            | 14              | $J_1$                         | kgcm <sup>2</sup>                     | 0.35 | 0.31 | 0.3  | 0.3  | 0.3  | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.31 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
|                                                                                                            | D            | 16              | $J_1$                         | kgcm <sup>2</sup>                     | 0.48 | 0.44 | 0.43 | 0.43 | 0.42 | 0.42 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.42 | 0.39 | 0.38 | 0.38 | 0.37 | 0.37 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
|                                                                                                            | E            | 19              | $J_1$                         | kgcm <sup>2</sup>                     | 0.56 | 0.52 | 0.51 | 0.52 | 0.51 | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.49 | 0.49 | 0.49 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.5  | 0.46 | 0.45 | 0.46 | 0.45 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.43 | 0.43 | 0.43 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

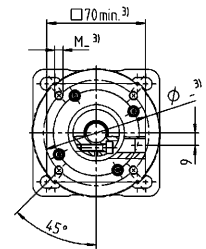
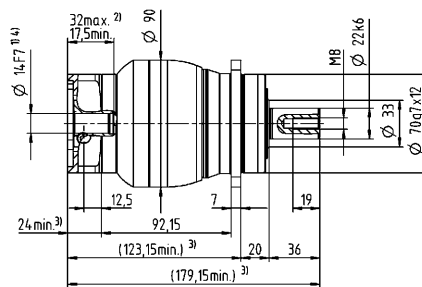
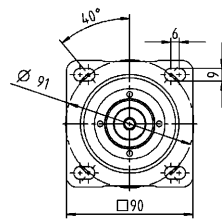
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

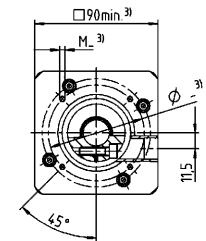
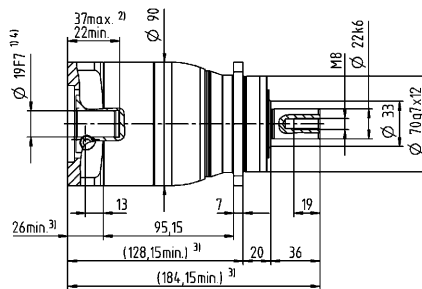
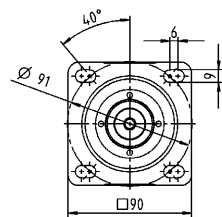
<sup>e)</sup> Valid for: Smooth shaft

## 2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



up to 19<sup>4)</sup> (E)  
clamping hub  
diameter



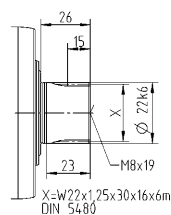
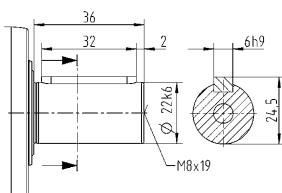
Motor shaft diameter [mm]

Planetary Gearboxes  
Value Line

### Other output variants

Shaft with key

Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPR 035 MF 1-stage

|                                                                                                            |    |              |                     | 1-stage                       |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|----|--------------|---------------------|-------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                      |    | i            |                     | 3                             | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |    | $T_{2a}$     | $Nm$                | 320                           | 408  | 400  | 400  | 352  | 352  |      |
|                                                                                                            |    |              | $in.lb$             | 2832                          | 3611 | 3540 | 3540 | 3115 | 3115 |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |    | $T_{2B}$     | $Nm$                | 200                           | 255  | 250  | 250  | 220  | 220  |      |
|                                                                                                            |    |              | $in.lb$             | 1770                          | 2257 | 2213 | 2213 | 1947 | 1947 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |    | $T_{2Not}$   | $Nm$                | 500                           | 500  | 500  | 500  | 500  | 500  |      |
|                                                                                                            |    |              | $in.lb$             | 4425                          | 4425 | 4425 | 4425 | 4425 | 4425 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |    | $n_{1N}$     | $rpm$               | 1800                          | 2000 | 2000 | 2300 | 2400 | 2500 |      |
| Max. input speed                                                                                           |    | $n_{1Max}$   | $rpm$               | 6000                          | 6000 | 6000 | 6000 | 6000 | 6000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           |    | $T_{012}$    | $Nm$                | 3.5                           | 2.8  | 2.4  | 1.9  | 1.8  | 1.6  |      |
|                                                                                                            |    |              | $in.lb$             | 31                            | 25   | 21   | 17   | 16   | 14   |      |
| Max. backlash                                                                                              |    | $j_t$        | $arcmin$            | ≤ 8                           |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |    | $C_{t21}$    | $Nm/arcmin$         | 25                            | 25   | 25   | 25   | 22   | 22   |      |
|                                                                                                            |    |              | $in.lb/arcmin$      | 221                           | 221  | 221  | 221  | 195  | 195  |      |
| Max. axial force <sup>c)</sup>                                                                             |    | $F_{2AMax}$  | $N$                 | 5650                          |      |      |      |      |      |      |
|                                                                                                            |    |              | $lb_f$              | 1271                          |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |    | $F_{2QMMax}$ | $N$                 | 6600                          |      |      |      |      |      |      |
|                                                                                                            |    |              | $lb_f$              | 1485                          |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |    | $M_{2KMax}$  | $Nm$                | 487                           |      |      |      |      |      |      |
|                                                                                                            |    |              | $in.lb$             | 4310                          |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |    | $\eta$       | %                   | 97                            |      |      |      |      |      |      |
| Service life                                                                                               |    | $L_h$        | $h$                 | > 20000                       |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |    | $m$          | $kg$                | 8.6                           |      |      |      |      |      |      |
|                                                                                                            |    |              | $lb_m$              | 19                            |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |    | $L_{PA}$     | $dB(A)$             | ≤ 65                          |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |    |              | °C                  | +90                           |      |      |      |      |      |      |
|                                                                                                            |    |              | °F                  | +194                          |      |      |      |      |      |      |
| Ambient temperature                                                                                        |    |              | °C                  | –15 to +40                    |      |      |      |      |      |      |
|                                                                                                            |    |              | °F                  | +5 to +104                    |      |      |      |      |      |      |
| Lubrication                                                                                                |    |              |                     | Lubricated for life           |      |      |      |      |      |      |
| Direction of rotation                                                                                      |    |              |                     | In- and output same direction |      |      |      |      |      |      |
| Protection class                                                                                           |    |              |                     | IP 65                         |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |    |              |                     | ELC-0150BA032.000-X           |      |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |    |              | $mm$                | X = 019.000 - 036.000         |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E  | 19           | $J_1$               | $kgcm^2$                      | 2.5  | 1.7  | 1.3  | 1    | 0.94 | 0.87 |
|                                                                                                            |    |              |                     | $10^{-3} in.lb.s^2$           | 2.2  | 1.5  | 1.2  | 0.89 | 0.83 | 0.77 |
|                                                                                                            | G  | 24           | $J_1$               | $kgcm^2$                      | 3.3  | 2.4  | 2.1  | 1.8  | 1.7  | 1.6  |
|                                                                                                            |    |              |                     | $10^{-3} in.lb.s^2$           | 2.9  | 2.1  | 1.9  | 1.6  | 1.5  | 1.4  |
|                                                                                                            | H  | 28           | $J_1$               | $kgcm^2$                      | 3    | 2.2  | 1.8  | 1.5  | 1.4  | 1.4  |
|                                                                                                            |    |              |                     | $10^{-3} in.lb.s^2$           | 2.7  | 1.9  | 1.6  | 1.3  | 1.2  | 1.2  |
|                                                                                                            | I  | 32           | $J_1$               | $kgcm^2$                      | 7.1  | 6.2  | 5.9  | 5.6  | 5.5  | 5.4  |
|                                                                                                            |    |              |                     | $10^{-3} in.lb.s^2$           | 6.3  | 5.5  | 5.2  | 5    | 4.9  | 4.8  |
| K                                                                                                          | 38 | $J_1$        | $kgcm^2$            | 8.3                           | 7.4  | 7.1  | 6.7  | 6.6  | 6.6  |      |
|                                                                                                            |    |              | $10^{-3} in.lb.s^2$ | 7.3                           | 6.5  | 6.3  | 5.9  | 5.8  | 5.8  |      |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

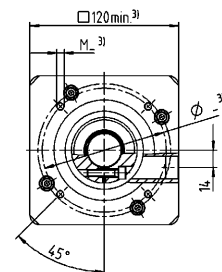
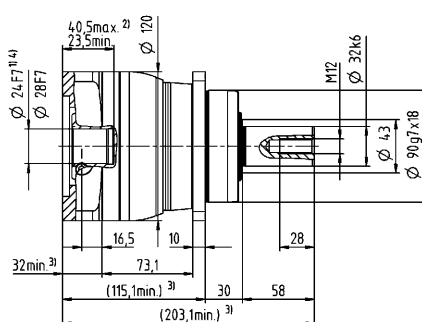
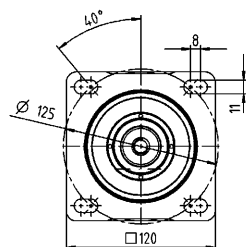
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

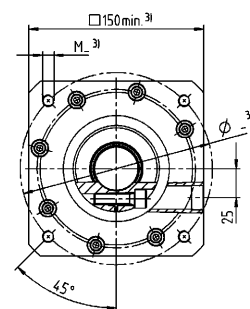
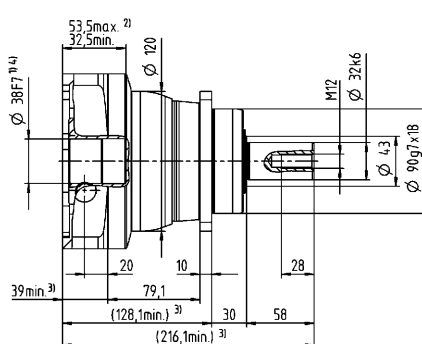
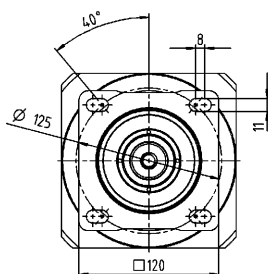
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 24/28 <sup>4)</sup>  
(G <sup>5)</sup>/H)  
clamping hub  
diameter

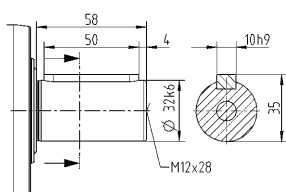


up to 38 <sup>4)</sup> (K)  
clamping hub  
diameter

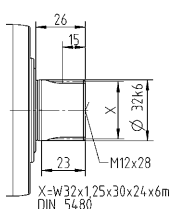


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPR 035 MF 2-stage

|                                                                                                            |              |    |                       | 2-stage                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|----|-----------------------|--------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |    |                       | 9                                          | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     |    | <i>Nm</i>             | 320                                        | 320  | 320  | 408  | 408  | 400  | 408  | 320  | 408  | 400  | 408  | 400  | 352  | 400  | 352  |      |
|                                                                                                            |              |    | <i>in.lb</i>          | 2832                                       | 2832 | 2832 | 3611 | 3611 | 3540 | 3611 | 2832 | 3611 | 3540 | 3611 | 3540 | 3115 | 3540 | 3115 |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     |    | <i>Nm</i>             | 200                                        | 200  | 200  | 255  | 255  | 250  | 255  | 200  | 255  | 250  | 255  | 250  | 220  | 250  | 220  |      |
|                                                                                                            |              |    | <i>in.lb</i>          | 1770                                       | 1770 | 1770 | 2257 | 2257 | 2213 | 2257 | 1770 | 2257 | 2213 | 2257 | 2213 | 1947 | 2213 | 1947 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   |    | <i>Nm</i>             | 500                                        | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  |      |
|                                                                                                            |              |    | <i>in.lb</i>          | 4425                                       | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$     |    | <i>rpm</i>            | 2600                                       | 3300 | 3400 | 3300 | 3400 | 3400 | 3600 | 3900 | 3700 | 3600 | 3900 | 3900 | 3700 | 3900 | 3900 |      |
| Max. input speed                                                                                           | $n_{1Max}$   |    | <i>rpm</i>            | 7000                                       | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$    |    | <i>Nm</i>             | 1.7                                        | 1.4  | 1.2  | 1.2  | 1.1  | 1    | 0.93 | 0.88 | 0.88 | 0.87 | 0.81 | 0.77 | 0.75 | 0.72 | 0.68 |      |
|                                                                                                            |              |    | <i>in.lb</i>          | 15                                         | 12   | 11   | 11   | 9.7  | 8.9  | 8.2  | 7.8  | 7.8  | 7.7  | 7.2  | 6.8  | 6.6  | 6.4  | 6    |      |
| Max. backlash                                                                                              | $j_t$        |    | <i>arcmin</i>         | ≤ 10                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    |    | <i>Nm/arcmin</i>      | 25                                         | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 22   | 25   | 22   |      |
|                                                                                                            |              |    | <i>in.lb/arcmin</i>   | 221                                        | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 221  | 195  | 221  | 195  |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  |    | <i>N</i>              | 5650                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | <i>lb<sub>f</sub></i> | 1271                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ |    | <i>N</i>              | 6600                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | <i>lb<sub>f</sub></i> | 1485                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ |    | <i>Nm</i>             | 487                                        |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | <i>in.lb</i>          | 4310                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       |    | %                     | 95                                         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        |    | <i>h</i>              | > 20000                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          |    | <i>kg</i>             | 9                                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | <i>lb<sub>m</sub></i> | 20                                         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     |    | <i>dB(A)</i>          | ≤ 61                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              |    | °C                    | +90                                        |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | °F                    | +194                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              |    | °C                    | −15 to +40                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | °F                    | +5 to +104                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |    |                       | Lubricated for life                        |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |    |                       | In- and output same direction              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |    |                       | IP 65                                      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |    |                       | ELC-0150BA032.000-X                        |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              |    | <i>mm</i>             | X = 019.000 - 036.000                      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C            | 14 | $J_1$                 | <i>kgcm<sup>2</sup></i>                    | 0.6  | 0.59 | 0.6  | 0.43 | 0.42 | 0.36 | 0.37 | 0.52 | 0.38 | 0.32 | 0.36 | 0.31 | 0.26 | 0.27 | 0.24 |
|                                                                                                            |              |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 0.53 | 0.52 | 0.53 | 0.38 | 0.37 | 0.32 | 0.33 | 0.46 | 0.34 | 0.28 | 0.32 | 0.27 | 0.23 | 0.24 | 0.21 |
|                                                                                                            | D            | 16 | $J_1$                 | <i>kgcm<sup>2</sup></i>                    | 0.75 | 0.74 | 0.74 | 0.58 | 0.57 | 0.5  | 0.5  | 0.67 | 0.52 | 0.45 | 0.51 | 0.46 | 0.4  | 0.41 | 0.39 |
|                                                                                                            |              |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 0.66 | 0.65 | 0.65 | 0.51 | 0.5  | 0.44 | 0.44 | 0.59 | 0.46 | 0.4  | 0.45 | 0.41 | 0.35 | 0.36 | 0.35 |
|                                                                                                            | E            | 19 | $J_1$                 | <i>kgcm<sup>2</sup></i>                    | 0.84 | 0.83 | 0.83 | 0.66 | 0.65 | 0.59 | 0.6  | 0.75 | 0.61 | 0.55 | 0.6  | 0.54 | 0.49 | 0.5  | 0.48 |
|                                                                                                            |              |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 0.74 | 0.73 | 0.73 | 0.58 | 0.58 | 0.52 | 0.53 | 0.66 | 0.54 | 0.49 | 0.53 | 0.48 | 0.43 | 0.44 | 0.42 |
|                                                                                                            | G            | 24 | $J_1$                 | <i>kgcm<sup>2</sup></i>                    | 1.9  | 1.9  | 1.9  | 1.7  | 1.7  | 1.6  | 1.6  | 1.8  | 1.6  | 1.6  | 1.6  | 1.6  | 1.5  | 1.5  | 1.5  |
|                                                                                                            |              |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 1.7  | 1.6  | 1.7  | 1.5  | 1.5  | 1.4  | 1.5  | 1.6  | 1.5  | 1.4  | 1.4  | 1.4  | 1.3  | 1.4  | 1.3  |
|                                                                                                            | H            | 28 | $J_1$                 | <i>kgcm<sup>2</sup></i>                    | 1.6  | 1.6  | 1.6  | 1.4  | 1.4  | 1.3  | 1.3  | 1.5  | 1.4  | 1.3  | 1.3  | 1.3  | 1.2  | 1.2  | 1.2  |
|                                                                                                            |              |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 1.4  | 1.4  | 1.4  | 1.2  | 1.2  | 1.2  | 1.2  | 1.3  | 1.2  | 1.1  | 1.2  | 1.1  | 1.1  | 1.1  | 1.1  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

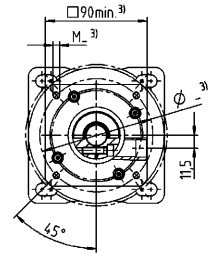
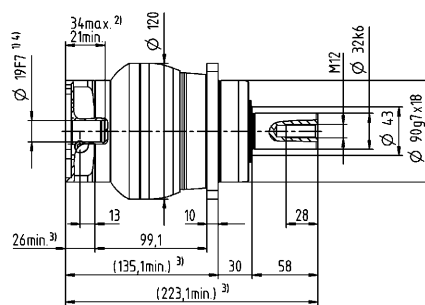
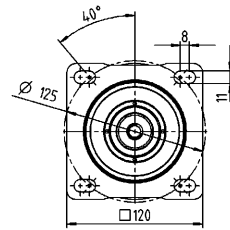
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

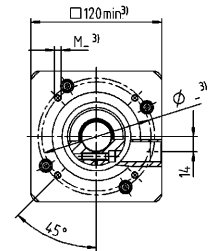
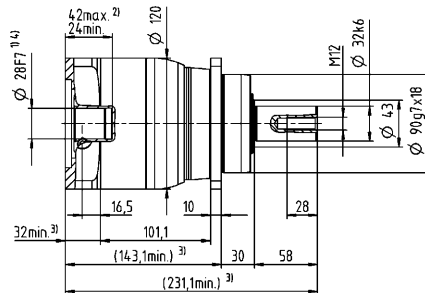
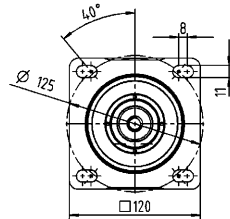
<sup>e)</sup> Valid for: Smooth shaft

## 2-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter



up to 28<sup>4)</sup> (H)  
clamping hub  
diameter

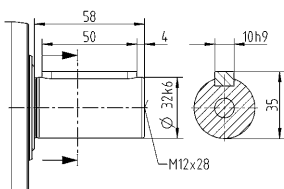


Motor shaft diameter [mm]

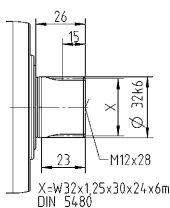
Planetary Gearboxes  
Value Line

### Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPR 045 MF 1-/2-stage

|                                                                                                            |    |             |                                       | 1-stage                               |      |      | 2-stage    |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|----|-------------|---------------------------------------|---------------------------------------|------|------|------------|------|------|------|------|------|
| Ratio                                                                                                      |    | i           |                                       | 5                                     | 8    | 10   | 25         | 32   | 50   | 64   | 100  |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |    | $T_{2a}$    | Nm                                    | 800                                   | 640  | 640  | 700        | 640  | 700  | 640  | 640  |      |
|                                                                                                            |    |             | in.lb                                 | 7081                                  | 5665 | 5665 | 6196       | 5665 | 6196 | 5665 | 5665 |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |    | $T_{2B}$    | Nm                                    | 500                                   | 400  | 400  | 500        | 400  | 500  | 400  | 400  |      |
|                                                                                                            |    |             | in.lb                                 | 4425                                  | 3540 | 3540 | 4425       | 3540 | 4425 | 3540 | 3540 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |    | $T_{2Not}$  | Nm                                    | 1000                                  | 1000 | 1000 | 1000       | 1000 | 1000 | 1000 | 1000 |      |
|                                                                                                            |    |             | in.lb                                 | 8851                                  | 8851 | 8851 | 8851       | 8851 | 8851 | 8851 | 8851 |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |    | $n_{1N}$    | rpm                                   | 1600                                  | 1800 | 1900 | 2600       | 2500 | 3000 | 2900 | 3000 |      |
| Max. input speed                                                                                           |    | $n_{1Max}$  | rpm                                   | 4000                                  | 4000 | 4000 | 6000       | 6000 | 6000 | 6000 | 6000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           |    | $T_{012}$   | Nm                                    | 4.6                                   | 3.1  | 2.6  | 1.6        | 1.5  | 1.2  | 1.1  | 0.97 |      |
|                                                                                                            |    |             | in.lb                                 | 41                                    | 27   | 23   | 14         | 13   | 11   | 9.7  | 8.6  |      |
| Max. backlash                                                                                              |    | $j_t$       | arcmin                                | ≤ 8                                   |      |      | ≤ 10       |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |    | $C_{t21}$   | Nm/arcmin                             | 55                                    | 44   | 44   | 55         | 44   | 55   | 44   | 44   |      |
|                                                                                                            |    |             | in.lb/arcmin                          | 487                                   | 389  | 389  | 487        | 389  | 487  | 389  | 389  |      |
| Max. axial force <sup>c)</sup>                                                                             |    | $F_{2AMax}$ | N                                     | 9870                                  |      |      | 9870       |      |      |      |      |      |
|                                                                                                            |    |             | lb <sub>f</sub>                       | 2221                                  |      |      | 2221       |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |    | $F_{2QMax}$ | N                                     | 9900                                  |      |      | 9900       |      |      |      |      |      |
|                                                                                                            |    |             | lb <sub>f</sub>                       | 2228                                  |      |      | 2228       |      |      |      |      |      |
| Max. tilting moment                                                                                        |    | $M_{2KMax}$ | Nm                                    | 952                                   |      |      | 952        |      |      |      |      |      |
|                                                                                                            |    |             | in.lb                                 | 8426                                  |      |      | 8426       |      |      |      |      |      |
| Efficiency at full load                                                                                    |    | $\eta$      | %                                     | 97                                    |      |      | 95         |      |      |      |      |      |
| Service life                                                                                               |    | $L_h$       | h                                     | > 20000                               |      |      | > 20000    |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |    | $m$         | kg                                    | 19                                    |      |      | 20         |      |      |      |      |      |
|                                                                                                            |    |             | lb <sub>m</sub>                       | 42                                    |      |      | 44         |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |    | $L_{PA}$    | dB(A)                                 | ≤ 68                                  |      |      | ≤ 65       |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |    |             | °C                                    | +90                                   |      |      | +90        |      |      |      |      |      |
|                                                                                                            |    |             | °F                                    | +194                                  |      |      | +194       |      |      |      |      |      |
| Ambient temperature                                                                                        |    |             | °C                                    | –15 to +40                            |      |      | –15 to +40 |      |      |      |      |      |
|                                                                                                            |    |             | °F                                    | +5 to +104                            |      |      | +5 to +104 |      |      |      |      |      |
| Lubrication                                                                                                |    |             |                                       | Lubricated for life                   |      |      |            |      |      |      |      |      |
| Direction of rotation                                                                                      |    |             |                                       | In- and output same direction         |      |      |            |      |      |      |      |      |
| Protection class                                                                                           |    |             |                                       | IP 65                                 |      |      |            |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |    |             |                                       | ELC-0300BA040.000-X                   |      |      |            |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |    |             | mm                                    | X = 020.000 - 045.000                 |      |      |            |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E  | 19          | $J_1$                                 | kgcm <sup>2</sup>                     | –    | –    | –          | 1.2  | 1.1  | 1    | 0.88 | 0.82 |
|                                                                                                            |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –    | –          | 1.1  | 0.97 | 0.89 | 0.78 | 0.73 |
|                                                                                                            | G  | 24          | $J_1$                                 | kgcm <sup>2</sup>                     | –    | –    | –          | 2    | 1.9  | 1.8  | 1.7  | 1.6  |
|                                                                                                            |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –    | –          | 1.8  | 1.7  | 1.6  | 1.5  | 1.4  |
|                                                                                                            | H  | 28          | $J_1$                                 | kgcm <sup>2</sup>                     | –    | –    | –          | 1.7  | 1.6  | 1.5  | 1.4  | 1.3  |
|                                                                                                            |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –    | –          | 1.5  | 1.4  | 1.3  | 1.2  | 1.2  |
|                                                                                                            | I  | 32          | $J_1$                                 | kgcm <sup>2</sup>                     | –    | –    | –          | 5.8  | 5.7  | 5.6  | 5.4  | 5.4  |
|                                                                                                            |    |             |                                       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –    | –          | 5.1  | 5    | 5    | 4.8  | 4.8  |
| K                                                                                                          | 38 | $J_1$       | kgcm <sup>2</sup>                     | 8.7                                   | 7.3  | 7.2  | 7          | 6.9  | 6.8  | 6.6  | 6.5  |      |
|                                                                                                            |    |             | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 7.7                                   | 6.5  | 6.4  | 6.2        | 6.1  | 6    | 5.8  | 5.8  |      |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

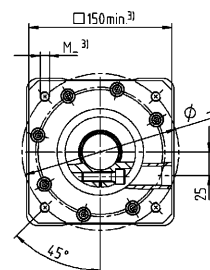
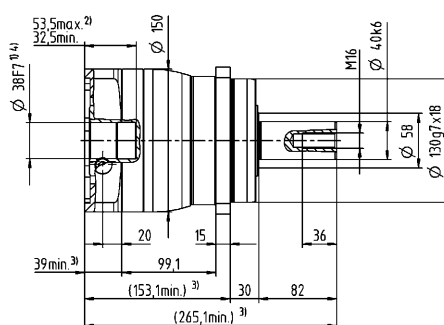
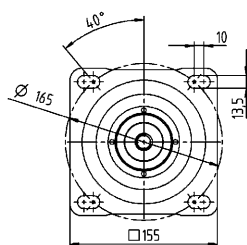
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft



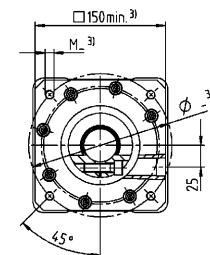
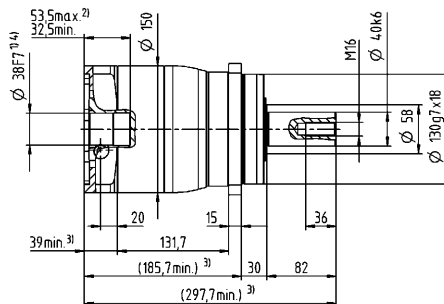
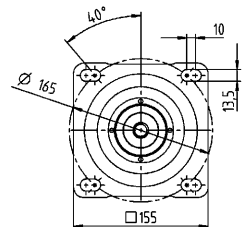
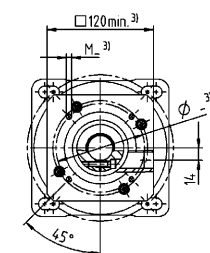
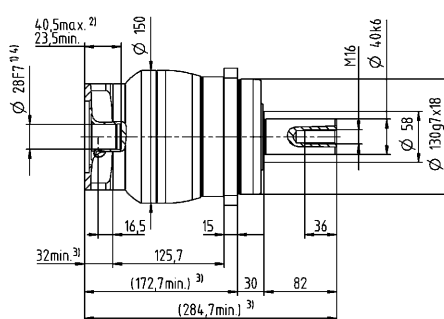
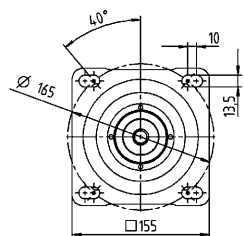
# 1-stage

up to 38<sup>4)</sup> (K)<sup>5)</sup>  
clamping hub  
diameter



# 2-stage

up to 28<sup>4)</sup> (H)<sup>5)</sup>  
clamping hub  
diameter



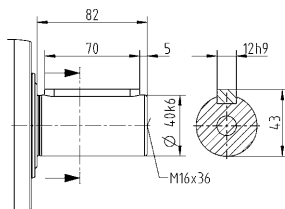
Motor shaft diameter [mm]

up to 38<sup>4)</sup> (K)  
clamping hub  
diameter

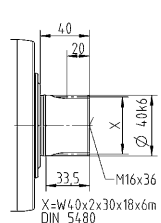
Planetary Gearboxes  
Value Line

## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPR 015 MA 1- / 2-stage

|                                                                                                            |             |                 | 1-stage                       |                                       | 2-stage    |       |       |       |       |       |       |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|-------------------------------|---------------------------------------|------------|-------|-------|-------|-------|-------|-------|------|------|
| Ratio                                                                                                      | i           |                 | 3                             | 4                                     | 12         | 15    | 16    | 20    | 28    | 30    | 40    |      |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | Nm              | 80                            | 67                                    | 62         | 67    | 67    | 67    | 67    | 62    | 67    |      |      |
|                                                                                                            |             | in.lb           | 708                           | 593                                   | 549        | 593   | 593   | 593   | 593   | 549   | 593   |      |      |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | Nm              | 55                            | 42                                    | 39         | 42    | 42    | 42    | 42    | 39    | 42    |      |      |
|                                                                                                            |             | in.lb           | 487                           | 372                                   | 345        | 372   | 372   | 372   | 372   | 345   | 372   |      |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 80                            | 80                                    | 80         | 80    | 80    | 80    | 80    | 80    | 80    |      |      |
|                                                                                                            |             | in.lb           | 708                           | 708                                   | 708        | 708   | 708   | 708   | 708   | 708   | 708   |      |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 2600                          | 2800                                  | 3800       | 4000  | 3800  | 4000  | 4300  | 4600  | 4600  |      |      |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 8000                          | 8000                                  | 10000      | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$   | Nm              | 0.98                          | 0.78                                  | 0.34       | 0.29  | 0.29  | 0.25  | 0.21  | 0.21  | 0.19  |      |      |
|                                                                                                            |             | in.lb           | 8.7                           | 6.9                                   | 3          | 2.6   | 2.6   | 2.2   | 1.9   | 1.9   | 1.7   |      |      |
| Max. backlash                                                                                              | $j_t$       | arcmin          | ≤ 8                           |                                       | ≤ 10       |       |       |       |       |       |       |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 4                             | 4                                     | 4          | 4     | 4     | 4     | 4     | 4     | 4     |      |      |
|                                                                                                            |             | in.lb/arcmin    | 35                            | 35                                    | 35         | 35    | 35    | 35    | 35    | 35    | 35    |      |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 2400                          |                                       | 2400       |       |       |       |       |       |       |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 540                           |                                       | 540        |       |       |       |       |       |       |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | N               | 2800                          |                                       | 2800       |       |       |       |       |       |       |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 630                           |                                       | 630        |       |       |       |       |       |       |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 152                           |                                       | 152        |       |       |       |       |       |       |      |      |
|                                                                                                            |             | in.lb           | 1345                          |                                       | 1345       |       |       |       |       |       |       |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 97                            |                                       | 95         |       |       |       |       |       |       |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                       |                                       | > 20000    |       |       |       |       |       |       |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 1.9                           |                                       | 2          |       |       |       |       |       |       |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 4.2                           |                                       | 4.4        |       |       |       |       |       |       |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | dB(A)           | ≤ 59                          |                                       | ≤ 58       |       |       |       |       |       |       |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                           |                                       | +90        |       |       |       |       |       |       |      |      |
|                                                                                                            |             | °F              | +194                          |                                       | +194       |       |       |       |       |       |       |      |      |
| Ambient temperature                                                                                        |             | °C              | –15 to +40                    |                                       | –15 to +40 |       |       |       |       |       |       |      |      |
|                                                                                                            |             | °F              | +5 to +104                    |                                       | +5 to +104 |       |       |       |       |       |       |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life           |                                       |            |       |       |       |       |       |       |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction |                                       |            |       |       |       |       |       |       |      |      |
| Protection class                                                                                           |             |                 | IP 65                         |                                       |            |       |       |       |       |       |       |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 | ELC-0060BA016.000-X           |                                       |            |       |       |       |       |       |       |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             | mm              | X = 012.000 - 032.000         |                                       |            |       |       |       |       |       |       |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | Z           | 8               | $J_1$                         | kgcm <sup>2</sup>                     | –          | –     | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 |      |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –          | –     | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 | 0.03 |
|                                                                                                            | A           | 9               | $J_1$                         | kgcm <sup>2</sup>                     | 0.25       | 0.19  | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 |      |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.22       | 0.17  | 0.04  | 0.04  | 0.03  | 0.03  | 0.03  | 0.03 | 0.03 |
|                                                                                                            | B           | 11              | $J_1$                         | kgcm <sup>2</sup>                     | 0.26       | 0.21  | 0.06  | 0.06  | 0.05  | 0.05  | 0.05  | 0.05 |      |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.23       | 0.19  | 0.05  | 0.05  | 0.04  | 0.04  | 0.04  | 0.04 | 0.04 |
|                                                                                                            | C           | 14              | $J_1$                         | kgcm <sup>2</sup>                     | 0.34       | 0.28  | 0.14  | 0.14  | 0.14  | 0.13  | 0.13  | 0.14 |      |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.3        | 0.25  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12  | 0.12 | 0.12 |
|                                                                                                            | D           | 16              | $J_1$                         | kgcm <sup>2</sup>                     | 0.47       | 0.41  | –     | –     | –     | –     | –     | –    | –    |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.42       | 0.36  | –     | –     | –     | –     | –     | –    | –    |
|                                                                                                            | E           | 19              | $J_1$                         | kgcm <sup>2</sup>                     | 0.55       | 0.49  | –     | –     | –     | –     | –     | –    | –    |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.49       | 0.43  | –     | –     | –     | –     | –     | –    | –    |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

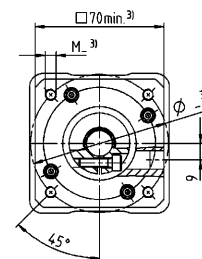
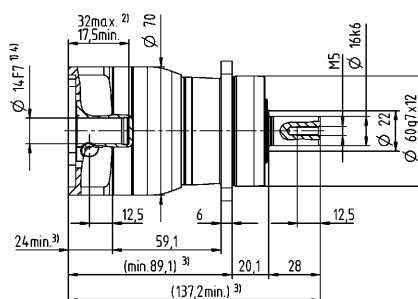
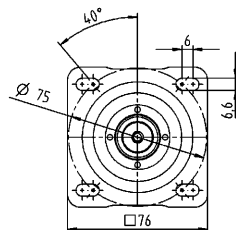
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

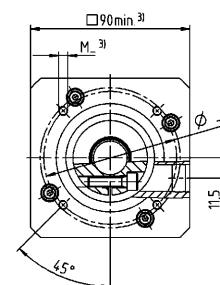
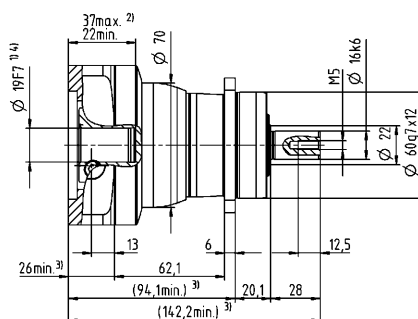
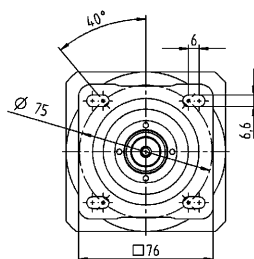
<sup>e)</sup> Valid for: Smooth shaft

1-stage

up to 14 <sup>4)</sup> (C) <sup>5)</sup>  
clamping hub  
diameter

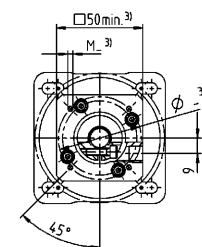
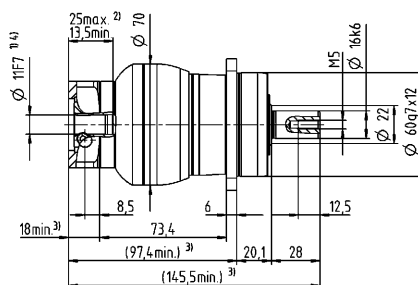
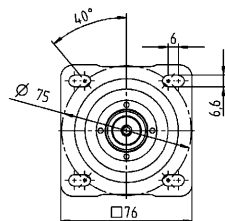


up to 19 <sup>4)</sup> (E)  
clamping hub  
diameter

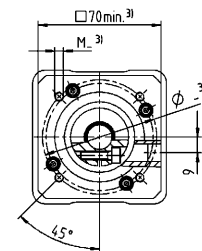
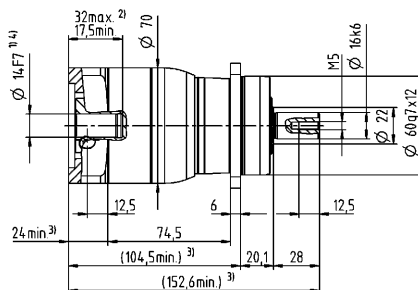
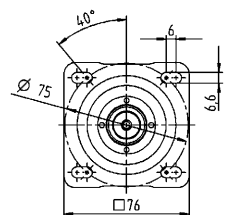


## 2-stage

up to 11 <sup>4)</sup> (B) <sup>5)</sup>  
clamping hub  
diameter



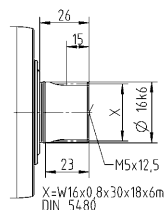
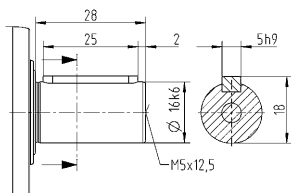
up to 14 <sup>4)</sup> (C)  
clamping hub  
diameter



## Other output variants

Shaft with key

Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

- 1) Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

3) The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

<sup>5)</sup> Standard clamping hub diameter

# NPR 025 MA 1- / 2-stage

|                                                                                                            |             |                | 1-stage                       |                     | 2-stage    |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|----------------|-------------------------------|---------------------|------------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                | 3                             | 4                   | 9          | 12   | 15   | 16   | 20   | 28   | 30   | 40   |      |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | $Nm$           | 185                           | 185                 | 185        | 185  | 185  | 185  | 185  | 185  | 168  | 185  |      |      |
|                                                                                                            |             | $in.lb$        | 1637                          | 1637                | 1637       | 1637 | 1637 | 1637 | 1637 | 1637 | 1487 | 1637 |      |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | $Nm$           | 125                           | 115                 | 125        | 125  | 120  | 115  | 115  | 115  | 105  | 115  |      |      |
|                                                                                                            |             | $in.lb$        | 1106                          | 1018                | 1106       | 1106 | 1062 | 1018 | 1018 | 1018 | 929  | 1018 |      |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | $Nm$           | 190                           | 190                 | 190        | 190  | 190  | 190  | 190  | 190  | 190  | 190  |      |      |
|                                                                                                            |             | $in.lb$        | 1682                          | 1682                | 1682       | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |      |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | $rpm$          | 2400                          | 2600                | 2800       | 3500 | 3700 | 3500 | 3700 | 4000 | 4300 | 4300 |      |      |
| Max. input speed                                                                                           | $n_{1Max}$  | $rpm$          | 7000                          | 7000                | 8000       | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 |      |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$   | $Nm$           | 1.8                           | 1.5                 | 0.67       | 0.55 | 0.47 | 0.46 | 0.4  | 0.34 | 0.33 | 0.29 |      |      |
|                                                                                                            |             | $in.lb$        | 16                            | 13                  | 5.9        | 4.9  | 4.2  | 4.1  | 3.5  | 3    | 2.9  | 2.6  |      |      |
| Max. backlash                                                                                              | $j_t$       | $arcmin$       | ≤ 8                           |                     | ≤ 10       |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | $Nm/arcmin$    | 12                            | 12                  | 12         | 12   | 12   | 12   | 12   | 12   | 12   | 12   |      |      |
|                                                                                                            |             | $in.lb/arcmin$ | 106                           | 106                 | 106        | 106  | 106  | 106  | 106  | 106  | 106  | 106  |      |      |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | $N$            | 3350                          |                     | 3350       |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $lb_f$         | 754                           |                     | 754        |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | $N$            | 4200                          |                     | 4200       |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $lb_f$         | 945                           |                     | 945        |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | $Nm$           | 236                           |                     | 236        |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $in.lb$        | 2089                          |                     | 2089       |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %              | 97                            |                     | 95         |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | $h$            | > 20000                       |                     | > 20000    |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | $kg$           | 3.7                           |                     | 4          |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $lb_m$         | 8.2                           |                     | 8.8        |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | $dB(A)$        | ≤ 61                          |                     | ≤ 59       |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C             | +90                           |                     | +90        |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | °F             | +194                          |                     | +194       |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |             | °C             | –15 to +40                    |                     | –15 to +40 |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | °F             | +5 to +104                    |                     | +5 to +104 |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |             |                | Lubricated for life           |                     |            |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                | In- and output same direction |                     |            |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |             |                | IP 65                         |                     |            |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                | ELC-0060BA022.000-X           |                     |            |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             | $mm$           | X = 012.000 - 032.000         |                     |            |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | A           | 9              | $J_1$                         | $kgcm^2$            | –          | –    | 0.26 | 0.22 | 0.21 | 0.21 | 0.2  | 0.19 | 0.19 | 0.19 |
|                                                                                                            |             |                |                               | $10^{-3} in.lb.s^2$ | –          | –    | 0.23 | 0.19 | 0.19 | 0.19 | 0.18 | 0.17 | 0.17 | 0.17 |
|                                                                                                            | B           | 11             | $J_1$                         | $kgcm^2$            | –          | –    | 0.28 | 0.24 | 0.23 | 0.23 | 0.22 | 0.21 | 0.21 | 0.21 |
|                                                                                                            |             |                |                               | $10^{-3} in.lb.s^2$ | –          | –    | 0.25 | 0.21 | 0.2  | 0.2  | 0.19 | 0.19 | 0.19 | 0.19 |
|                                                                                                            | C           | 14             | $J_1$                         | $kgcm^2$            | 0.58       | 0.47 | 0.35 | 0.31 | 0.3  | 0.3  | 0.3  | 0.29 | 0.28 | 0.28 |
|                                                                                                            |             |                |                               | $10^{-3} in.lb.s^2$ | 0.51       | 0.42 | 0.31 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.25 | 0.25 |
|                                                                                                            | D           | 16             | $J_1$                         | $kgcm^2$            | 0.73       | 0.62 | 0.48 | 0.44 | 0.43 | 0.43 | 0.42 | 0.41 | 0.41 | 0.41 |
|                                                                                                            |             |                |                               | $10^{-3} in.lb.s^2$ | 0.65       | 0.55 | 0.42 | 0.39 | 0.38 | 0.38 | 0.37 | 0.36 | 0.36 | 0.36 |
|                                                                                                            | E           | 19             | $J_1$                         | $kgcm^2$            | 0.81       | 0.71 | 0.56 | 0.52 | 0.51 | 0.52 | 0.51 | 0.5  | 0.5  | 0.49 |
|                                                                                                            |             |                |                               | $10^{-3} in.lb.s^2$ | 0.72       | 0.63 | 0.5  | 0.46 | 0.45 | 0.46 | 0.45 | 0.44 | 0.44 | 0.43 |
|                                                                                                            | G           | 24             | $J_1$                         | $kgcm^2$            | 1.8        | 1.7  | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            |             |                |                               | $10^{-3} in.lb.s^2$ | 1.6        | 1.5  | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            | H           | 28             | $J_1$                         | $kgcm^2$            | 1.6        | 1.4  | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            |             |                |                               | $10^{-3} in.lb.s^2$ | 1.4        | 1.2  | –    | –    | –    | –    | –    | –    | –    | –    |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

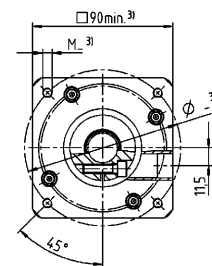
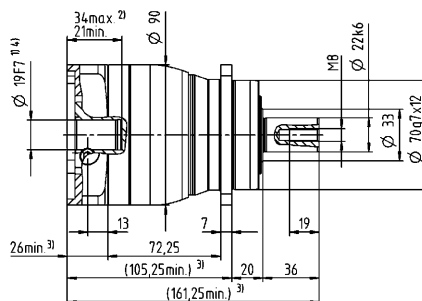
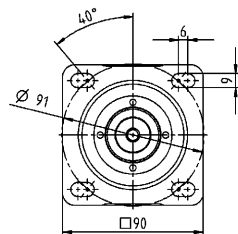
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

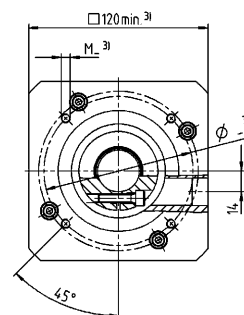
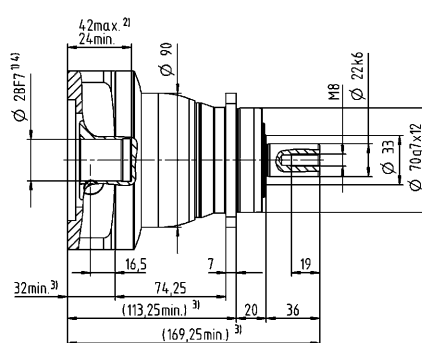
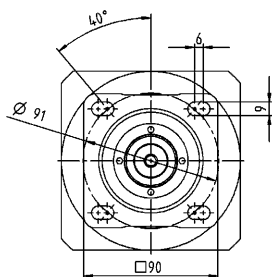
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter

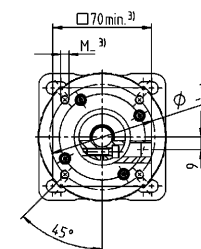
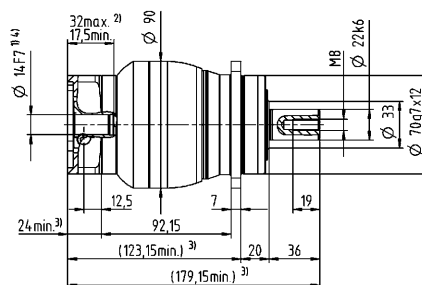
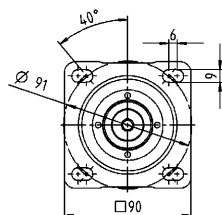


up to 28<sup>4)</sup> (H)  
clamping hub  
diameter

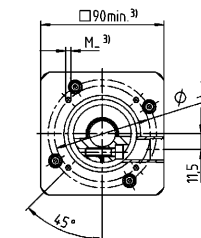
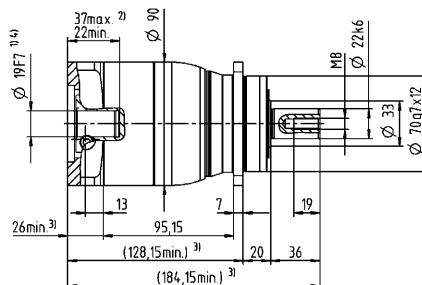
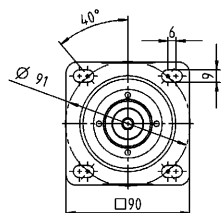


# 2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



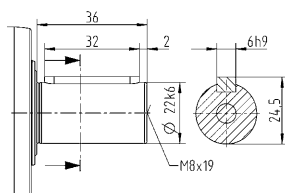
up to 19<sup>4)</sup> (E)  
clamping hub  
diameter



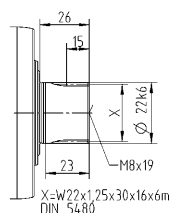
Motor shaft diameter [mm]

## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPR 035 MA 1- / 2-stage

|                                                                                                            |              |    |                       | 1-stage                                    |      | 2-stage    |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|----|-----------------------|--------------------------------------------|------|------------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |    |                       | 3                                          | 4    | 9          | 12   | 15   | 16   | 20   | 28   | 30   | 40   |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     |    | <i>Nm</i>             | 480                                        | 480  | 480        | 480  | 480  | 480  | 480  | 480  | 432  | 480  |      |
|                                                                                                            |              |    | <i>in.lb</i>          | 4248                                       | 4248 | 4248       | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 3824 | 4248 |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     |    | <i>Nm</i>             | 305                                        | 305  | 305        | 305  | 300  | 305  | 305  | 305  | 270  | 305  |      |
|                                                                                                            |              |    | <i>in.lb</i>          | 2699                                       | 2699 | 2699       | 2699 | 2655 | 2699 | 2699 | 2699 | 2699 | 2390 | 2699 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   |    | <i>Nm</i>             | 500                                        | 500  | 500        | 500  | 500  | 500  | 500  | 500  | 500  | 500  |      |
|                                                                                                            |              |    | <i>in.lb</i>          | 4425                                       | 4425 | 4425       | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     |    | <i>rpm</i>            | 1800                                       | 2000 | 2600       | 3300 | 3400 | 3300 | 3400 | 3600 | 3900 | 3900 |      |
| Max. input speed                                                                                           | $n_{1Max}$   |    | <i>rpm</i>            | 6000                                       | 6000 | 7000       | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 | 7000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$    |    | <i>Nm</i>             | 3.5                                        | 2.8  | 1.7        | 1.4  | 1.2  | 1.2  | 1.1  | 0.93 | 0.88 | 0.81 |      |
|                                                                                                            |              |    | <i>in.lb</i>          | 31                                         | 25   | 15         | 12   | 11   | 11   | 9.7  | 8.2  | 7.8  | 7.2  |      |
| Max. backlash                                                                                              | $j_t$        |    | <i>arcmin</i>         | ≤ 8                                        |      | ≤ 10       |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    |    | <i>Nm/arcmin</i>      | 30                                         | 30   | 30         | 30   | 30   | 30   | 30   | 30   | 30   | 30   |      |
|                                                                                                            |              |    | <i>in.lb/arcmin</i>   | 266                                        | 266  | 266        | 266  | 266  | 266  | 266  | 266  | 266  | 266  | 266  |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  |    | <i>N</i>              | 5650                                       |      | 5650       |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | <i>lb<sub>f</sub></i> | 1271                                       |      | 1271       |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ |    | <i>N</i>              | 6600                                       |      | 6600       |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | <i>lb<sub>f</sub></i> | 1485                                       |      | 1485       |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$  |    | <i>Nm</i>             | 487                                        |      | 487        |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | <i>in.lb</i>          | 4310                                       |      | 4310       |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       |    | %                     | 97                                         |      | 95         |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        |    | <i>h</i>              | > 20000                                    |      | > 20000    |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          |    | <i>kg</i>             | 8.6                                        |      | 9          |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | <i>lb<sub>m</sub></i> | 19                                         |      | 20         |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     |    | <i>dB(A)</i>          | ≤ 65                                       |      | ≤ 61       |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              |    | °C                    | +90                                        |      | +90        |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | °F                    | +194                                       |      | +194       |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              |    | °C                    | –15 to +40                                 |      | –15 to +40 |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    | °F                    | +5 to +104                                 |      | +5 to +104 |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |    |                       | Lubricated for life                        |      |            |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |    |                       | In- and output same direction              |      |            |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |    |                       | IP 65                                      |      |            |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |    |                       | ELC-0150BA032.000-X                        |      |            |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              |    | <i>mm</i>             | X = 019.000 - 036.000                      |      |            |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C            | 14 | $J_1$                 | <i>kgcm<sup>2</sup></i>                    | –    | –          | 0.6  | 0.59 | 0.6  | 0.43 | 0.42 | 0.37 | 0.52 | 0.36 |
|                                                                                                            |              |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | –    | –          | 0.53 | 0.52 | 0.53 | 0.38 | 0.37 | 0.33 | 0.46 | 0.32 |
|                                                                                                            | D            | 16 | $J_1$                 | <i>kgcm<sup>2</sup></i>                    | –    | –          | 0.75 | 0.74 | 0.74 | 0.58 | 0.57 | 0.5  | 0.67 | 0.51 |
|                                                                                                            |              |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | –    | –          | 0.66 | 0.65 | 0.65 | 0.51 | 0.5  | 0.44 | 0.59 | 0.45 |
|                                                                                                            | E            | 19 | $J_1$                 | <i>kgcm<sup>2</sup></i>                    | 2.5  | 1.7        | 0.84 | 0.83 | 0.83 | 0.66 | 0.65 | 0.6  | 0.75 | 0.6  |
|                                                                                                            |              |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 2.2  | 1.5        | 0.74 | 0.73 | 0.73 | 0.58 | 0.58 | 0.53 | 0.66 | 0.53 |
|                                                                                                            | G            | 24 | $J_1$                 | <i>kgcm<sup>2</sup></i>                    | 3.3  | 2.4        | 1.9  | 1.9  | 1.9  | 1.7  | 1.7  | 1.6  | 1.8  | 1.6  |
|                                                                                                            |              |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 2.9  | 2.1        | 1.7  | 1.6  | 1.7  | 1.5  | 1.5  | 1.5  | 1.6  | 1.4  |
|                                                                                                            | H            | 28 | $J_1$                 | <i>kgcm<sup>2</sup></i>                    | 3    | 2.2        | 1.6  | 1.6  | 1.6  | 1.4  | 1.4  | 1.3  | 1.5  | 1.3  |
|                                                                                                            |              |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 2.7  | 1.9        | 1.4  | 1.4  | 1.4  | 1.2  | 1.2  | 1.2  | 1.3  | 1.2  |
|                                                                                                            | I            | 32 | $J_1$                 | <i>kgcm<sup>2</sup></i>                    | 7.1  | 6.2        | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            |              |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 6.3  | 5.5        | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            | K            | 38 | $J_1$                 | <i>kgcm<sup>2</sup></i>                    | 8.3  | 7.4        | –    | –    | –    | –    | –    | –    | –    | –    |
|                                                                                                            |              |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 7.3  | 6.5        | –    | –    | –    | –    | –    | –    | –    | –    |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

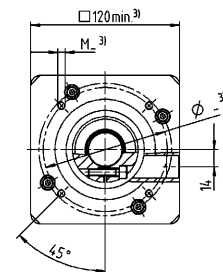
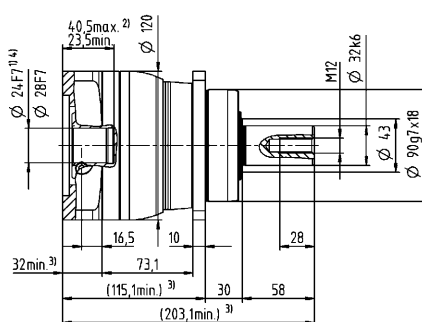
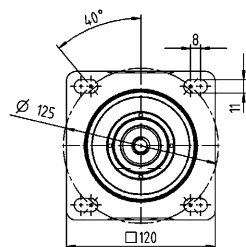
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

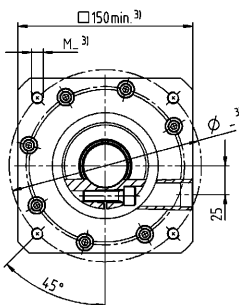
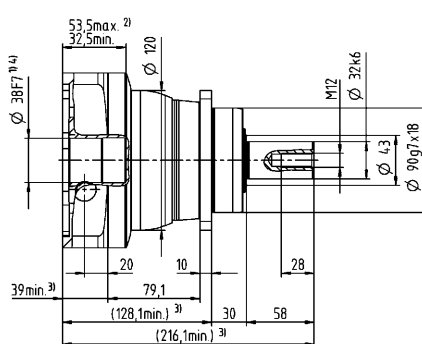
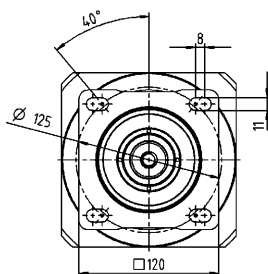
<sup>e)</sup> Valid for: Smooth shaft

# 1-stage

up to 24<sup>4)</sup> (G<sup>5)</sup>/H)  
clamping hub  
diameter

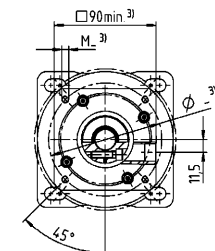
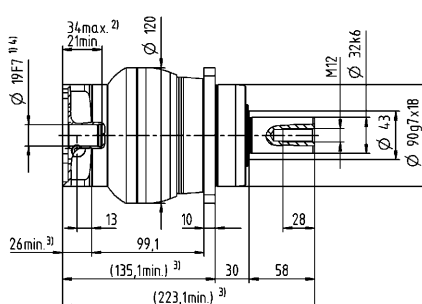
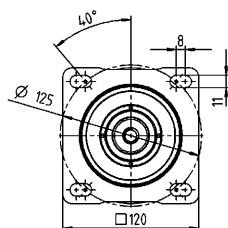


up to 38<sup>4)</sup> (K)  
clamping hub  
diameter

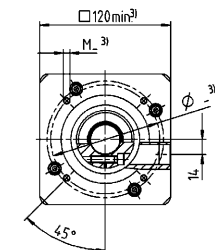
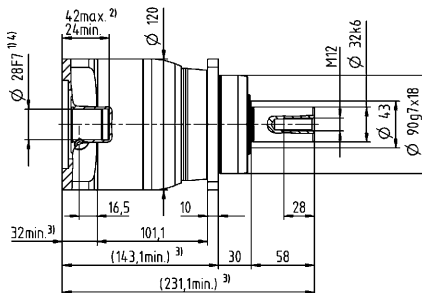
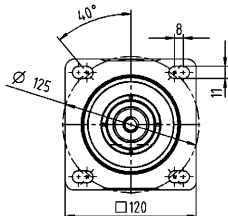


# 2-stage

up to 19<sup>4)</sup> (E<sup>5)</sup>  
clamping hub  
diameter



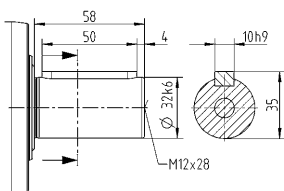
up to 28<sup>4)</sup> (H)  
clamping hub  
diameter



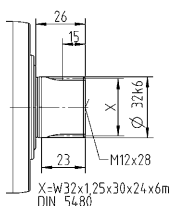
Motor shaft diameter [mm]

## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

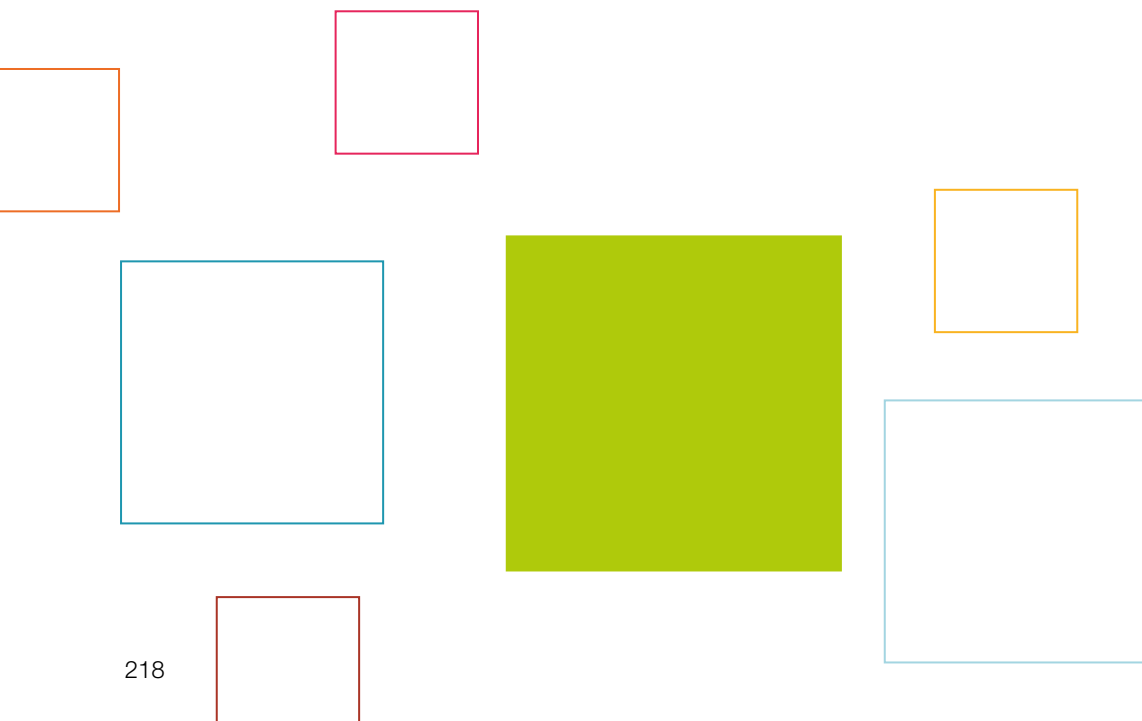
<sup>5)</sup> Standard clamping hub diameter

# alpha Value Line

## BEVEL GEARBOXES

NPK / NPLK / NPSK / NPTK / NPRK

The bevel gears of the alpha Value Line are the fitting solution for situations with limited mounting space. The flexible output shapes and gear ratios in combination with the extremely compact angle section offer comprehensive design freedom.





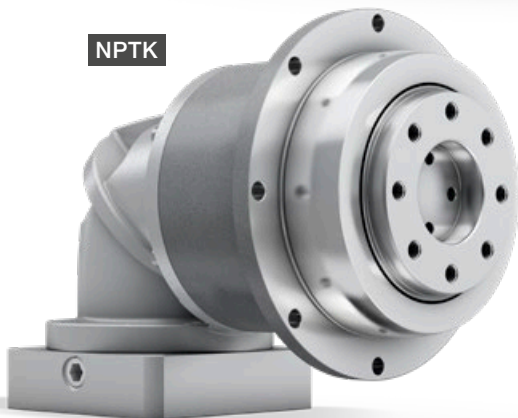
NPK



NPLK



NPTK



NPSK



NPRK

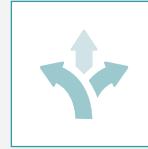


# NPK / NPLK / NPSK / NPTK / NPRK

## – Individual Talents



### PRODUCT HIGHLIGHTS



#### High flexibility

Various output versions offer design freedom tailored to individual requirements.



#### High economy

The gearboxes of the alpha Value Line are very economical to purchase, unbeatably efficient in operation, and maintenance free over their entire service life.



#### Fast sizing

Efficient online sizing within seconds in the SIZING ASSISTANT on the basis of the application data or the motor.

Total flexibility, even in limited space. The bevel gearboxes of the alpha Value Line combine the variety of the NP series with a compact and powerful bevel gear stage. This permits maximum flexibility through the configuration of five different output versions.



NPSK – bevel gearbox with SP+ output geometry



NPLK – bevel gearbox with reinforced bearings and B14 output geometry



More information about the alpha Value Line: simply scan the QR code using your smartphone.  
<https://alpha.wittenstein.de/en-en/alpha-value-line/>



**A**

#### Design

- The elegant design underlines the dynamics of the gearbox and sets new standards on the market

**B**

#### Compactness

- The extremely compact design of the angle section enables use in very confined installation spaces

**C**

#### Various output shapes

- Five output variants of the NPK series available: including B5 flange mounting, output flange, etc.
- Higher external forces possible with NPLK, NPSK, and NPRK

**D**

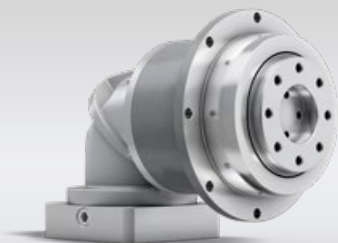
#### High ratio variation

- Large number of ratios ( $i=3$  to  $i=100$ )
- Available in the common binary ratios

**E**

#### Flexible motor connection

- Mounting of all common servo motors by means of a flexible and screw-fastened adapter plate
- Large number of motor shaft diameters connectable



NPTK – bevel gearbox with TP+ output geometry



NPRK – bevel gearbox with slot holes for optimal rack and pinion mounting

# NPK 005 MF 2- / 3-stage

|                                                                                                            |   |    |             | 2-stage                               |                               |                       |      |      | 3-stage |             |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|----|-------------|---------------------------------------|-------------------------------|-----------------------|------|------|---------|-------------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   |    | i           |                                       | 4                             | 5                     | 7    | 8    | 10      | 16          | 20   | 25   | 28   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            |   |    | $T_{2a}$    | Nm                                    | 14                            | 17                    | 22   | 21   | 21      | 18          | 18   | 22   | 18   | 22   | 18   | 22   | 21   | 22   | 21   |
|                                                                                                            |   |    |             | in.lb                                 | 124                           | 150                   | 195  | 186  | 186     | 159         | 159  | 195  | 159  | 195  | 159  | 195  | 186  | 195  | 186  |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   |    | $T_{2B}$    | Nm                                    | 6.8                           | 8.5                   | 12   | 13   | 13      | 11          | 11   | 13   | 11   | 13   | 11   | 13   | 13   | 13   | 13   |
|                                                                                                            |   |    |             | in.lb                                 | 60                            | 75                    | 106  | 115  | 115     | 97          | 97   | 115  | 97   | 115  | 97   | 115  | 115  | 115  | 115  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   |    | $T_{2Not}$  | Nm                                    | 17                            | 21                    | 26   | 26   | 26      | 26          | 26   | 26   | 26   | 26   | 26   | 26   | 26   | 26   | 26   |
|                                                                                                            |   |    |             | in.lb                                 | 150                           | 186                   | 230  | 230  | 230     | 230         | 230  | 230  | 230  | 230  | 230  | 230  | 230  | 230  | 230  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 |   |    | $n_{1N}$    | rpm                                   | 3800                          | 3800                  | 3800 | 3800 | 3800    | 3800        | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 |
| Max. input speed                                                                                           |   |    | $n_{1Max}$  | rpm                                   | 5000                          | 5000                  | 5000 | 5000 | 5000    | 5000        | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   |    | $T_{012}$   | Nm                                    | 0.28                          | 0.28                  | 0.28 | 0.28 | 0.28    | 0.29        | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 |
|                                                                                                            |   |    |             | in.lb                                 | 2.5                           | 2.5                   | 2.5  | 2.5  | 2.5     | 2.6         | 2.6  | 2.6  | 2.6  | 2.6  | 2.6  | 2.6  | 2.6  | 2.6  | 2.6  |
| Max. backlash                                                                                              |   |    | $j_t$       | arcmin                                | ≤ 15                          |                       |      |      |         | ≤ 15        |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   |    | $C_{t21}$   | Nm/arcmin                             | 0.9                           | 0.9                   | 0.9  | 0.9  | 0.9     | 1.2         | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  |
|                                                                                                            |   |    |             | in.lb/arcmin                          | 8                             | 8                     | 8    | 8    | 8       | 11          | 11   | 11   | 11   | 11   | 11   | 11   | 11   | 11   | 11   |
| Max. axial force <sup>c)</sup>                                                                             |   |    | $F_{2AMax}$ | N                                     | 700                           |                       |      |      |         | 700         |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |    |             | lb <sub>f</sub>                       | 158                           |                       |      |      |         | 158         |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   |    | $F_{2QMax}$ | N                                     | 800                           |                       |      |      |         | 800         |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |    |             | lb <sub>f</sub>                       | 180                           |                       |      |      |         | 180         |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   |    | $M_{2KMax}$ | Nm                                    | 23                            |                       |      |      |         | 23          |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |    |             | in.lb                                 | 204                           |                       |      |      |         | 204         |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   |    | $\eta$      | %                                     | 95                            |                       |      |      |         | 94          |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   |    | $L_h$       | h                                     | > 20000                       |                       |      |      |         | > 20000     |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   |    | $m$         | kg                                    | 1.1                           |                       |      |      |         | 1.3         |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |    |             | lb <sub>m</sub>                       | 2.4                           |                       |      |      |         | 2.9         |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   |    | $L_{PA}$    | dB(A)                                 | ≤ 68                          |                       |      |      |         | ≤ 68        |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |    |             | °C                                    | +90                           |                       |      |      |         | +90         |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |    |             | °F                                    | +194                          |                       |      |      |         | +194        |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |    |             | °C                                    | 0 to +40                      |                       |      |      |         | 0 to +40    |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |    |             | °F                                    | +32 to +104                   |                       |      |      |         | +32 to +104 |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |    |             |                                       | Lubricated for life           |                       |      |      |         |             |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |    |             |                                       | In- and output same direction |                       |      |      |         |             |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |    |             |                                       | IP 64                         |                       |      |      |         |             |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |    |             |                                       | ELC-0005BA012.000-X           |                       |      |      |         |             |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |    |             |                                       | mm                            | X = 004.000 - 012.700 |      |      |         |             |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | B | 11 | $J_1$       | kgcm <sup>2</sup>                     | 0.1                           | 0.1                   | 0.1  | 0.1  | 0.1     | 0.11        | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |      |
|                                                                                                            |   |    |             | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.09                          | 0.09                  | 0.09 | 0.09 | 0.09    | 0.1         | 0.1  | 0.1  | 0.1  | 0.1  | 0.1  | 0.1  | 0.1  | 0.1  |      |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

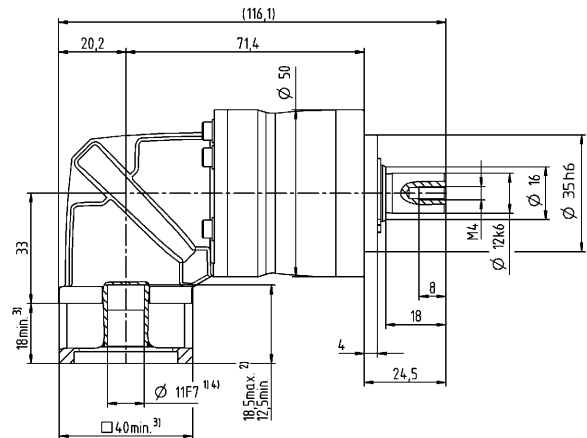
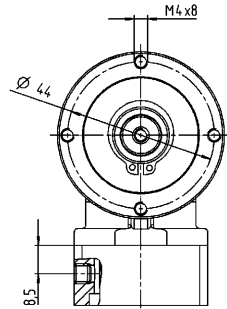
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

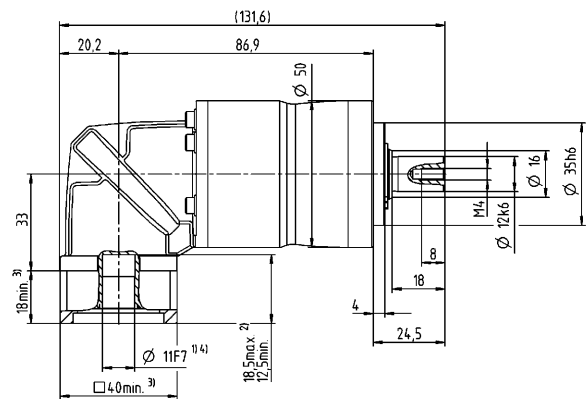
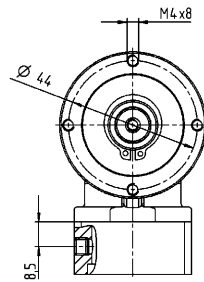
## 2-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



## 3-stage

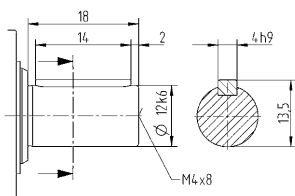
up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



Motor shaft diameter [mm]

### Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPK 015 MF 2-stage

|                                                                                                            |             |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | Nm              | 33                                    | 44   | 55   | 64   | 56   | 56   |
|                                                                                                            |             | in.lb           | 292                                   | 389  | 487  | 566  | 496  | 496  |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | Nm              | 16                                    | 21   | 27   | 37   | 35   | 35   |
|                                                                                                            |             | in.lb           | 142                                   | 186  | 239  | 327  | 310  | 310  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 41                                    | 55   | 69   | 80   | 80   | 80   |
|                                                                                                            |             | in.lb           | 363                                   | 487  | 611  | 708  | 708  | 708  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 3300                                  | 3300 | 3300 | 3300 | 3300 | 3300 |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$   | Nm              | 0.54                                  | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 |
|                                                                                                            |             | in.lb           | 4.8                                   | 4.8  | 4.8  | 4.8  | 4.8  | 4.8  |
| Max. backlash                                                                                              | $j_t$       | arcmin          | ≤ 15                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 2.4                                   | 2.4  | 2.4  | 2.4  | 2.4  | 2.4  |
|                                                                                                            |             | in.lb/arcmin    | 21                                    | 21   | 21   | 21   | 21   | 21   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 1550                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 349                                   |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | N               | 1700                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 383                                   |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 72                                    |      |      |      |      |      |
|                                                                                                            |             | in.lb           | 637                                   |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 2.3                                   |      |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 5.1                                   |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | dB(A)           | ≤ 70                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |             | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |             | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |             | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |             |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 | ELC-0060BA016.000-X                   |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C 14        | $J_1$           | kgcm <sup>2</sup>                     | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 |
|                                                                                                            |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor M<sub>1KMot</sub> – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

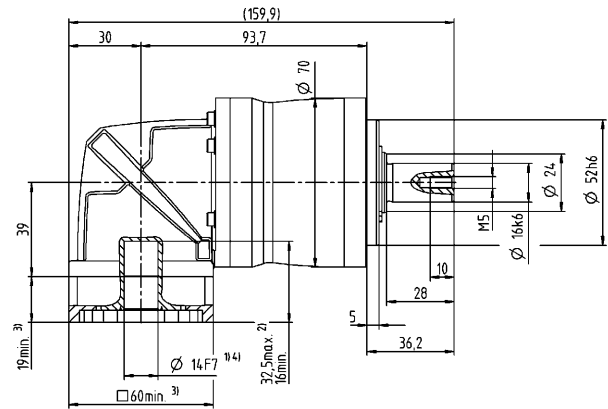
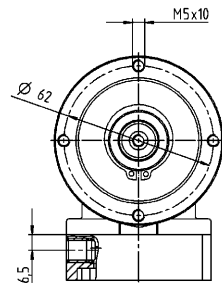
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

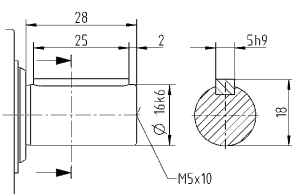
## 2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



### Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPK 015 MF 3-stage

|                                                                                                            |              |                 | 3-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 12                                    | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 42                                    | 51   | 56   | 56   | 64   | 56   | 51   | 56   | 64   | 56   | 64   | 56   | 64   | 56   |
|                                                                                                            |              | in.lb           | 372                                   | 451  | 496  | 496  | 566  | 496  | 451  | 496  | 566  | 496  | 566  | 496  | 566  | 496  |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 20                                    | 25   | 27   | 34   | 40   | 35   | 31   | 35   | 40   | 35   | 40   | 35   | 40   | 35   |
|                                                                                                            |              | in.lb           | 177                                   | 221  | 239  | 301  | 354  | 310  | 274  | 310  | 354  | 310  | 354  | 310  | 354  | 310  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 52                                    | 65   | 70   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   |
|                                                                                                            |              | in.lb           | 460                                   | 575  | 620  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 3800                                  | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$    | Nm              | 0.31                                  | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 |
|                                                                                                            |              | in.lb           | 2.7                                   | 2.7  | 2.7  | 2.7  | 2.7  | 2.7  | 2.7  | 2.7  | 2.7  | 2.7  | 2.7  | 2.7  | 2.7  | 2.7  |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 12                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 3                                     | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    |
|                                                                                                            |              | in.lb/arcmin    | 27                                    | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 1550                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 349                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 1700                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 383                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$  | Nm              | 72                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 637                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 94                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 2.3                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 5.1                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 68                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | 0 to +40                              |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +32 to +104                           |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA016.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | B 11         | $J_t$           | kgcm <sup>2</sup>                     | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
|                                                                                                            |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

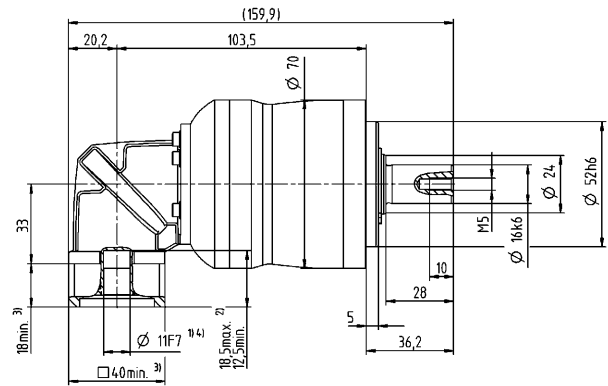
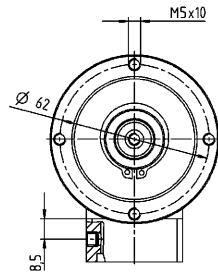
- <sup>a)</sup> Valid for torque transmission only
- <sup>b)</sup> Valid for standard clamping hub diameter
- <sup>c)</sup> Refers to center of the output shaft or flange
- <sup>d)</sup> Please reduce input speed at higher ambient temperatures
- <sup>e)</sup> Valid for: Smooth shaft



Motor shaft diameter [mm]

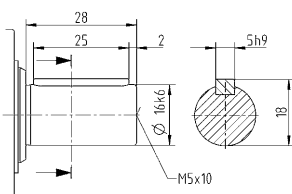
## 3-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



### Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPK 025 MF 2-stage

|                                                                                                            |              |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 60                                    | 80   | 100  | 140  | 144  | 144  |
|                                                                                                            |              | in.lb           | 531                                   | 708  | 885  | 1239 | 1275 | 1275 |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 35                                    | 47   | 58   | 82   | 90   | 90   |
|                                                                                                            |              | in.lb           | 310                                   | 416  | 513  | 726  | 797  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 90                                    | 120  | 150  | 190  | 190  | 190  |
|                                                                                                            |              | in.lb           | 797                                   | 1062 | 1328 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 3000                                  | 3000 | 3000 | 3000 | 3000 | 3000 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$    | Nm              | 0.98                                  | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
|                                                                                                            |              | in.lb           | 8.7                                   | 8.7  | 8.7  | 8.7  | 8.7  | 8.7  |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 15                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 6.2                                   | 6.2  | 6.2  | 6.2  | 6.2  | 6.2  |
|                                                                                                            |              | in.lb/arcmin    | 55                                    | 55   | 55   | 55   | 55   | 55   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 1900                                  |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 428                                   |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 2800                                  |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 630                                   |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$  | Nm              | 137                                   |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 1213                                  |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 4.9                                   |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 11                                    |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 70                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |              | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA022.000-X                   |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |              | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E 19         | $J_1$           | kgcm <sup>2</sup>                     | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  |
|                                                                                                            |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

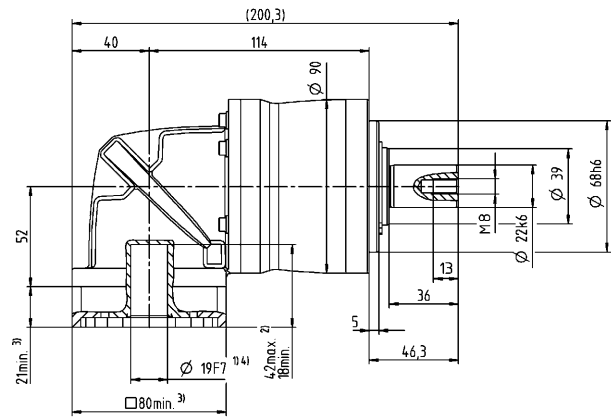
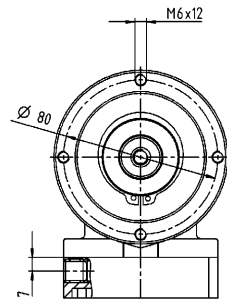
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

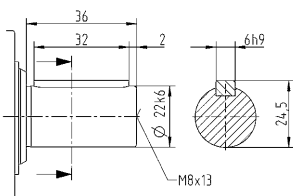
## 2-stage

up to 19 <sup>4)</sup> (E) <sup>5)</sup>  
clamping hub  
diameter



## Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPK 025 MF 3-stage

|                                                                                                            |   |              |       | 3-stage                               |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|--------------|-------|---------------------------------------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i            |       |                                       | 9                             | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     |       | Nm                                    | 99                            | 128  | 128  | 152  | 152  | 160  | 152  | 128  | 152  | 160  | 152  | 160  | 144  | 160  | 144  |
|                                                                                                            |   |              |       | in.lb                                 | 876                           | 1133 | 1133 | 1345 | 1345 | 1416 | 1345 | 1133 | 1345 | 1416 | 1345 | 1416 | 1275 | 1416 | 1275 |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     |       | Nm                                    | 48                            | 65   | 80   | 86   | 95   | 100  | 95   | 80   | 95   | 100  | 95   | 100  | 90   | 100  | 90   |
|                                                                                                            |   |              |       | in.lb                                 | 425                           | 575  | 708  | 761  | 841  | 885  | 841  | 708  | 841  | 885  | 841  | 885  | 797  | 885  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   |       | Nm                                    | 124                           | 166  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  |
|                                                                                                            |   |              |       | in.lb                                 | 1097                          | 1469 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$     |       | rpm                                   | 3300                          | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 |
| Max. input speed                                                                                           |   | $n_{1Max}$   |       | rpm                                   | 5000                          | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           |   | $T_{012}$    |       | Nm                                    | 0.52                          | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 |
|                                                                                                            |   |              |       | in.lb                                 | 4.6                           | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  |
| Max. backlash                                                                                              |   | $j_t$        |       | arcmin                                | ≤ 13                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    |       | Nm/arcmin                             | 8.4                           | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  |
|                                                                                                            |   |              |       | in.lb/arcmin                          | 74                            | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$  |       | N                                     | 1900                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              |       | lb <sub>f</sub>                       | 428                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMMax}$ |       | N                                     | 2800                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              |       | lb <sub>f</sub>                       | 630                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMMax}$ |       | Nm                                    | 137                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              |       | in.lb                                 | 1213                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$       |       | %                                     | 94                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$        |       | h                                     | > 20000                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          |       | kg                                    | 4.5                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              |       | lb <sub>m</sub>                       | 9.9                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     |       | dB(A)                                 | ≤ 70                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |              |       | °C                                    | +90                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              |       | °F                                    | +194                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |              |       | °C                                    | 0 to +40                      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              |       | °F                                    | +32 to +104                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |              |       |                                       | Lubricated for life           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |              |       |                                       | In- and output same direction |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |              |       |                                       | IP 64                         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |              |       |                                       | ELC-0060BA022.000-X           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |              |       | mm                                    | X = 012.000 - 032.000         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C | 14           | $J_1$ | kgcm <sup>2</sup>                     | 0.45                          | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 |      |
|                                                                                                            |   |              |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.4                           | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  |

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Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

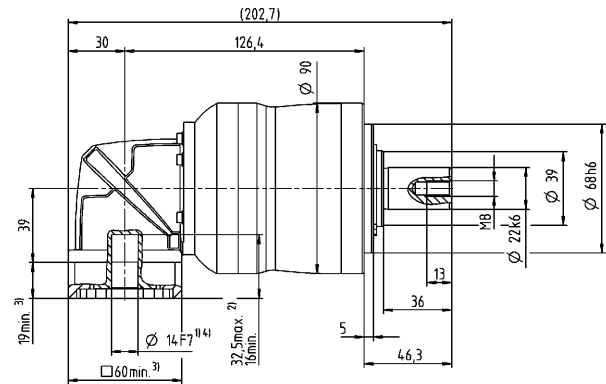
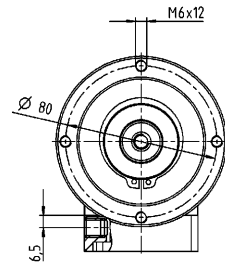
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

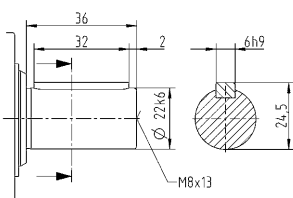
## 3-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



### Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPK 035 MF 2-stage

|                                                                                                            |             |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | Nm              | 150                                   | 200  | 250  | 350  | 352  | 352  |
|                                                                                                            |             | in.lb           | 1328                                  | 1770 | 2213 | 3098 | 3115 | 3115 |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | Nm              | 93                                    | 124  | 155  | 217  | 220  | 220  |
|                                                                                                            |             | in.lb           | 823                                   | 1097 | 1372 | 1921 | 1947 | 1947 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 238                                   | 318  | 397  | 500  | 500  | 500  |
|                                                                                                            |             | in.lb           | 2106                                  | 2815 | 3514 | 4425 | 4425 | 4425 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 2000                                  | 2000 | 2000 | 2000 | 2000 | 2000 |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 4500                                  | 4500 | 4500 | 4500 | 4500 | 4500 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$   | Nm              | 3.5                                   | 3.5  | 3.5  | 3.5  | 3.5  | 3.5  |
|                                                                                                            |             | in.lb           | 31                                    | 31   | 31   | 31   | 31   | 31   |
| Max. backlash                                                                                              | $j_t$       | arcmin          | ≤ 13                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 16                                    | 16   | 16   | 16   | 16   | 16   |
|                                                                                                            |             | in.lb/arcmin    | 142                                   | 142  | 142  | 142  | 142  | 142  |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 4000                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 900                                   |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | N               | 5000                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 1125                                  |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 345                                   |      |      |      |      |      |
|                                                                                                            |             | in.lb           | 3054                                  |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 11                                    |      |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 24                                    |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | dB(A)           | ≤ 74                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |             | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |             | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |             | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |             |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 | ELC-0150BA032.000-X                   |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |             | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | H 28        | $J_1$           | kgcm <sup>2</sup>                     | 5.3  | 5.3  | 5.3  | 5.3  | 5.3  |
|                                                                                                            |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 4.7  | 4.7  | 4.7  | 4.7  | 4.7  |

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Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

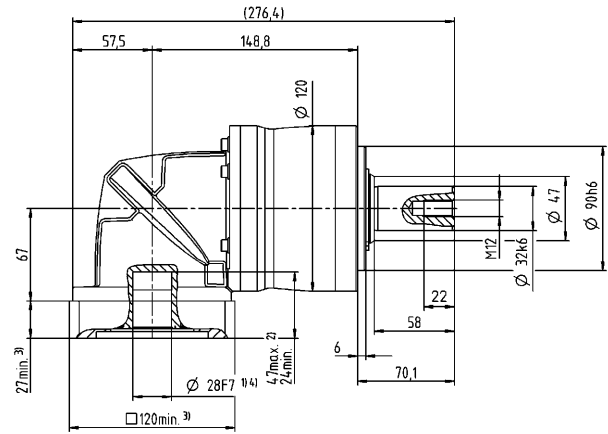
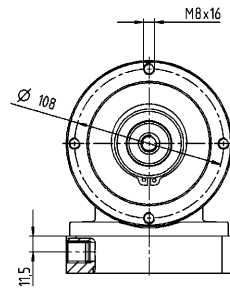
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

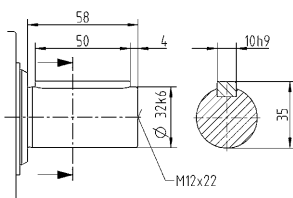
## 2-stage

up to 28<sup>4)</sup> (H)<sup>5)</sup>  
clamping hub  
diameter



## Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPK 035 MF 3-stage

|                                                                                                            |   |              |                 | 3-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|--------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i            |                 | 9                                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     | Nm              | 180                                   | 240  | 300  | 320  | 400  | 400  | 408  | 320  | 408  | 400  | 408  | 400  | 352  | 400  | 352  |
|                                                                                                            |   |              | in.lb           | 1593                                  | 2124 | 2655 | 2832 | 3540 | 3540 | 3611 | 2832 | 3611 | 3540 | 3611 | 3540 | 3115 | 3540 | 3115 |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     | Nm              | 105                                   | 141  | 176  | 188  | 235  | 250  | 255  | 200  | 255  | 250  | 255  | 250  | 220  | 250  | 220  |
|                                                                                                            |   |              | in.lb           | 929                                   | 1248 | 1558 | 1664 | 2080 | 2213 | 2257 | 1770 | 2257 | 2213 | 2257 | 2213 | 1947 | 2213 | 1947 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   | Nm              | 270                                   | 361  | 451  | 481  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  |
|                                                                                                            |   |              | in.lb           | 2390                                  | 3195 | 3992 | 4257 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$     | rpm             | 3000                                  | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| Max. input speed                                                                                           |   | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$    | Nm              | 1                                     | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
|                                                                                                            |   |              | in.lb           | 8.9                                   | 8.9  | 8.9  | 8.9  | 8.9  | 8.9  | 8.9  | 8.9  | 8.9  | 8.9  | 8.9  | 8.9  | 8.9  | 8.9  | 8.9  |
| Max. backlash                                                                                              |   | $j_t$        | arcmin          | ≤ 13                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    | Nm/arcmin       | 19                                    | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   |
|                                                                                                            |   |              | in.lb/arcmin    | 168                                   | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$  | N               | 4000                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 900                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMMax}$ | N               | 5000                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 1125                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$  | Nm              | 345                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | in.lb           | 3054                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$       | %               | 94                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$        | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          | kg              | 11                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>m</sub> | 24                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     | dB(A)           | ≤ 70                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |              | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |              | °C              | 0 to +40                              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +32 to +104                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |              |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |              |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |              |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |              |                 | ELC-0150BA032.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |              | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E | 19           | $J_1$           | kgcm <sup>2</sup>                     | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  |
|                                                                                                            |   |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

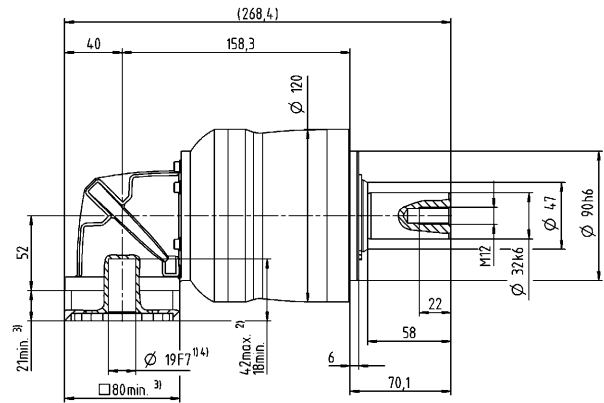
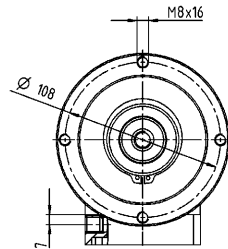
<sup>e)</sup> Valid for: Smooth shaft



Motor shaft diameter [mm]

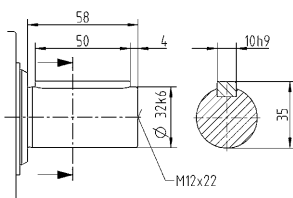
## 3-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter



### Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPK 045 MF 2- / 3-stage

|                                                                                                            |             |    |                 | 2-stage                               |      |      | 3-stage     |      |      |      |      |     |
|------------------------------------------------------------------------------------------------------------|-------------|----|-----------------|---------------------------------------|------|------|-------------|------|------|------|------|-----|
| Ratio                                                                                                      | i           |    |                 | 5                                     | 8    | 10   | 25          | 32   | 50   | 64   | 100  |     |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    |    | Nm              | 500                                   | 640  | 640  | 700         | 640  | 700  | 640  | 640  |     |
|                                                                                                            |             |    | in.lb           | 4425                                  | 5665 | 5665 | 6196        | 5665 | 6196 | 5665 | 5665 |     |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    |    | Nm              | 399                                   | 400  | 400  | 500         | 400  | 500  | 400  | 400  |     |
|                                                                                                            |             |    | in.lb           | 3531                                  | 3540 | 3540 | 4425        | 3540 | 4425 | 3540 | 3540 |     |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  |    | Nm              | 1000                                  | 1000 | 1000 | 1000        | 1000 | 1000 | 1000 | 1000 |     |
|                                                                                                            |             |    | in.lb           | 8851                                  | 8851 | 8851 | 8851        | 8851 | 8851 | 8851 | 8851 |     |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2n}$ and 20 °C ambient temperature)                 | $n_{1N}$    |    | rpm             | 1600                                  | 1600 | 1600 | 2000        | 2000 | 2000 | 2000 | 2000 |     |
| Max. input speed                                                                                           | $n_{1Max}$  |    | rpm             | 4000                                  | 4000 | 4000 | 4500        | 4500 | 4500 | 4500 | 4500 |     |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$   |    | Nm              | 6.9                                   | 6.9  | 6.9  | 3.6         | 3.6  | 3.6  | 3.6  | 3.6  |     |
|                                                                                                            |             |    | in.lb           | 61                                    | 61   | 61   | 32          | 32   | 32   | 32   | 32   |     |
| Max. backlash                                                                                              | $j_t$       |    | arcmin          | ≤ 11                                  |      |      | ≤ 11        |      |      |      |      |     |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   |    | Nm/arcmin       | 48                                    | 48   | 48   | 54          | 54   | 54   | 54   | 54   |     |
|                                                                                                            |             |    | in.lb/arcmin    | 425                                   | 425  | 425  | 478         | 478  | 478  | 478  | 478  |     |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ |    | N               | 6000                                  |      |      | 6000        |      |      |      |      |     |
|                                                                                                            |             |    | lb <sub>f</sub> | 1350                                  |      |      | 1350        |      |      |      |      |     |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ |    | N               | 8000                                  |      |      | 8000        |      |      |      |      |     |
|                                                                                                            |             |    | lb <sub>f</sub> | 1800                                  |      |      | 1800        |      |      |      |      |     |
| Max. tilting moment                                                                                        | $M_{2KMax}$ |    | Nm              | 704                                   |      |      | 704         |      |      |      |      |     |
|                                                                                                            |             |    | in.lb           | 6231                                  |      |      | 6231        |      |      |      |      |     |
| Efficiency at full load                                                                                    | $\eta$      |    | %               | 95                                    |      |      | 94          |      |      |      |      |     |
| Service life                                                                                               | $L_h$       |    | h               | > 20000                               |      |      | > 20000     |      |      |      |      |     |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         |    | kg              | 24                                    |      |      | 21          |      |      |      |      |     |
|                                                                                                            |             |    | lb <sub>m</sub> | 53                                    |      |      | 46          |      |      |      |      |     |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    |    | dB(A)           | ≤ 78                                  |      |      | ≤ 74        |      |      |      |      |     |
| Max. permitted housing temperature                                                                         |             |    | °C              | +90                                   |      |      | +90         |      |      |      |      |     |
|                                                                                                            |             |    | °F              | +194                                  |      |      | +194        |      |      |      |      |     |
| Ambient temperature                                                                                        |             |    | °C              | 0 to +40                              |      |      | 0 to +40    |      |      |      |      |     |
|                                                                                                            |             |    | °F              | +32 to +104                           |      |      | +32 to +104 |      |      |      |      |     |
| Lubrication                                                                                                |             |    |                 | Lubricated for life                   |      |      |             |      |      |      |      |     |
| Direction of rotation                                                                                      |             |    |                 | In- and output same direction         |      |      |             |      |      |      |      |     |
| Protection class                                                                                           |             |    |                 | IP 64                                 |      |      |             |      |      |      |      |     |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |    |                 | ELC-0300BA040.000-X                   |      |      |             |      |      |      |      |     |
| Bore diameter of coupling<br>on the application side                                                       |             |    | mm              | X = 020.000 - 045.000                 |      |      |             |      |      |      |      |     |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | H           | 28 | $J_1$           | kgcm <sup>2</sup>                     | –    | –    | –           | 6.8  | 6.8  | 6.8  | 6.8  | 6.8 |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –    | –           | 6    | 6    | 6    | 6    | 6   |
|                                                                                                            | K           | 38 | $J_1$           | kgcm <sup>2</sup>                     | 18   | 18   | 18          | –    | –    | –    | –    | –   |
|                                                                                                            |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 16   | 16   | 16          | –    | –    | –    | –    | –   |

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Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

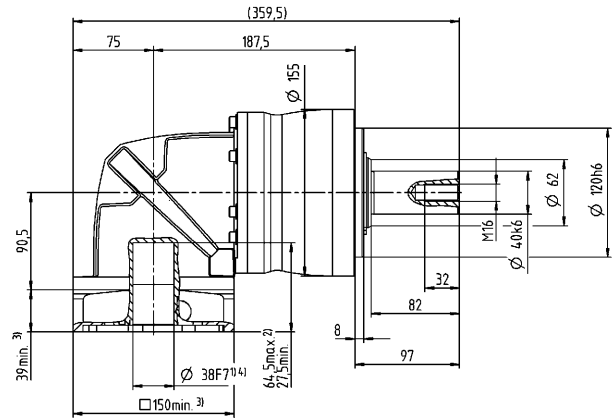
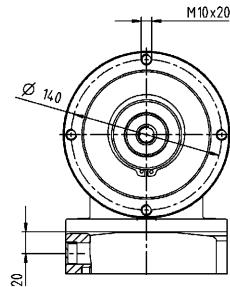
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

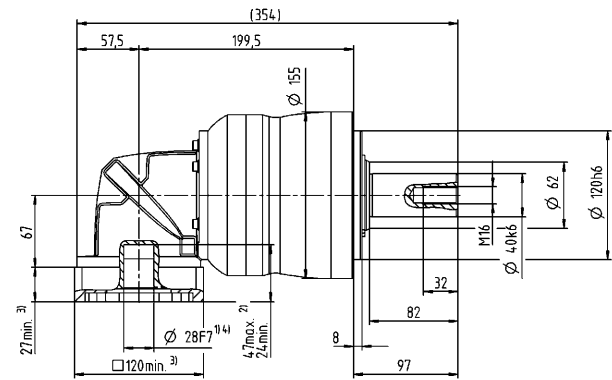
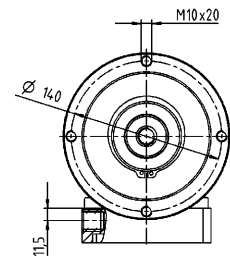
## 2-stage

up to 38<sup>4)</sup> (K)<sup>5)</sup>  
clamping hub  
diameter



## 3-stage

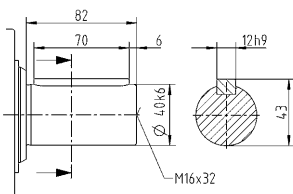
up to 28<sup>4)</sup> (H)<sup>5)</sup>  
clamping hub  
diameter



Motor shaft diameter [mm]

### Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPLK 015 MF 2-stage

|                                                                                                            |              |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 33                                    | 44   | 55   | 64   | 56   | 56   |
|                                                                                                            |              | in.lb           | 292                                   | 389  | 487  | 566  | 496  | 496  |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 16                                    | 21   | 27   | 37   | 35   | 35   |
|                                                                                                            |              | in.lb           | 142                                   | 186  | 239  | 327  | 310  | 310  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 41                                    | 55   | 69   | 80   | 80   | 80   |
|                                                                                                            |              | in.lb           | 363                                   | 487  | 611  | 708  | 708  | 708  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 2900                                  | 3100 | 3300 | 3300 | 3300 | 3300 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$    | Nm              | 1.2                                   | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  |
|                                                                                                            |              | in.lb           | 11                                    | 11   | 11   | 11   | 11   | 11   |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 15                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 2.4                                   | 2.4  | 2.4  | 2.4  | 2.4  | 2.4  |
|                                                                                                            |              | in.lb/arcmin    | 21                                    | 21   | 21   | 21   | 21   | 21   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 2400                                  |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 540                                   |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 2800                                  |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 630                                   |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$  | Nm              | 152                                   |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 1345                                  |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 2.3                                   |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 5.1                                   |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 70                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |              | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA016.000-X                   |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |              | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C 14         | $J_1$           | kgcm <sup>2</sup>                     | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 |
|                                                                                                            |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 |

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Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

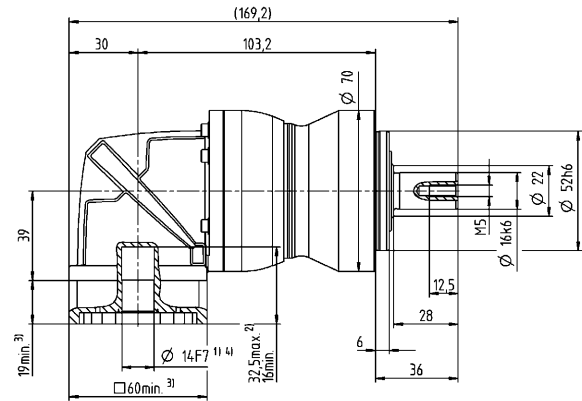
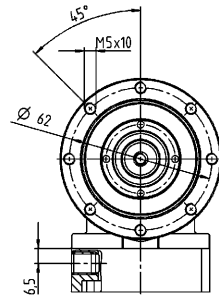
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

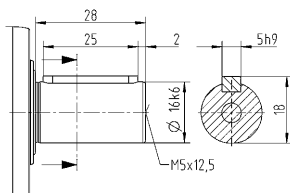
## 2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter

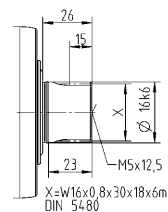


### Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPLK 015 MF 3-stage

|                                                                                                            |              |                 | 3-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 12                                    | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 42                                    | 51   | 56   | 56   | 64   | 56   | 51   | 56   | 64   | 56   | 64   | 56   | 64   | 56   |
|                                                                                                            |              | in.lb           | 372                                   | 451  | 496  | 496  | 566  | 496  | 451  | 496  | 566  | 496  | 566  | 496  | 566  | 496  |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 20                                    | 25   | 27   | 34   | 40   | 35   | 31   | 35   | 40   | 35   | 40   | 35   | 40   | 35   |
|                                                                                                            |              | in.lb           | 177                                   | 221  | 239  | 301  | 354  | 310  | 274  | 310  | 354  | 310  | 354  | 310  | 354  | 310  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 52                                    | 65   | 70   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   |
|                                                                                                            |              | in.lb           | 460                                   | 575  | 620  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 3800                                  | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$    | Nm              | 0.52                                  | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 |
|                                                                                                            |              | in.lb           | 4.6                                   | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 12                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 3                                     | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    |
|                                                                                                            |              | in.lb/arcmin    | 27                                    | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 2400                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 540                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 2800                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 630                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$  | Nm              | 152                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 1345                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 94                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 2.4                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 5.3                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 68                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | 0 to +40                              |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +32 to +104                           |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA016.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | B 11         | $J_t$           | kgcm <sup>2</sup>                     | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
|                                                                                                            |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

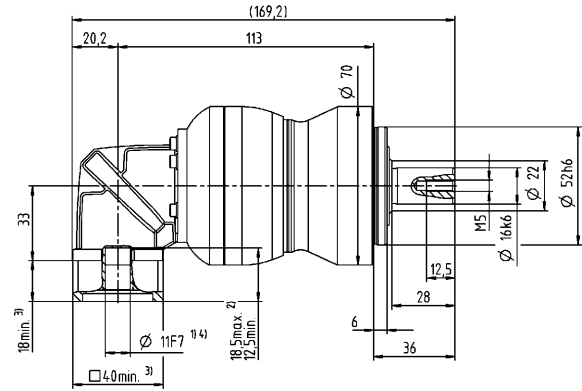
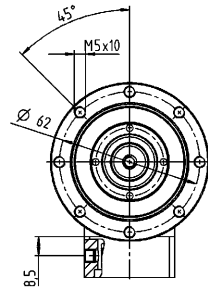
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

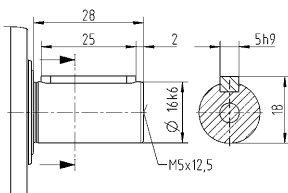
## 3-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter

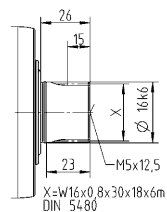


### Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPLK 025 MF 2-stage

|                                                                                                            |              |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 60                                    | 80   | 100  | 140  | 144  | 144  |
|                                                                                                            |              | in.lb           | 531                                   | 708  | 885  | 1239 | 1275 | 1275 |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 35                                    | 47   | 58   | 82   | 90   | 90   |
|                                                                                                            |              | in.lb           | 310                                   | 416  | 513  | 726  | 797  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 90                                    | 120  | 150  | 190  | 190  | 190  |
|                                                                                                            |              | in.lb           | 797                                   | 1062 | 1328 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 2700                                  | 2900 | 3000 | 3000 | 3000 | 3000 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$    | Nm              | 2.4                                   | 2.4  | 2.4  | 2.4  | 2.4  | 2.4  |
|                                                                                                            |              | in.lb           | 21                                    | 21   | 21   | 21   | 21   | 21   |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 15                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 6.2                                   | 6.2  | 6.2  | 6.2  | 6.2  | 6.2  |
|                                                                                                            |              | in.lb/arcmin    | 55                                    | 55   | 55   | 55   | 55   | 55   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 3350                                  |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 754                                   |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 4200                                  |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 945                                   |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$  | Nm              | 236                                   |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 2089                                  |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 5                                     |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 11                                    |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 70                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |              | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA022.000-X                   |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |              | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E 19         | $J_1$           | kgcm <sup>2</sup>                     | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  |
|                                                                                                            |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

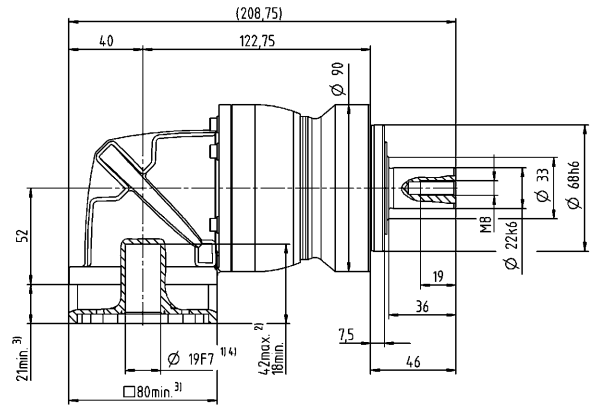
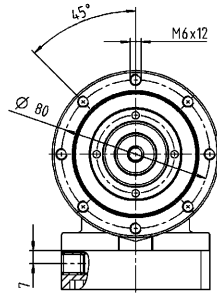
<sup>e)</sup> Valid for: Smooth shaft



Motor shaft diameter [mm]

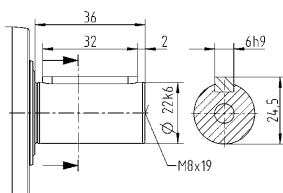
2-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter

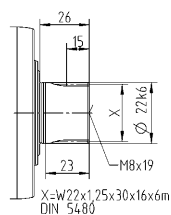


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPLK 025 MF 3-stage

|                                                                                                            |              |                 |                               | 3-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|-------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 9                             | 12                                    | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 99                            | 128                                   | 128  | 152  | 152  | 160  | 152  | 128  | 152  | 160  | 152  | 160  | 144  | 160  | 144  |
|                                                                                                            |              | in.lb           | 876                           | 1133                                  | 1133 | 1345 | 1345 | 1416 | 1345 | 1133 | 1345 | 1416 | 1345 | 1416 | 1275 | 1416 | 1275 |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 48                            | 65                                    | 80   | 86   | 95   | 100  | 95   | 80   | 95   | 100  | 95   | 100  | 90   | 100  | 90   |
|                                                                                                            |              | in.lb           | 425                           | 575                                   | 708  | 761  | 841  | 885  | 841  | 708  | 841  | 885  | 841  | 885  | 797  | 885  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 124                           | 166                                   | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  |
|                                                                                                            |              | in.lb           | 1097                          | 1469                                  | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 2900                          | 3300                                  | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 5000                          | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$    | Nm              | 0.97                          | 0.97                                  | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
|                                                                                                            |              | in.lb           | 8.6                           | 8.6                                   | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 13                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 8.4                           | 8.4                                   | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  |
|                                                                                                            |              | in.lb/arcmin    | 74                            | 74                                    | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 3350                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 754                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 4200                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 945                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$  | Nm              | 236                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 2089                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 94                            |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                       |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 4.6                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 10                            |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 70                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | 0 to +40                      |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +32 to +104                   |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                         |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA022.000-X           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 012.000 - 032.000         |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C            | 14              | $J_t$                         | kgcm <sup>2</sup>                     | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

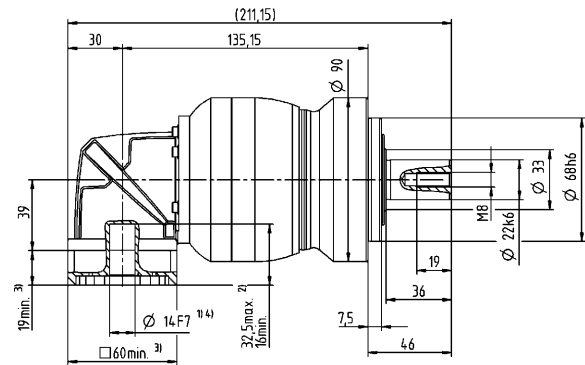
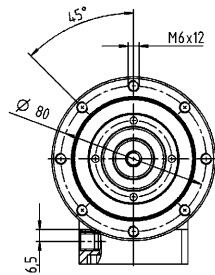
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

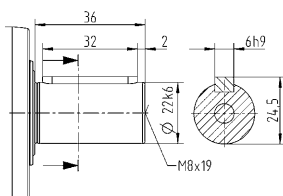
## 3-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter

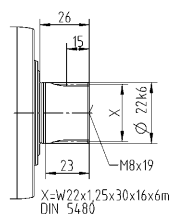


### Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPLK 035 MF 2-stage

|                                                                                                            |             |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | Nm              | 150                                   | 200  | 250  | 350  | 352  | 352  |
|                                                                                                            |             | in.lb           | 1328                                  | 1770 | 2213 | 3098 | 3115 | 3115 |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | Nm              | 93                                    | 124  | 155  | 217  | 220  | 220  |
|                                                                                                            |             | in.lb           | 823                                   | 1097 | 1372 | 1921 | 1947 | 1947 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 238                                   | 318  | 397  | 500  | 500  | 500  |
|                                                                                                            |             | in.lb           | 2106                                  | 2815 | 3514 | 4425 | 4425 | 4425 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 2000                                  | 2000 | 2000 | 2000 | 2000 | 2000 |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 4500                                  | 4500 | 4500 | 4500 | 4500 | 4500 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$   | Nm              | 5.8                                   | 5.8  | 5.8  | 5.8  | 5.8  | 5.8  |
|                                                                                                            |             | in.lb           | 51                                    | 51   | 51   | 51   | 51   | 51   |
| Max. backlash                                                                                              | $j_t$       | arcmin          | ≤ 13                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 16                                    | 16   | 16   | 16   | 16   | 16   |
|                                                                                                            |             | in.lb/arcmin    | 142                                   | 142  | 142  | 142  | 142  | 142  |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 5650                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 1271                                  |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | N               | 6600                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 1485                                  |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 487                                   |      |      |      |      |      |
|                                                                                                            |             | in.lb           | 4310                                  |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 11                                    |      |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 24                                    |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | dB(A)           | ≤ 74                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |             | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |             | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |             | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |             |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 | ELC-0150BA032.000-X                   |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |             | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | H 28        | $J_1$           | kgcm <sup>2</sup>                     | 5.2  | 5.2  | 5.2  | 5.2  | 5.2  |
|                                                                                                            |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

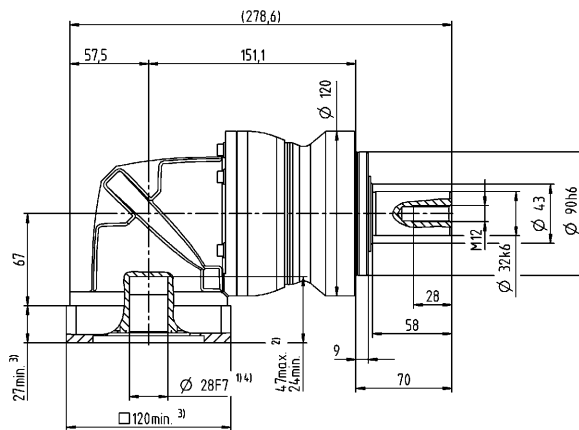
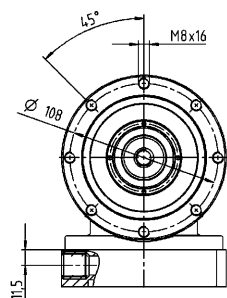
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

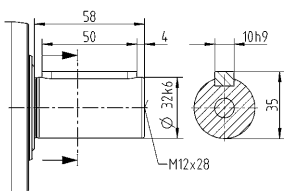
## 2-stage

up to 28 <sup>4)</sup> (H) <sup>5)</sup>  
clamping hub  
diameter

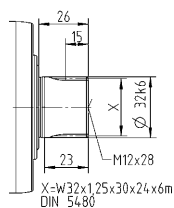


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

<sup>5)</sup> Standard clamping hub diameter

# NPLK 035 MF 3-stage

|                                                                                                            |   |              |                 | 3-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|--------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i            |                 | 9                                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     | Nm              | 180                                   | 240  | 300  | 320  | 400  | 400  | 408  | 320  | 408  | 400  | 408  | 400  | 352  | 400  | 352  |
|                                                                                                            |   |              | in.lb           | 1593                                  | 2124 | 2655 | 2832 | 3540 | 3540 | 3611 | 2832 | 3611 | 3540 | 3611 | 3540 | 3115 | 3540 | 3115 |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     | Nm              | 105                                   | 141  | 176  | 188  | 235  | 250  | 255  | 200  | 255  | 250  | 255  | 250  | 220  | 250  | 220  |
|                                                                                                            |   |              | in.lb           | 929                                   | 1248 | 1558 | 1664 | 2080 | 2213 | 2257 | 1770 | 2257 | 2213 | 2257 | 2213 | 1947 | 2213 | 1947 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   | Nm              | 270                                   | 361  | 451  | 481  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  |
|                                                                                                            |   |              | in.lb           | 2390                                  | 3195 | 3992 | 4257 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$     | rpm             | 2700                                  | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| Max. input speed                                                                                           |   | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$    | Nm              | 2.3                                   | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  |
|                                                                                                            |   |              | in.lb           | 20                                    | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   |
| Max. backlash                                                                                              |   | $j_t$        | arcmin          | ≤ 13                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    | Nm/arcmin       | 19                                    | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   |
|                                                                                                            |   |              | in.lb/arcmin    | 168                                   | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$  | N               | 5650                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 1271                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMMax}$ | N               | 6600                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 1485                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$  | Nm              | 487                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | in.lb           | 4310                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$       | %               | 94                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$        | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          | kg              | 11                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>m</sub> | 24                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     | dB(A)           | ≤ 70                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |              | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |              | °C              | 0 to +40                              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +32 to +104                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |              |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |              |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |              |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |              |                 | ELC-0150BA032.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |              | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E | 19           | $J_1$           | kgcm <sup>2</sup>                     | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  |
|                                                                                                            |   |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

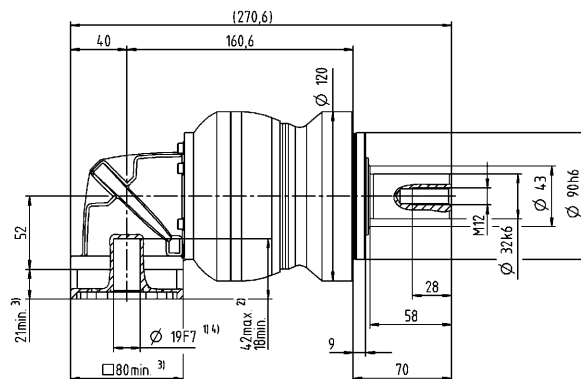
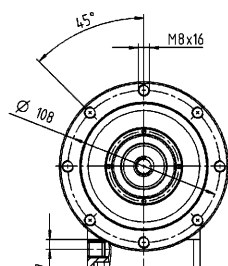
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

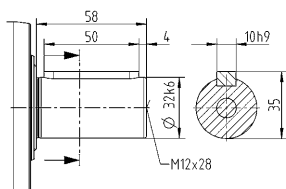
## 3-stage

up to 19 <sup>4)</sup> (E) <sup>5)</sup>  
clamping hub  
diameter

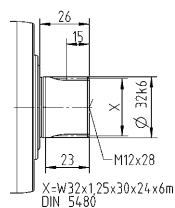


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

3) The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

<sup>5)</sup> Standard clamping hub diameter

# NPLK 045 MF 2- / 3-stage

|                                                                                                            |  |             |    | 2-stage         |                                       |                       | 3-stage |             |      |      |      |      |     |
|------------------------------------------------------------------------------------------------------------|--|-------------|----|-----------------|---------------------------------------|-----------------------|---------|-------------|------|------|------|------|-----|
| Ratio                                                                                                      |  | i           |    |                 | 5                                     | 8                     | 10      | 25          | 32   | 50   | 64   | 100  |     |
| Max. torque <sup>a) b) e)</sup>                                                                            |  | $T_{2a}$    |    | Nm              | 500                                   | 640                   | 640     | 700         | 640  | 700  | 640  | 640  |     |
|                                                                                                            |  |             |    | in.lb           | 4425                                  | 5665                  | 5665    | 6196        | 5665 | 6196 | 5665 | 5665 |     |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |  | $T_{2B}$    |    | Nm              | 399                                   | 400                   | 400     | 500         | 400  | 500  | 400  | 400  |     |
|                                                                                                            |  |             |    | in.lb           | 3531                                  | 3540                  | 3540    | 4425        | 3540 | 4425 | 3540 | 3540 |     |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |  | $T_{2Not}$  |    | Nm              | 1000                                  | 1000                  | 1000    | 1000        | 1000 | 1000 | 1000 | 1000 |     |
|                                                                                                            |  |             |    | in.lb           | 8851                                  | 8851                  | 8851    | 8851        | 8851 | 8851 | 8851 | 8851 |     |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2n}$ and 20 °C ambient temperature)                 |  | $n_{1N}$    |    | rpm             | 1600                                  | 1600                  | 1600    | 2000        | 2000 | 2000 | 2000 | 2000 |     |
| Max. input speed                                                                                           |  | $n_{1Max}$  |    | rpm             | 4000                                  | 4000                  | 4000    | 4500        | 4500 | 4500 | 4500 | 4500 |     |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |  | $T_{012}$   |    | Nm              | 8.7                                   | 8.7                   | 8.7     | 4.7         | 4.7  | 4.7  | 4.7  | 4.7  |     |
|                                                                                                            |  |             |    | in.lb           | 77                                    | 77                    | 77      | 42          | 42   | 42   | 42   | 42   |     |
| Max. backlash                                                                                              |  | $j_t$       |    | arcmin          | ≤ 11                                  |                       |         | ≤ 11        |      |      |      |      |     |
| Torsional rigidity <sup>b)</sup>                                                                           |  | $C_{t21}$   |    | Nm/arcmin       | 48                                    | 48                    | 48      | 54          | 54   | 54   | 54   | 54   |     |
|                                                                                                            |  |             |    | in.lb/arcmin    | 425                                   | 425                   | 425     | 478         | 478  | 478  | 478  | 478  |     |
| Max. axial force <sup>c)</sup>                                                                             |  | $F_{2AMax}$ |    | N               | 9870                                  |                       |         | 9870        |      |      |      |      |     |
|                                                                                                            |  |             |    | lb <sub>f</sub> | 2221                                  |                       |         | 2221        |      |      |      |      |     |
| Max. lateral force <sup>c)</sup>                                                                           |  | $F_{2QMax}$ |    | N               | 9900                                  |                       |         | 9900        |      |      |      |      |     |
|                                                                                                            |  |             |    | lb <sub>f</sub> | 2228                                  |                       |         | 2228        |      |      |      |      |     |
| Max. tilting moment                                                                                        |  | $M_{2KMax}$ |    | Nm              | 952                                   |                       |         | 952         |      |      |      |      |     |
|                                                                                                            |  |             |    | in.lb           | 8426                                  |                       |         | 8426        |      |      |      |      |     |
| Efficiency at full load                                                                                    |  | $\eta$      |    | %               | 95                                    |                       |         | 94          |      |      |      |      |     |
| Service life                                                                                               |  | $L_h$       |    | h               | > 20000                               |                       |         | > 20000     |      |      |      |      |     |
| Weight<br>(incl. standard adapter plate)                                                                   |  | $m$         |    | kg              | 24                                    |                       |         | 22          |      |      |      |      |     |
|                                                                                                            |  |             |    | lb <sub>m</sub> | 53                                    |                       |         | 49          |      |      |      |      |     |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |  | $L_{PA}$    |    | dB(A)           | ≤ 78                                  |                       |         | ≤ 74        |      |      |      |      |     |
| Max. permitted housing temperature                                                                         |  |             |    | °C              | +90                                   |                       |         | +90         |      |      |      |      |     |
|                                                                                                            |  |             |    | °F              | +194                                  |                       |         | +194        |      |      |      |      |     |
| Ambient temperature                                                                                        |  |             |    | °C              | 0 to +40                              |                       |         | 0 to +40    |      |      |      |      |     |
|                                                                                                            |  |             |    | °F              | +32 to +104                           |                       |         | +32 to +104 |      |      |      |      |     |
| Lubrication                                                                                                |  |             |    |                 | Lubricated for life                   |                       |         |             |      |      |      |      |     |
| Direction of rotation                                                                                      |  |             |    |                 | In- and output same direction         |                       |         |             |      |      |      |      |     |
| Protection class                                                                                           |  |             |    |                 | IP 64                                 |                       |         |             |      |      |      |      |     |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |  |             |    |                 | ELC-0300BA040.000-X                   |                       |         |             |      |      |      |      |     |
| Bore diameter of coupling<br>on the application side                                                       |  |             |    |                 | mm                                    | X = 020.000 - 045.000 |         |             |      |      |      |      |     |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             |  | H           | 28 | $J_1$           | kgcm <sup>2</sup>                     | –                     | –       | –           | 6.7  | 6.7  | 6.7  | 6.7  | 6.7 |
|                                                                                                            |  |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –                     | –       | –           | 5.9  | 5.9  | 5.9  | 5.9  | 5.9 |
|                                                                                                            |  | K           | 38 | $J_1$           | kgcm <sup>2</sup>                     | 18                    | 18      | 18          | –    | –    | –    | –    | –   |
|                                                                                                            |  |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 16                    | 16      | 16          | –    | –    | –    | –    | –   |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

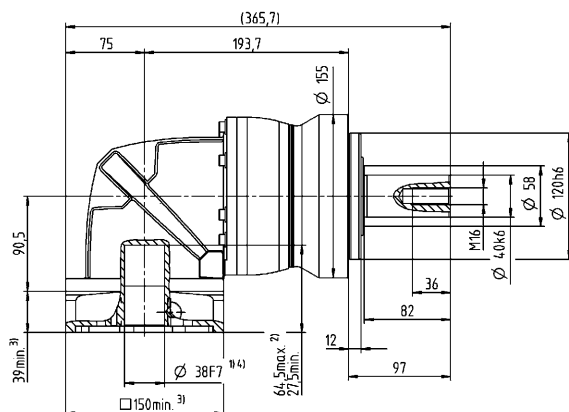
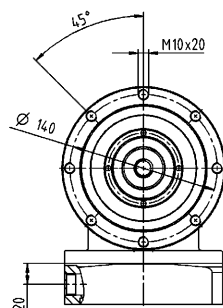
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft



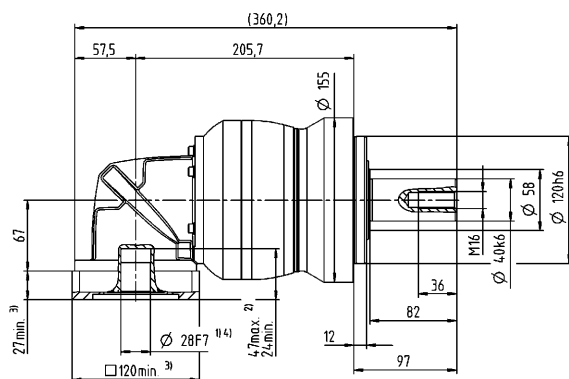
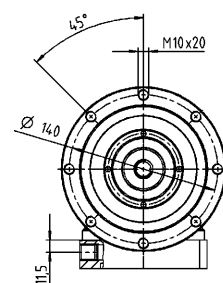
## 2-stage

up to 38<sup>4)</sup> (K)<sup>5)</sup>  
clamping hub  
diameter



## 3-stage

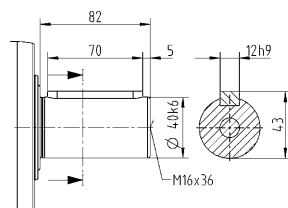
up to 28<sup>4)</sup> (H)<sup>5)</sup>  
clamping hub  
diameter



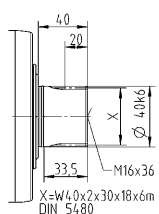
Motor shaft diameter [mm]

### Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPSK 015 MF 2-stage

|                                                                                                            |             |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | Nm              | 33                                    | 44   | 55   | 64   | 56   | 56   |
|                                                                                                            |             | in.lb           | 292                                   | 389  | 487  | 566  | 496  | 496  |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | Nm              | 16                                    | 21   | 27   | 37   | 35   | 35   |
|                                                                                                            |             | in.lb           | 142                                   | 186  | 239  | 327  | 310  | 310  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 41                                    | 55   | 69   | 80   | 80   | 80   |
|                                                                                                            |             | in.lb           | 363                                   | 487  | 611  | 708  | 708  | 708  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 2900                                  | 3100 | 3300 | 3300 | 3300 | 3300 |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$   | Nm              | 1.2                                   | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  |
|                                                                                                            |             | in.lb           | 11                                    | 11   | 11   | 11   | 11   | 11   |
| Max. backlash                                                                                              | $j_t$       | arcmin          | ≤ 15                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 2.4                                   | 2.4  | 2.4  | 2.4  | 2.4  | 2.4  |
|                                                                                                            |             | in.lb/arcmin    | 21                                    | 21   | 21   | 21   | 21   | 21   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 2400                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 540                                   |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | N               | 2800                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 630                                   |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 152                                   |      |      |      |      |      |
|                                                                                                            |             | in.lb           | 1345                                  |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 2.2                                   |      |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 4.9                                   |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | dB(A)           | ≤ 70                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |             | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |             | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |             | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |             |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 | ELC-0060BA016.000-X                   |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |             | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C 14        | $J_1$           | kgcm <sup>2</sup>                     | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 |
|                                                                                                            |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

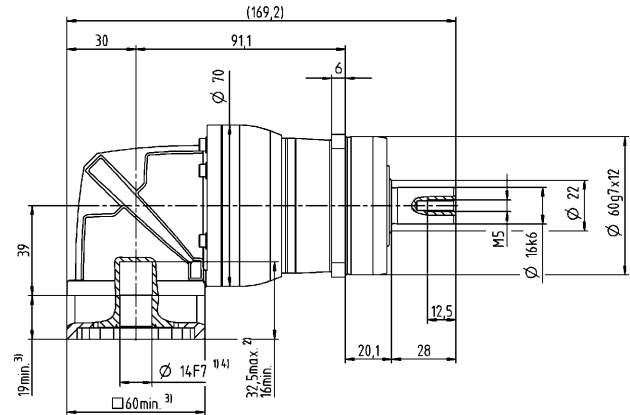
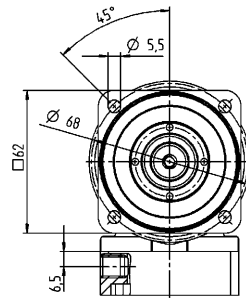
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

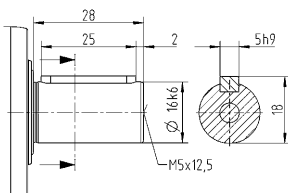
## 2-stage

up to 14 <sup>4)</sup> (C) <sup>5)</sup>  
clamping hub  
diameter

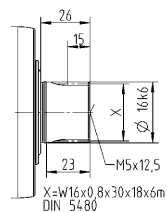


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

3) The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated

5) Standard clamping hub diameter

# NPSK 015 MF 3-stage

|                                                                                                            |              |                 | 3-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 12                                    | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 42                                    | 51   | 56   | 56   | 64   | 56   | 51   | 56   | 64   | 56   | 64   | 56   | 64   | 56   |
|                                                                                                            |              | in.lb           | 372                                   | 451  | 496  | 496  | 566  | 496  | 451  | 496  | 566  | 496  | 566  | 496  | 566  | 496  |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 20                                    | 25   | 27   | 34   | 40   | 35   | 31   | 35   | 40   | 35   | 40   | 35   | 40   | 35   |
|                                                                                                            |              | in.lb           | 177                                   | 221  | 239  | 301  | 354  | 310  | 274  | 310  | 354  | 310  | 354  | 310  | 354  | 310  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 52                                    | 65   | 70   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   |
|                                                                                                            |              | in.lb           | 460                                   | 575  | 620  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 3800                                  | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$    | Nm              | 0.52                                  | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 |
|                                                                                                            |              | in.lb           | 4.6                                   | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 12                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 3                                     | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    |
|                                                                                                            |              | in.lb/arcmin    | 27                                    | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 2400                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 540                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 2800                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 630                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$  | Nm              | 152                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 1345                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 94                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 2.3                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 5.1                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 68                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | 0 to +40                              |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +32 to +104                           |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA016.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | B 11         | $J_t$           | kgcm <sup>2</sup>                     | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
|                                                                                                            |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

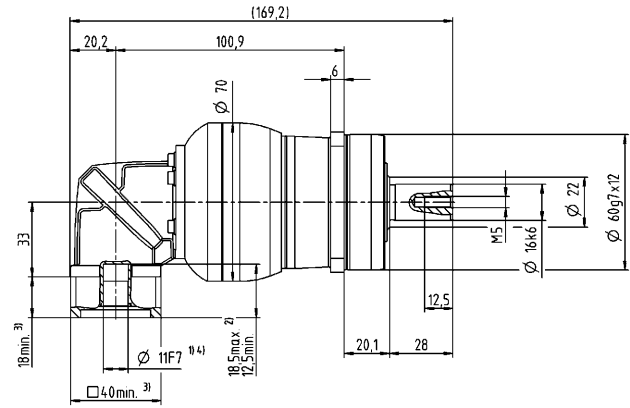
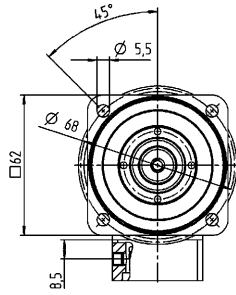
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

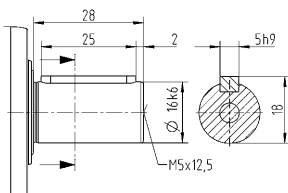
3-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter

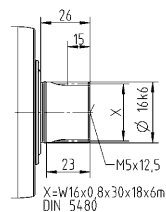


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPSK 025 MF 2-stage

|                                                                                                            |             |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | Nm              | 60                                    | 80   | 100  | 140  | 144  | 144  |
|                                                                                                            |             | in.lb           | 531                                   | 708  | 885  | 1239 | 1275 | 1275 |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | Nm              | 35                                    | 47   | 58   | 82   | 90   | 90   |
|                                                                                                            |             | in.lb           | 310                                   | 416  | 513  | 726  | 797  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 90                                    | 120  | 150  | 190  | 190  | 190  |
|                                                                                                            |             | in.lb           | 797                                   | 1062 | 1328 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 2700                                  | 2900 | 3000 | 3000 | 3000 | 3000 |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$   | Nm              | 2.4                                   | 2.4  | 2.4  | 2.4  | 2.4  | 2.4  |
|                                                                                                            |             | in.lb           | 21                                    | 21   | 21   | 21   | 21   | 21   |
| Max. backlash                                                                                              | $j_t$       | arcmin          | ≤ 15                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 6.2                                   | 6.2  | 6.2  | 6.2  | 6.2  | 6.2  |
|                                                                                                            |             | in.lb/arcmin    | 55                                    | 55   | 55   | 55   | 55   | 55   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 3350                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 754                                   |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | N               | 4200                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 945                                   |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 236                                   |      |      |      |      |      |
|                                                                                                            |             | in.lb           | 2089                                  |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 4.7                                   |      |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 10                                    |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | dB(A)           | ≤ 70                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |             | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |             | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |             | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |             |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 | ELC-0060BA022.000-X                   |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |             | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E 19        | $J_1$           | kgcm <sup>2</sup>                     | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  |
|                                                                                                            |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

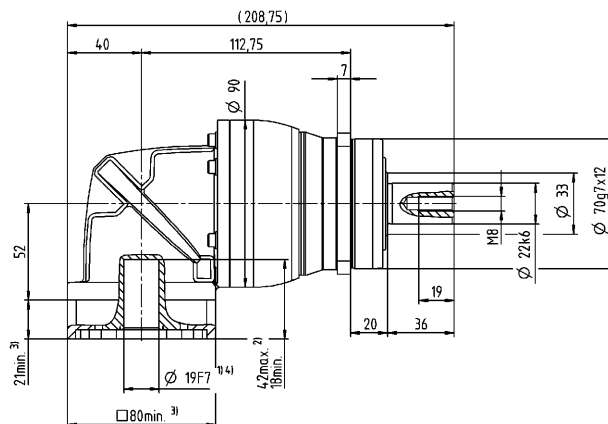
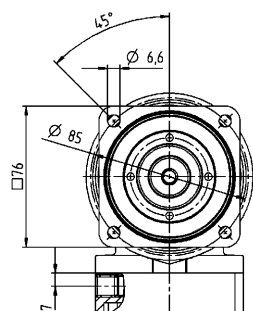
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

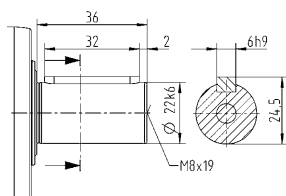
## 2-stage

up to 19 <sup>4)</sup> (E) <sup>5)</sup>  
clamping hub  
diameter

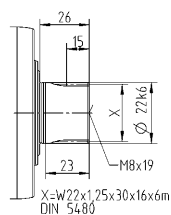


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated

<sup>5)</sup> Standard clamping hub diameter

# NPSK 025 MF 3-stage

|                                                                                                            |             |                |       | 3-stage                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|----------------|-------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                |       | 9                             | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | $Nm$           |       | 99                            | 128  | 128  | 152  | 152  | 160  | 152  | 128  | 152  | 160  | 152  | 160  | 144  | 160  | 144  |
|                                                                                                            |             | $in.lb$        |       | 876                           | 1133 | 1133 | 1345 | 1345 | 1416 | 1345 | 1133 | 1345 | 1416 | 1345 | 1416 | 1275 | 1416 | 1275 |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | $Nm$           |       | 48                            | 65   | 80   | 86   | 95   | 100  | 95   | 80   | 95   | 100  | 95   | 100  | 90   | 100  | 90   |
|                                                                                                            |             | $in.lb$        |       | 425                           | 575  | 708  | 761  | 841  | 885  | 841  | 708  | 841  | 885  | 841  | 885  | 797  | 885  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | $Nm$           |       | 124                           | 166  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  |
|                                                                                                            |             | $in.lb$        |       | 1097                          | 1469 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | $rpm$          |       | 2900                          | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 |
| Max. input speed                                                                                           | $n_{1Max}$  | $rpm$          |       | 5000                          | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$   | $Nm$           |       | 0.97                          | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
|                                                                                                            |             | $in.lb$        |       | 8.6                           | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  |
| Max. backlash                                                                                              | $j_t$       | $arcmin$       |       | ≤ 13                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | $Nm/arcmin$    |       | 8.4                           | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  |
|                                                                                                            |             | $in.lb/arcmin$ |       | 74                            | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | $N$            |       | 3350                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $lb_f$         |       | 754                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | $N$            |       | 4200                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $lb_f$         |       | 945                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | $Nm$           |       | 236                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $in.lb$        |       | 2089                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %              |       | 94                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | $h$            |       | > 20000                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | $kg$           |       | 4.3                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $lb_m$         |       | 9.5                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | $dB(A)$        |       | ≤ 70                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C             |       | +90                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | °F             |       | +194                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature<br>(relates to the drive)                                                              |             | °C             |       | 0 to +40                      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | °F             |       | +32 to +104                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |             |                |       | Lubricated for life           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                |       | In- and output same direction |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |             |                |       | IP 64                         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                |       | ELC-0060BA022.000-X           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             | $mm$           |       | X = 012.000 - 032.000         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C           | 14             | $J_i$ | $kgcm^2$                      | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 |
|                                                                                                            |             |                |       | $10^{-3} in.lb.s^2$           | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

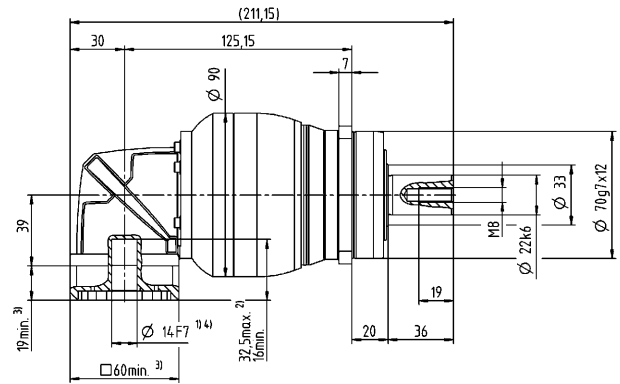
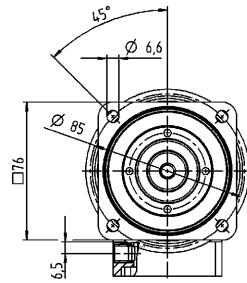
<sup>e)</sup> Valid for: Smooth shaft



Motor shaft diameter [mm]

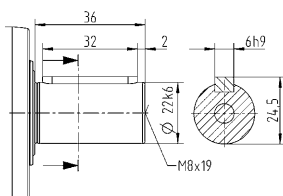
3-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter

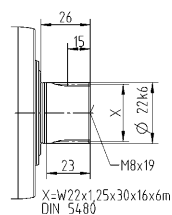


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPSK 035 MF 2-stage

|                                                                                                            |              |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 150                                   | 200  | 250  | 350  | 352  | 352  |
|                                                                                                            |              | in.lb           | 1328                                  | 1770 | 2213 | 3098 | 3115 | 3115 |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 93                                    | 124  | 155  | 217  | 220  | 220  |
|                                                                                                            |              | in.lb           | 823                                   | 1097 | 1372 | 1921 | 1947 | 1947 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 238                                   | 318  | 397  | 500  | 500  | 500  |
|                                                                                                            |              | in.lb           | 2106                                  | 2815 | 3514 | 4425 | 4425 | 4425 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 2000                                  | 2000 | 2000 | 2000 | 2000 | 2000 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 4500                                  | 4500 | 4500 | 4500 | 4500 | 4500 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$    | Nm              | 5.8                                   | 5.8  | 5.8  | 5.8  | 5.8  | 5.8  |
|                                                                                                            |              | in.lb           | 51                                    | 51   | 51   | 51   | 51   | 51   |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 13                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 16                                    | 16   | 16   | 16   | 16   | 16   |
|                                                                                                            |              | in.lb/arcmin    | 142                                   | 142  | 142  | 142  | 142  | 142  |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 5650                                  |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 1271                                  |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 6600                                  |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 1485                                  |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ | Nm              | 487                                   |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 4310                                  |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 10                                    |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 22                                    |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 74                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |              | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0150BA032.000-X                   |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |              | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | H 28         | $J_1$           | kgcm <sup>2</sup>                     | 5.2  | 5.2  | 5.2  | 5.2  | 5.2  |
|                                                                                                            |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

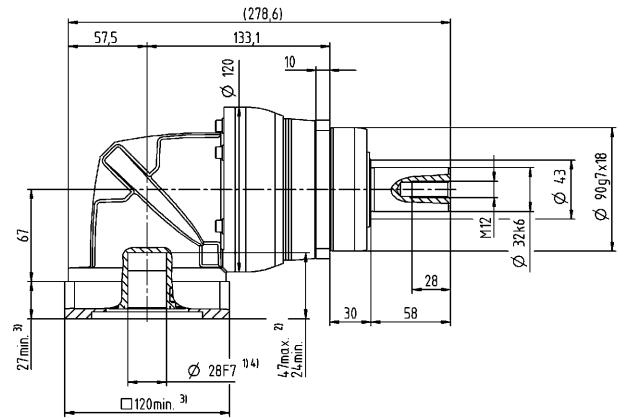
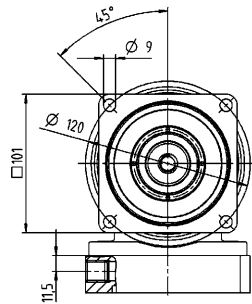
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

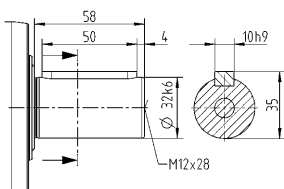
2-stage

up to 28<sup>4)</sup> (H)<sup>5)</sup>  
clamping hub  
diameter

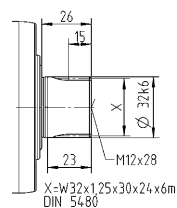


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPSK 035 MF 3-stage

|                                                                                                            |   |              |                 | 3-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|--------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i            |                 | 9                                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     | Nm              | 180                                   | 240  | 300  | 320  | 400  | 400  | 408  | 320  | 408  | 400  | 408  | 400  | 352  | 400  | 352  |
|                                                                                                            |   |              | in.lb           | 1593                                  | 2124 | 2655 | 2832 | 3540 | 3540 | 3611 | 2832 | 3611 | 3540 | 3611 | 3540 | 3115 | 3540 | 3115 |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     | Nm              | 105                                   | 141  | 176  | 188  | 235  | 250  | 255  | 200  | 255  | 250  | 255  | 250  | 220  | 250  | 220  |
|                                                                                                            |   |              | in.lb           | 929                                   | 1248 | 1558 | 1664 | 2080 | 2213 | 2257 | 1770 | 2257 | 2213 | 2257 | 2213 | 1947 | 2213 | 1947 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   | Nm              | 270                                   | 361  | 451  | 481  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  |
|                                                                                                            |   |              | in.lb           | 2390                                  | 3195 | 3992 | 4257 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 |   | $n_{1N}$     | rpm             | 2700                                  | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| Max. input speed                                                                                           |   | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           |   | $T_{012}$    | Nm              | 2.3                                   | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  |
|                                                                                                            |   |              | in.lb           | 20                                    | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   |
| Max. backlash                                                                                              |   | $j_t$        | arcmin          | ≤ 13                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    | Nm/arcmin       | 19                                    | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   |
|                                                                                                            |   |              | in.lb/arcmin    | 168                                   | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  |
| Max. axial force <sup>c)</sup>                                                                             |   | $F_{2AMax}$  | N               | 5650                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 1271                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           |   | $F_{2QMMax}$ | N               | 6600                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub> | 1485                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        |   | $M_{2KMax}$  | Nm              | 487                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | in.lb           | 4310                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$       | %               | 94                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$        | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          | kg              | 10                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>m</sub> | 22                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     | dB(A)           | ≤ 70                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |              | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |              | °C              | 0 to +40                              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F              | +32 to +104                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |              |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |              |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |              |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |   |              |                 | ELC-0150BA032.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |   |              | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E | 19           | $J_i$           | kgcm <sup>2</sup>                     | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  |
|                                                                                                            |   |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

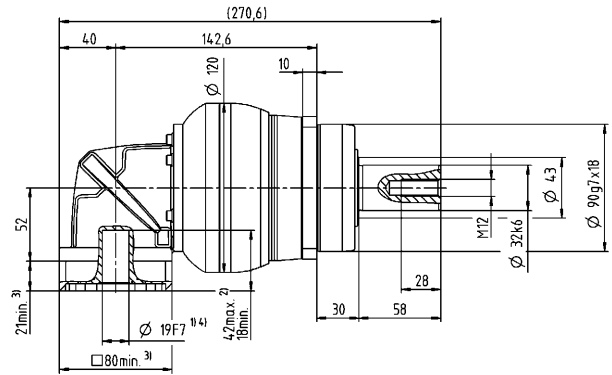
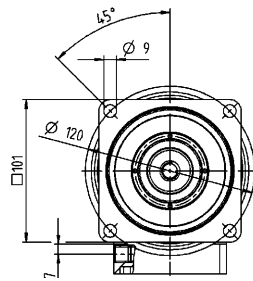
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

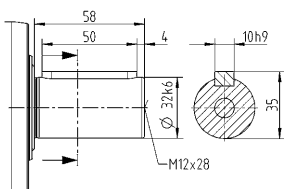
3-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter

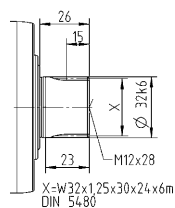


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPSK 045 MF 2- / 3-stage

|                                                                                                            |              |    |                 | 2-stage                               |      |      | 3-stage     |      |      |      |      |     |
|------------------------------------------------------------------------------------------------------------|--------------|----|-----------------|---------------------------------------|------|------|-------------|------|------|------|------|-----|
| Ratio                                                                                                      | i            |    |                 | 5                                     | 8    | 10   | 25          | 32   | 50   | 64   | 100  |     |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     |    | Nm              | 500                                   | 640  | 640  | 700         | 640  | 700  | 640  | 640  |     |
|                                                                                                            |              |    | in.lb           | 4425                                  | 5665 | 5665 | 6196        | 5665 | 6196 | 5665 | 5665 |     |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     |    | Nm              | 399                                   | 400  | 400  | 500         | 400  | 500  | 400  | 400  |     |
|                                                                                                            |              |    | in.lb           | 3531                                  | 3540 | 3540 | 4425        | 3540 | 4425 | 3540 | 3540 |     |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   |    | Nm              | 1000                                  | 1000 | 1000 | 1000        | 1000 | 1000 | 1000 | 1000 |     |
|                                                                                                            |              |    | in.lb           | 8851                                  | 8851 | 8851 | 8851        | 8851 | 8851 | 8851 | 8851 |     |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$     |    | rpm             | 1600                                  | 1600 | 1600 | 2000        | 2000 | 2000 | 2000 | 2000 |     |
| Max. input speed                                                                                           | $n_{1Max}$   |    | rpm             | 4000                                  | 4000 | 4000 | 4500        | 4500 | 4500 | 4500 | 4500 |     |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$    |    | Nm              | 8.7                                   | 8.7  | 8.7  | 4.7         | 4.7  | 4.7  | 4.7  | 4.7  |     |
|                                                                                                            |              |    | in.lb           | 77                                    | 77   | 77   | 42          | 42   | 42   | 42   | 42   |     |
| Max. backlash                                                                                              | $j_t$        |    | arcmin          | ≤ 11                                  |      |      | ≤ 11        |      |      |      |      |     |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    |    | Nm/arcmin       | 48                                    | 48   | 48   | 54          | 54   | 54   | 54   | 54   |     |
|                                                                                                            |              |    | in.lb/arcmin    | 425                                   | 425  | 425  | 478         | 478  | 478  | 478  | 478  |     |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  |    | N               | 9870                                  |      |      | 9870        |      |      |      |      |     |
|                                                                                                            |              |    | lb <sub>f</sub> | 2221                                  |      |      | 2221        |      |      |      |      |     |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ |    | N               | 9900                                  |      |      | 9900        |      |      |      |      |     |
|                                                                                                            |              |    | lb <sub>f</sub> | 2228                                  |      |      | 2228        |      |      |      |      |     |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ |    | Nm              | 952                                   |      |      | 952         |      |      |      |      |     |
|                                                                                                            |              |    | in.lb           | 8426                                  |      |      | 8426        |      |      |      |      |     |
| Efficiency at full load                                                                                    | $\eta$       |    | %               | 95                                    |      |      | 94          |      |      |      |      |     |
| Service life                                                                                               | $L_h$        |    | h               | > 20000                               |      |      | > 20000     |      |      |      |      |     |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          |    | kg              | 23                                    |      |      | 21          |      |      |      |      |     |
|                                                                                                            |              |    | lb <sub>m</sub> | 51                                    |      |      | 46          |      |      |      |      |     |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     |    | dB(A)           | ≤ 78                                  |      |      | ≤ 74        |      |      |      |      |     |
| Max. permitted housing temperature                                                                         |              |    | °C              | +90                                   |      |      | +90         |      |      |      |      |     |
|                                                                                                            |              |    | °F              | +194                                  |      |      | +194        |      |      |      |      |     |
| Ambient temperature                                                                                        |              |    | °C              | 0 to +40                              |      |      | 0 to +40    |      |      |      |      |     |
|                                                                                                            |              |    | °F              | +32 to +104                           |      |      | +32 to +104 |      |      |      |      |     |
| Lubrication                                                                                                |              |    |                 | Lubricated for life                   |      |      |             |      |      |      |      |     |
| Direction of rotation                                                                                      |              |    |                 | In- and output same direction         |      |      |             |      |      |      |      |     |
| Protection class                                                                                           |              |    |                 | IP 64                                 |      |      |             |      |      |      |      |     |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |    |                 | ELC-0300BA040.000-X                   |      |      |             |      |      |      |      |     |
| Bore diameter of coupling<br>on the application side                                                       |              |    | mm              | X = 020.000 - 045.000                 |      |      |             |      |      |      |      |     |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | H            | 28 | $J_1$           | kgcm <sup>2</sup>                     | –    | –    | –           | 6.7  | 6.7  | 6.7  | 6.7  | 6.7 |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –    | –           | 5.9  | 5.9  | 5.9  | 5.9  | 5.9 |
|                                                                                                            | K            | 38 | $J_1$           | kgcm <sup>2</sup>                     | 18   | 18   | 18          | –    | –    | –    | –    | –   |
|                                                                                                            |              |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 16   | 16   | 16          | –    | –    | –    | –    | –   |

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Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft



# NPTK 005 MF 2- / 3-stage

|                                                                                                         |   |             |                 | 2-stage                               |      |      |      |      | 3-stage     |      |      |      |      |      |      |      |      |      |
|---------------------------------------------------------------------------------------------------------|---|-------------|-----------------|---------------------------------------|------|------|------|------|-------------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                   |   | i           |                 | 4                                     | 5    | 7    | 8    | 10   | 16          | 20   | 25   | 28   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b)</sup>                                                                            |   | $T_{2a}$    | Nm              | 14                                    | 17   | 22   | 21   | 21   | 18          | 18   | 22   | 18   | 22   | 18   | 22   | 21   | 22   | 21   |
|                                                                                                         |   |             | in.lb           | 124                                   | 150  | 195  | 186  | 186  | 159         | 159  | 195  | 159  | 195  | 159  | 195  | 186  | 195  | 186  |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 |   | $T_{2B}$    | Nm              | 6.8                                   | 8.5  | 12   | 13   | 13   | 11          | 11   | 13   | 11   | 13   | 11   | 13   | 13   | 13   | 13   |
|                                                                                                         |   |             | in.lb           | 60                                    | 75   | 106  | 115  | 115  | 97          | 97   | 115  | 97   | 115  | 97   | 115  | 115  | 115  | 115  |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$  | Nm              | 17                                    | 21   | 26   | 26   | 26   | 26          | 26   | 26   | 26   | 26   | 26   | 26   | 26   | 26   | 26   |
|                                                                                                         |   |             | in.lb           | 150                                   | 186  | 230  | 230  | 230  | 230         | 230  | 230  | 230  | 230  | 230  | 230  | 230  | 230  | 230  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)              |   | $n_{1N}$    | rpm             | 3800                                  | 3800 | 3800 | 3800 | 3800 | 3800        | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 |
| Max. input speed                                                                                        |   | $n_{1Max}$  | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000        | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)        |   | $T_{012}$   | Nm              | 0.26                                  | 0.26 | 0.26 | 0.26 | 0.26 | 0.22        | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 |
|                                                                                                         |   |             | in.lb           | 2.3                                   | 2.3  | 2.3  | 2.3  | 2.3  | 1.9         | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  |
| Max. backlash                                                                                           |   | $j_t$       | arcmin          | ≤ 15                                  |      |      |      |      | ≤ 15        |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                        |   | $C_{t21}$   | Nm/arcmin       | 0.9                                   | 0.9  | 0.9  | 0.9  | 0.9  | 1.2         | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  |
|                                                                                                         |   |             | in.lb/arcmin    | 8                                     | 8    | 8    | 8    | 8    | 11          | 11   | 11   | 11   | 11   | 11   | 11   | 11   | 11   | 11   |
| Max. axial force <sup>c)</sup>                                                                          |   | $F_{2AMax}$ | N               | 600                                   |      |      |      |      | 600         |      |      |      |      |      |      |      |      |      |
|                                                                                                         |   |             | lb <sub>f</sub> | 135                                   |      |      |      |      | 135         |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                     |   | $M_{2KMax}$ | Nm              | 17                                    |      |      |      |      | 17          |      |      |      |      |      |      |      |      |      |
|                                                                                                         |   |             | in.lb           | 150                                   |      |      |      |      | 150         |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                 |   | $\eta$      | %               | 95                                    |      |      |      |      | 94          |      |      |      |      |      |      |      |      |      |
| Service life                                                                                            |   | $L_h$       | h               | > 20000                               |      |      |      |      | > 20000     |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                |   | $m$         | kg              | 1.3                                   |      |      |      |      | 1.7         |      |      |      |      |      |      |      |      |      |
|                                                                                                         |   |             | lb <sub>m</sub> | 2.9                                   |      |      |      |      | 3.8         |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) |   | $L_{PA}$    | dB(A)           | ≤ 68                                  |      |      |      |      | ≤ 68        |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                      |   |             | °C              | +90                                   |      |      |      |      | +90         |      |      |      |      |      |      |      |      |      |
|                                                                                                         |   |             | °F              | +194                                  |      |      |      |      | +194        |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                     |   |             | °C              | 0 to +40                              |      |      |      |      | 0 to +40    |      |      |      |      |      |      |      |      |      |
|                                                                                                         |   |             | °F              | +32 to +104                           |      |      |      |      | +32 to +104 |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                             |   |             |                 | Lubricated for life                   |      |      |      |      |             |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                   |   |             |                 | In- and output same direction         |      |      |      |      |             |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                        |   |             |                 | IP 64                                 |      |      |      |      |             |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          | B | 11          | $J_i$           | kgcm <sup>2</sup>                     | 0.11 | 0.11 | 0.11 | 0.11 | 0.11        | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
|                                                                                                         |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.1  | 0.1  | 0.1  | 0.1  | 0.1         | 0.1  | 0.1  | 0.1  | 0.1  | 0.1  | 0.1  | 0.1  | 0.1  | 0.1  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor M<sub>1KMot</sub> – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

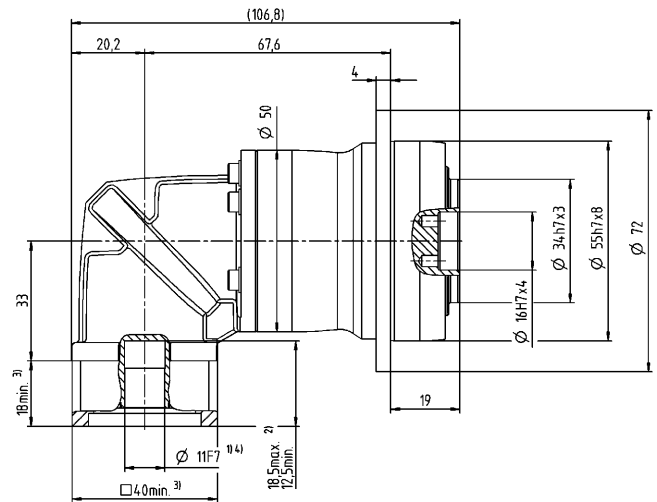
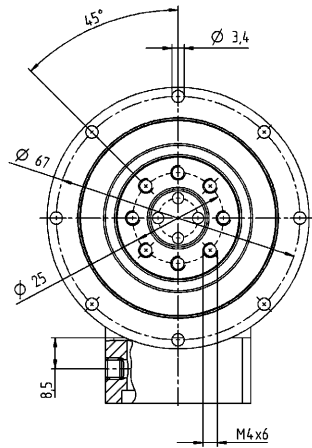
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures



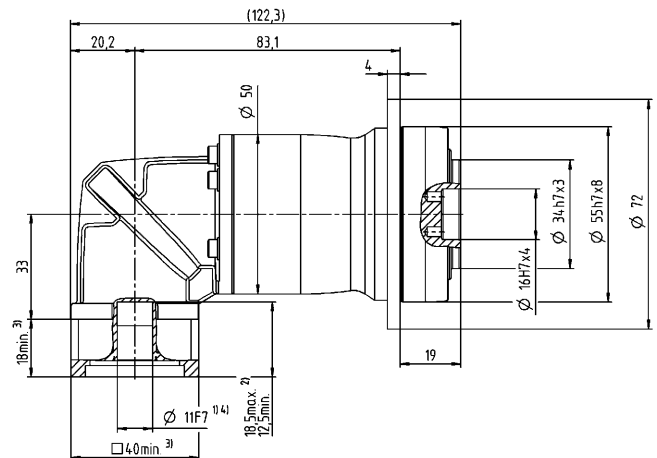
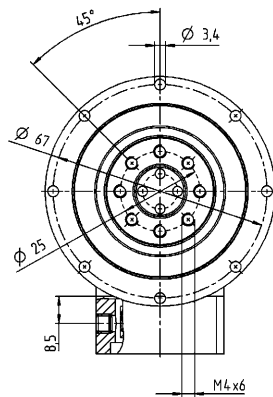
## 2-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



## 3-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPTK 015 MF 2-stage

|                                                                                                         |  |             |    | 2-stage         |                                       |      |      |      |      |      |      |
|---------------------------------------------------------------------------------------------------------|--|-------------|----|-----------------|---------------------------------------|------|------|------|------|------|------|
| Ratio                                                                                                   |  | i           |    |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |      |
| Max. torque <sup>a) b)</sup>                                                                            |  | $T_{2a}$    |    | Nm              | 33                                    | 44   | 55   | 60   | 56   | 56   |      |
|                                                                                                         |  |             |    | in.lb           | 292                                   | 389  | 487  | 531  | 496  | 496  |      |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 |  | $T_{2B}$    |    | Nm              | 16                                    | 21   | 27   | 37   | 35   | 35   |      |
|                                                                                                         |  |             |    | in.lb           | 142                                   | 186  | 239  | 327  | 310  | 310  |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) |  | $T_{2Not}$  |    | Nm              | 41                                    | 55   | 69   | 75   | 75   | 75   |      |
|                                                                                                         |  |             |    | in.lb           | 363                                   | 487  | 611  | 664  | 664  | 664  |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)              |  | $n_{1N}$    |    | rpm             | 3300                                  | 3300 | 3300 | 3300 | 3300 | 3300 |      |
| Max. input speed                                                                                        |  | $n_{1Max}$  |    | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)         |  | $T_{012}$   |    | Nm              | 0.55                                  | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 |      |
|                                                                                                         |  |             |    | in.lb           | 4.9                                   | 4.9  | 4.9  | 4.9  | 4.9  | 4.9  |      |
| Max. backlash                                                                                           |  | $j_t$       |    | arcmin          | ≤ 15                                  |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                        |  | $C_{t21}$   |    | Nm/arcmin       | 2.4                                   | 2.4  | 2.4  | 2.4  | 2.4  | 2.4  |      |
|                                                                                                         |  |             |    | in.lb/arcmin    | 21                                    | 21   | 21   | 21   | 21   | 21   |      |
| Max. axial force <sup>c)</sup>                                                                          |  | $F_{2AMax}$ |    | N               | 1380                                  |      |      |      |      |      |      |
|                                                                                                         |  |             |    | lb <sub>f</sub> | 311                                   |      |      |      |      |      |      |
| Max. tilting moment                                                                                     |  | $M_{2KMax}$ |    | Nm              | 42                                    |      |      |      |      |      |      |
|                                                                                                         |  |             |    | in.lb           | 372                                   |      |      |      |      |      |      |
| Efficiency at full load                                                                                 |  | $\eta$      |    | %               | 95                                    |      |      |      |      |      |      |
| Service life                                                                                            |  | $L_h$       |    | h               | > 20000                               |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                |  | $m$         |    | kg              | 2.4                                   |      |      |      |      |      |      |
|                                                                                                         |  |             |    | lb <sub>m</sub> | 5.3                                   |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) |  | $L_{PA}$    |    | dB(A)           | ≤ 70                                  |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                      |  |             |    | °C              | +90                                   |      |      |      |      |      |      |
|                                                                                                         |  |             |    | °F              | +194                                  |      |      |      |      |      |      |
| Ambient temperature                                                                                     |  |             |    | °C              | 0 to +40                              |      |      |      |      |      |      |
|                                                                                                         |  |             |    | °F              | +32 to +104                           |      |      |      |      |      |      |
| Lubrication                                                                                             |  |             |    |                 | Lubricated for life                   |      |      |      |      |      |      |
| Direction of rotation                                                                                   |  |             |    |                 | In- and output same direction         |      |      |      |      |      |      |
| Protection class                                                                                        |  |             |    |                 | IP 64                                 |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          |  | C           | 14 | $J_1$           | kgcm <sup>2</sup>                     | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 |
|                                                                                                         |  |             |    |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.3  | 0.3  | 0.3  | 0.3  | 0.3  | 0.3  |

Please use our sizing software cymex<sup>®</sup> for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

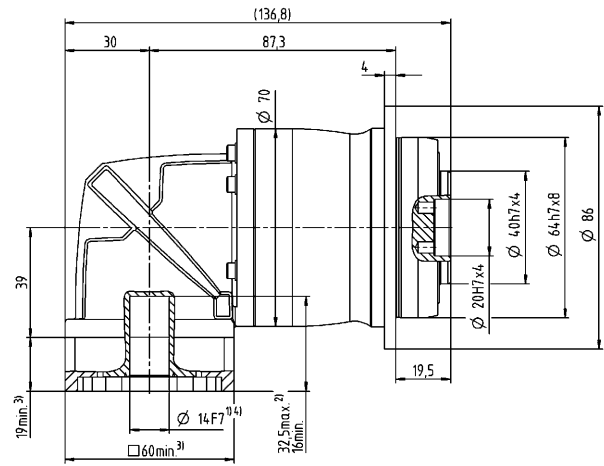
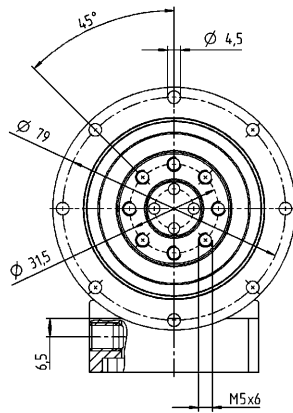
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

Motor shaft diameter [mm]

2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPTK 015 MF 3-stage

|                                                                                                                      |             |                 | 3-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------------------------------------------------------------------------------------------------------------|-------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                                | i           |                 | 12                                    | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b)</sup>                                                                                         | $T_{2a}$    | Nm              | 42                                    | 51   | 56   | 56   | 60   | 56   | 51   | 56   | 60   | 56   | 60   | 56   | 60   | 56   |
|                                                                                                                      |             | in.lb           | 372                                   | 451  | 496  | 496  | 531  | 496  | 451  | 496  | 531  | 496  | 531  | 496  | 531  | 496  |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                              | $T_{2B}$    | Nm              | 20                                    | 25   | 27   | 34   | 40   | 35   | 31   | 35   | 40   | 35   | 40   | 35   | 40   | 35   |
|                                                                                                                      |             | in.lb           | 177                                   | 221  | 239  | 301  | 354  | 310  | 274  | 310  | 354  | 310  | 354  | 310  | 354  | 310  |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox)              | $T_{2Not}$  | Nm              | 52                                    | 65   | 70   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   | 75   |
|                                                                                                                      |             | in.lb           | 460                                   | 575  | 620  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  | 664  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                           | $n_{1N}$    | rpm             | 3800                                  | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 |
| Max. input speed                                                                                                     | $n_{1Max}$  | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)                       | $T_{012}$   | Nm              | 0.26                                  | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 |
|                                                                                                                      |             | in.lb           | 2.3                                   | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  |
| Max. backlash                                                                                                        | $j_t$       | arcmin          | ≤ 12                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                                     | $C_{t21}$   | Nm/arcmin       | 3                                     | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    |
|                                                                                                                      |             | in.lb/arcmin    | 27                                    | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   |
| Max. axial force <sup>c)</sup>                                                                                       | $F_{2AMax}$ | N               | 1380                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                                      |             | lb <sub>f</sub> | 311                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                                  | $M_{2KMax}$ | Nm              | 42                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                                      |             | in.lb           | 372                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                              | $\eta$      | %               | 94                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                                         | $L_h$       | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                             | $m$         | kg              | 2.5                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                                      |             | lb <sub>m</sub> | 5.5                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> ) | $L_{PA}$    | dB(A)           | ≤ 68                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                                   |             | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                                      |             | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                                  |             | °C              | 0 to +40                              |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                                      |             | °F              | +32 to +104                           |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                          |             |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                                |             |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                                     |             |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                                       | B 11        | $J_1$           | kgcm <sup>2</sup>                     | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
|                                                                                                                      |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |

Please use our sizing software cymex<sup>®</sup> for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

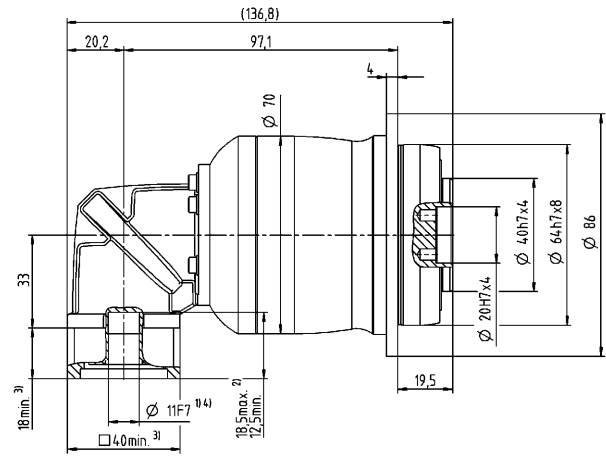
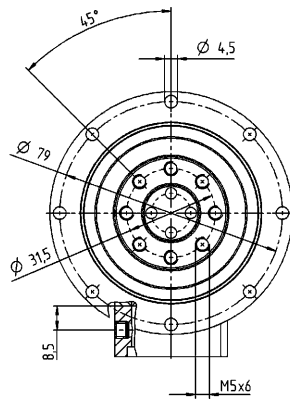
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

Motor shaft diameter [mm]

## 3-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPTK 025 MF 2-stage

|                                                                                                            |             |                 | 2-stage                       |                                       |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|-------------------------------|---------------------------------------|------|------|------|------|
| Ratio                                                                                                      | i           |                 | 3                             | 4                                     | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b)</sup>                                                                               | $T_{2a}$    | Nm              | 60                            | 80                                    | 100  | 140  | 144  | 144  |
|                                                                                                            |             | in.lb           | 531                           | 708                                   | 885  | 1239 | 1275 | 1275 |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                    | $T_{2B}$    | Nm              | 35                            | 47                                    | 58   | 82   | 90   | 90   |
|                                                                                                            |             | in.lb           | 310                           | 416                                   | 513  | 726  | 797  | 797  |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life<br>of the gearbox) | $T_{2Not}$  | Nm              | 90                            | 120                                   | 150  | 190  | 190  | 190  |
|                                                                                                            |             | in.lb           | 797                           | 1062                                  | 1328 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 3000                          | 3000                                  | 3000 | 3000 | 3000 | 3000 |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 5000                          | 5000                                  | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$   | Nm              | 1                             | 1                                     | 1    | 1    | 1    | 1    |
|                                                                                                            |             | in.lb           | 8.9                           | 8.9                                   | 8.9  | 8.9  | 8.9  | 8.9  |
| Max. backlash                                                                                              | $j_t$       | arcmin          | ≤ 15                          |                                       |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 6.2                           | 6.2                                   | 6.2  | 6.2  | 6.2  | 6.2  |
|                                                                                                            |             | in.lb/arcmin    | 55                            | 55                                    | 55   | 55   | 55   | 55   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 1900                          |                                       |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 428                           |                                       |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 79                            |                                       |      |      |      |      |
|                                                                                                            |             | in.lb           | 699                           |                                       |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 95                            |                                       |      |      |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                       |                                       |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 5.5                           |                                       |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 12                            |                                       |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed –<br>ratio-specific values available in cymex®) | $L_{PA}$    | dB(A)           | ≤ 70                          |                                       |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                           |                                       |      |      |      |      |
|                                                                                                            |             | °F              | +194                          |                                       |      |      |      |      |
| Ambient temperature                                                                                        |             | °C              | 0 to +40                      |                                       |      |      |      |      |
|                                                                                                            |             | °F              | +32 to +104                   |                                       |      |      |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life           |                                       |      |      |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction |                                       |      |      |      |      |
| Protection class                                                                                           |             |                 | IP 64                         |                                       |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E           | 19              | $J_1$                         | kgcm <sup>2</sup>                     | 1.3  | 1.3  | 1.3  | 1.3  |
|                                                                                                            |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.2  | 1.2  | 1.2  | 1.2  |

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Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

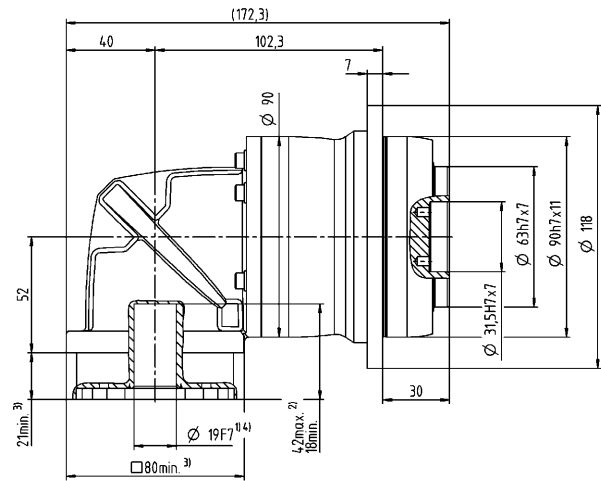
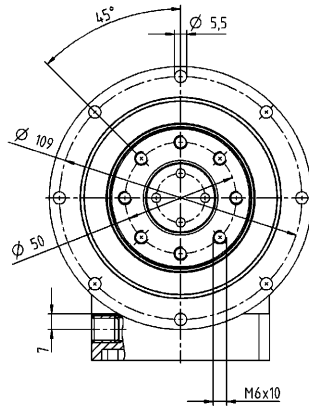
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

Motor shaft diameter [mm]

## 2-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPTK 025 MF 3-stage

|                                                                                                         |             |                 | 3-stage                       |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------------------------------------------------------------------------------------|-------------|-----------------|-------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                   | i           |                 | 9                             | 12                                    | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b)</sup>                                                                            | $T_{2a}$    | Nm              | 99                            | 128                                   | 128  | 152  | 152  | 160  | 152  | 128  | 152  | 160  | 152  | 160  | 144  | 160  | 144  |
|                                                                                                         |             | in.lb           | 876                           | 1133                                  | 1133 | 1345 | 1345 | 1416 | 1345 | 1133 | 1345 | 1416 | 1345 | 1416 | 1275 | 1416 | 1275 |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 | $T_{2B}$    | Nm              | 48                            | 65                                    | 80   | 86   | 95   | 100  | 95   | 80   | 95   | 100  | 95   | 100  | 90   | 100  | 90   |
|                                                                                                         |             | in.lb           | 425                           | 575                                   | 708  | 761  | 841  | 885  | 841  | 708  | 841  | 885  | 841  | 885  | 797  | 885  | 797  |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 124                           | 166                                   | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  |
|                                                                                                         |             | in.lb           | 1097                          | 1469                                  | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)              | $n_{1N}$    | rpm             | 3300                          | 3300                                  | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 |
| Max. input speed                                                                                        | $n_{1Max}$  | rpm             | 5000                          | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)          | $T_{012}$   | Nm              | 0.46                          | 0.46                                  | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 |
|                                                                                                         |             | in.lb           | 4.1                           | 4.1                                   | 4.1  | 4.1  | 4.1  | 4.1  | 4.1  | 4.1  | 4.1  | 4.1  | 4.1  | 4.1  | 4.1  | 4.1  | 4.1  |
| Max. backlash                                                                                           | $j_t$       | arcmin          | ≤ 13                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                        | $C_{t21}$   | Nm/arcmin       | 8.4                           | 8.4                                   | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  |
|                                                                                                         |             | in.lb/arcmin    | 74                            | 74                                    | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   |
| Max. axial force <sup>c)</sup>                                                                          | $F_{2AMax}$ | N               | 1900                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |             | lb <sub>f</sub> | 428                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                     | $M_{2KMax}$ | Nm              | 79                            |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |             | in.lb           | 699                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                 | $\eta$      | %               | 94                            |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                            | $L_h$       | h               | > 20000                       |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                | $m$         | kg              | 5.1                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |             | lb <sub>m</sub> | 11                            |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) | $L_{PA}$    | dB(A)           | ≤ 70                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                      |             | °C              | +90                           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |             | °F              | +194                          |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                     |             | °C              | 0 to +40                      |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |             | °F              | +32 to +104                   |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                             |             |                 | Lubricated for life           |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                   |             |                 | In- and output same direction |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                        |             |                 | IP 64                         |                                       |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          | C           | 14              | $J_1$                         | kgcm <sup>2</sup>                     | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 |
|                                                                                                         |             |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 |

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<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

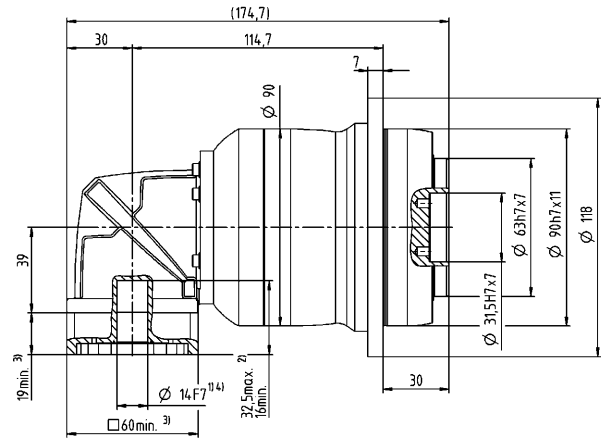
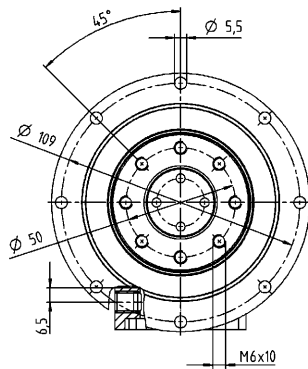
<sup>d)</sup> Please reduce input speed at higher ambient temperatures



Motor shaft diameter [mm]

3-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPTK 035 MF 2-stage

|                                                                                                         |             |    |       | 2-stage                               |                               |      |      |      |      |      |
|---------------------------------------------------------------------------------------------------------|-------------|----|-------|---------------------------------------|-------------------------------|------|------|------|------|------|
| Ratio                                                                                                   | i           |    |       |                                       | 3                             | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b)</sup>                                                                            | $T_{2a}$    |    |       | Nm                                    | 150                           | 200  | 250  | 350  | 352  | 352  |
|                                                                                                         |             |    |       | in.lb                                 | 1328                          | 1770 | 2213 | 3098 | 3115 | 3115 |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 | $T_{2B}$    |    |       | Nm                                    | 93                            | 124  | 155  | 217  | 220  | 220  |
|                                                                                                         |             |    |       | in.lb                                 | 823                           | 1097 | 1372 | 1921 | 1947 | 1947 |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  |    |       | Nm                                    | 238                           | 318  | 397  | 480  | 480  | 480  |
|                                                                                                         |             |    |       | in.lb                                 | 2106                          | 2815 | 3514 | 4248 | 4248 | 4248 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)              | $n_{1N}$    |    |       | rpm                                   | 2000                          | 2000 | 2000 | 2000 | 2000 | 2000 |
| Max. input speed                                                                                        | $n_{1Max}$  |    |       | rpm                                   | 4500                          | 4500 | 4500 | 4500 | 4500 | 4500 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)         | $T_{012}$   |    |       | Nm                                    | 4.2                           | 4.2  | 4.2  | 4.2  | 4.2  | 4.2  |
|                                                                                                         |             |    |       | in.lb                                 | 37                            | 37   | 37   | 37   | 37   | 37   |
| Max. backlash                                                                                           | $j_t$       |    |       | arcmin                                | ≤ 13                          |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                        | $C_{t21}$   |    |       | Nm/arcmin                             | 16                            | 16   | 16   | 16   | 16   | 16   |
|                                                                                                         |             |    |       | in.lb/arcmin                          | 142                           | 142  | 142  | 142  | 142  | 142  |
| Max. axial force <sup>c)</sup>                                                                          | $F_{2AMax}$ |    |       | N                                     | 3500                          |      |      |      |      |      |
|                                                                                                         |             |    |       | lb <sub>f</sub>                       | 788                           |      |      |      |      |      |
| Max. tilting moment                                                                                     | $M_{2KMax}$ |    |       | Nm                                    | 134                           |      |      |      |      |      |
|                                                                                                         |             |    |       | in.lb                                 | 1186                          |      |      |      |      |      |
| Efficiency at full load                                                                                 | $\eta$      |    |       | %                                     | 95                            |      |      |      |      |      |
| Service life                                                                                            | $L_h$       |    |       | h                                     | > 20000                       |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                | $m$         |    |       | kg                                    | 11                            |      |      |      |      |      |
|                                                                                                         |             |    |       | lb <sub>m</sub>                       | 24                            |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) | $L_{PA}$    |    |       | dB(A)                                 | ≤ 74                          |      |      |      |      |      |
| Max. permitted housing temperature                                                                      |             |    |       | °C                                    | +90                           |      |      |      |      |      |
|                                                                                                         |             |    |       | °F                                    | +194                          |      |      |      |      |      |
| Ambient temperature                                                                                     |             |    |       | °C                                    | 0 to +40                      |      |      |      |      |      |
|                                                                                                         |             |    |       | °F                                    | +32 to +104                   |      |      |      |      |      |
| Lubrication                                                                                             |             |    |       |                                       | Lubricated for life           |      |      |      |      |      |
| Direction of rotation                                                                                   |             |    |       |                                       | In- and output same direction |      |      |      |      |      |
| Protection class                                                                                        |             |    |       |                                       | IP 64                         |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          | H           | 28 | $J_1$ | kgcm <sup>2</sup>                     | 5.5                           | 5.5  | 5.5  | 5.5  | 5.5  | 5.5  |
|                                                                                                         |             |    |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 4.9                           | 4.9  | 4.9  | 4.9  | 4.9  | 4.9  |

Please use our sizing software cymex<sup>®</sup> for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

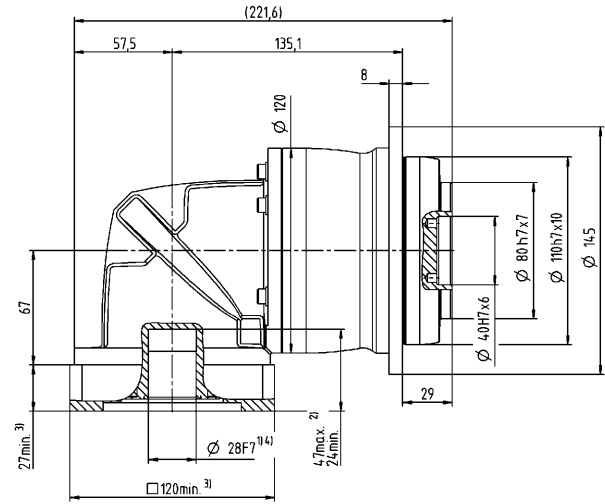
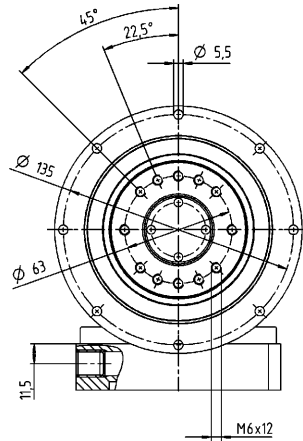
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

Motor shaft diameter [mm]

2-stage

up to 28<sup>4)</sup> (H)<sup>5)</sup>  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated  
by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPTK 035 MF 3-stage

|                                                                                                         |   |             |                 | 3-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------------------------------------------------------------------------------------|---|-------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                   |   | i           |                 | 9                                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b)</sup>                                                                            |   | $T_{2a}$    | Nm              | 180                                   | 240  | 300  | 320  | 365  | 365  | 365  | 320  | 365  | 365  | 365  | 365  | 352  | 365  | 352  |
|                                                                                                         |   |             | in.lb           | 1593                                  | 2124 | 2655 | 2832 | 3231 | 3231 | 3231 | 2832 | 3231 | 3231 | 3231 | 3231 | 3115 | 3231 | 3115 |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 |   | $T_{2B}$    | Nm              | 105                                   | 141  | 176  | 188  | 235  | 250  | 255  | 200  | 255  | 250  | 255  | 250  | 220  | 250  | 220  |
|                                                                                                         |   |             | in.lb           | 929                                   | 1248 | 1558 | 1664 | 2080 | 2213 | 2257 | 1770 | 2257 | 2213 | 2257 | 2213 | 1947 | 2213 | 1947 |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$  | Nm              | 270                                   | 361  | 451  | 480  | 480  | 480  | 480  | 480  | 480  | 480  | 480  | 480  | 480  | 480  | 480  |
|                                                                                                         |   |             | in.lb           | 2390                                  | 3195 | 3992 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)              |   | $n_{1N}$    | rpm             | 3000                                  | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| Max. input speed                                                                                        |   | $n_{1Max}$  | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)        |   | $T_{012}$   | Nm              | 1.2                                   | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  |
|                                                                                                         |   |             | in.lb           | 11                                    | 11   | 11   | 11   | 11   | 11   | 11   | 11   | 11   | 11   | 11   | 11   | 11   | 11   | 11   |
| Max. backlash                                                                                           |   | $j_t$       | arcmin          | ≤ 13                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                        |   | $C_{t21}$   | Nm/arcmin       | 19                                    | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   |
|                                                                                                         |   |             | in.lb/arcmin    | 168                                   | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  |
| Max. axial force <sup>c)</sup>                                                                          |   | $F_{2AMax}$ | N               | 3500                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |   |             | lb <sub>f</sub> | 788                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                     |   | $M_{2KMax}$ | Nm              | 134                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |   |             | in.lb           | 1186                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                 |   | $\eta$      | %               | 94                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                            |   | $L_h$       | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                |   | $m$         | kg              | 11                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |   |             | lb <sub>m</sub> | 24                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) |   | $L_{PA}$    | dB(A)           | ≤ 70                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                      |   |             | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |   |             | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                     |   |             | °C              | 0 to +40                              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                         |   |             | °F              | +32 to +104                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                             |   |             |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                   |   |             |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                        |   |             |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          | E | 19          | $J_1$           | kgcm <sup>2</sup>                     | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  |
|                                                                                                         |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  |

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Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

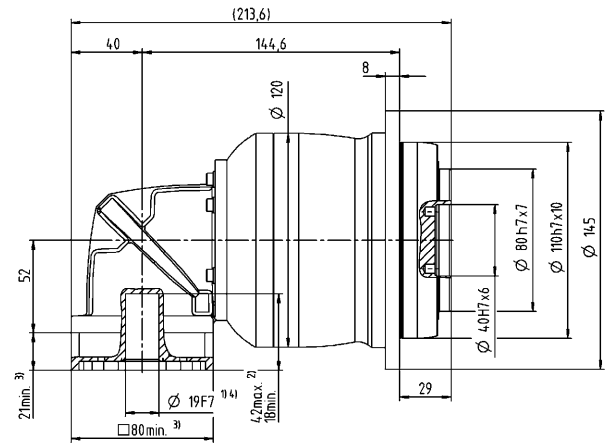
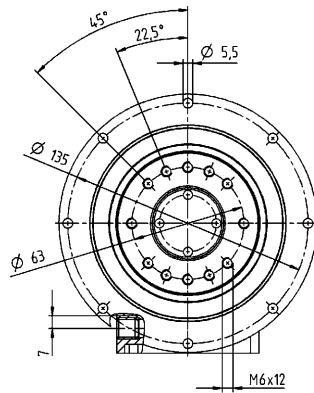
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

Motor shaft diameter [mm]

3-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPTK 045 MF 2- / 3-stage

|                                                                                                         |   |             |       | 2-stage                               |                               |      | 3-stage |             |      |      |      |      |
|---------------------------------------------------------------------------------------------------------|---|-------------|-------|---------------------------------------|-------------------------------|------|---------|-------------|------|------|------|------|
| Ratio                                                                                                   |   | i           |       |                                       | 5                             | 8    | 10      | 25          | 32   | 50   | 64   | 100  |
| Max. torque <sup>a) b)</sup>                                                                            |   | $T_{2a}$    |       | Nm                                    | 500                           | 640  | 640     | 700         | 640  | 700  | 640  | 640  |
|                                                                                                         |   |             |       | in.lb                                 | 4425                          | 5665 | 5665    | 6196        | 5665 | 6196 | 5665 | 5665 |
| Max. acceleration torque<br>(max. 1000 cycles per hour)                                                 |   | $T_{2B}$    |       | Nm                                    | 399                           | 400  | 400     | 500         | 400  | 500  | 400  | 400  |
|                                                                                                         |   |             |       | in.lb                                 | 3531                          | 3540 | 3540    | 4425        | 3540 | 4425 | 3540 | 3540 |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$  |       | Nm                                    | 1000                          | 1000 | 1000    | 1000        | 1000 | 1000 | 1000 | 1000 |
|                                                                                                         |   |             |       | in.lb                                 | 8851                          | 8851 | 8851    | 8851        | 8851 | 8851 | 8851 | 8851 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)              |   | $n_{1N}$    |       | rpm                                   | 1600                          | 1600 | 1600    | 2000        | 2000 | 2000 | 2000 | 2000 |
| Max. input speed                                                                                        |   | $n_{1Max}$  |       | rpm                                   | 4000                          | 4000 | 4000    | 4500        | 4500 | 4500 | 4500 | 4500 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)         |   | $T_{012}$   |       | Nm                                    | 6                             | 6    | 6       | 3.1         | 3.1  | 3.1  | 3.1  | 3.1  |
|                                                                                                         |   |             |       | in.lb                                 | 53                            | 53   | 53      | 27          | 27   | 27   | 27   | 27   |
| Max. backlash                                                                                           |   | $j_t$       |       | arcmin                                | ≤ 11                          |      |         | ≤ 11        |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                        |   | $C_{t21}$   |       | Nm/arcmin                             | 48                            | 48   | 48      | 54          | 54   | 54   | 54   | 54   |
|                                                                                                         |   |             |       | in.lb/arcmin                          | 425                           | 425  | 425     | 478         | 478  | 478  | 478  | 478  |
| Max. axial force <sup>c)</sup>                                                                          |   | $F_{2AMax}$ |       | N                                     | 3800                          |      |         | 3800        |      |      |      |      |
|                                                                                                         |   |             |       | lb <sub>f</sub>                       | 855                           |      |         | 855         |      |      |      |      |
| Max. tilting moment                                                                                     |   | $M_{2KMax}$ |       | Nm                                    | 256                           |      |         | 256         |      |      |      |      |
|                                                                                                         |   |             |       | in.lb                                 | 2266                          |      |         | 2266        |      |      |      |      |
| Efficiency at full load                                                                                 |   | $\eta$      |       | %                                     | 95                            |      |         | 94          |      |      |      |      |
| Service life                                                                                            |   | $L_h$       |       | h                                     | > 20000                       |      |         | > 20000     |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                |   | $m$         |       | kg                                    | 24                            |      |         | 21          |      |      |      |      |
|                                                                                                         |   |             |       | lb <sub>m</sub>                       | 53                            |      |         | 46          |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®) |   | $L_{PA}$    |       | dB(A)                                 | ≤ 78                          |      |         | ≤ 74        |      |      |      |      |
| Max. permitted housing temperature                                                                      |   |             |       | °C                                    | +90                           |      |         | +90         |      |      |      |      |
|                                                                                                         |   |             |       | °F                                    | +194                          |      |         | +194        |      |      |      |      |
| Ambient temperature                                                                                     |   |             |       | °C                                    | 0 to +40                      |      |         | 0 to +40    |      |      |      |      |
|                                                                                                         |   |             |       | °F                                    | +32 to +104                   |      |         | +32 to +104 |      |      |      |      |
| Lubrication                                                                                             |   |             |       |                                       | Lubricated for life           |      |         |             |      |      |      |      |
| Direction of rotation                                                                                   |   |             |       |                                       | In- and output same direction |      |         |             |      |      |      |      |
| Protection class                                                                                        |   |             |       |                                       | IP 64                         |      |         |             |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                          | H | 28          | $J_1$ | kgcm <sup>2</sup>                     | –                             | –    | –       | 7.8         | 7.8  | 7.8  | 7.8  | 7.8  |
|                                                                                                         |   |             |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –                             | –    | –       | 6.9         | 6.9  | 6.9  | 6.9  | 6.9  |
|                                                                                                         | K | 38          | $J_1$ | kgcm <sup>2</sup>                     | 19                            | 19   | 19      | –           | –    | –    | –    | –    |
|                                                                                                         |   |             |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 17                            | 17   | 17      | –           | –    | –    | –    | –    |

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Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

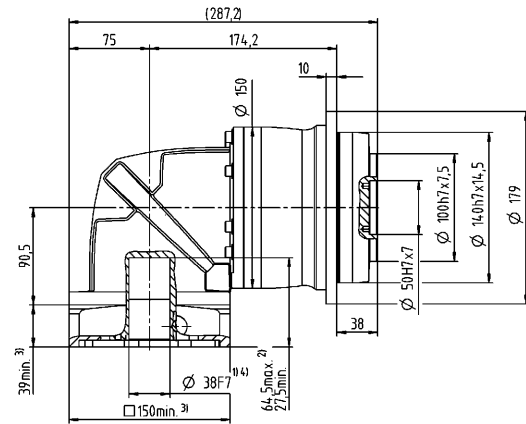
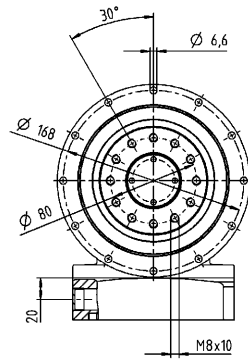
<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

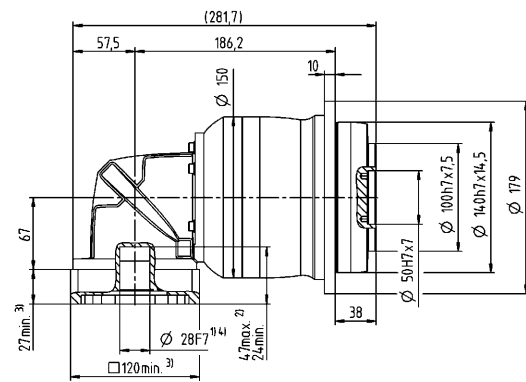
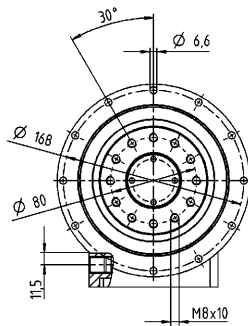
## 2-stage

up to 38 <sup>4)</sup> (K) <sup>5)</sup>  
clamping hub  
diameter



## 3-stage

up to 28 <sup>4)</sup> (H) <sup>5)</sup>  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPRK 015 MF 2-stage

|                                                                                                            |             |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | Nm              | 33                                    | 44   | 55   | 64   | 56   | 56   |
|                                                                                                            |             | in.lb           | 292                                   | 389  | 487  | 566  | 496  | 496  |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | Nm              | 16                                    | 21   | 27   | 37   | 35   | 35   |
|                                                                                                            |             | in.lb           | 142                                   | 186  | 239  | 327  | 310  | 310  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 41                                    | 55   | 69   | 80   | 80   | 80   |
|                                                                                                            |             | in.lb           | 363                                   | 487  | 611  | 708  | 708  | 708  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 2600                                  | 2800 | 2900 | 3300 | 3300 | 3300 |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$   | Nm              | 1.2                                   | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  |
|                                                                                                            |             | in.lb           | 11                                    | 11   | 11   | 11   | 11   | 11   |
| Max. backlash                                                                                              | $j_t$       | arcmin          | ≤ 15                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 2.4                                   | 2.4  | 2.4  | 2.4  | 2.4  | 2.4  |
|                                                                                                            |             | in.lb/arcmin    | 21                                    | 21   | 21   | 21   | 21   | 21   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 2400                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 540                                   |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | N               | 2800                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 630                                   |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 152                                   |      |      |      |      |      |
|                                                                                                            |             | in.lb           | 1345                                  |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 2.3                                   |      |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 5.1                                   |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | dB(A)           | ≤ 70                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |             | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |             | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |             | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |             |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 | ELC-0060BA016.000-X                   |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C 14        | $J_1$           | kgcm <sup>2</sup>                     | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 |
|                                                                                                            |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

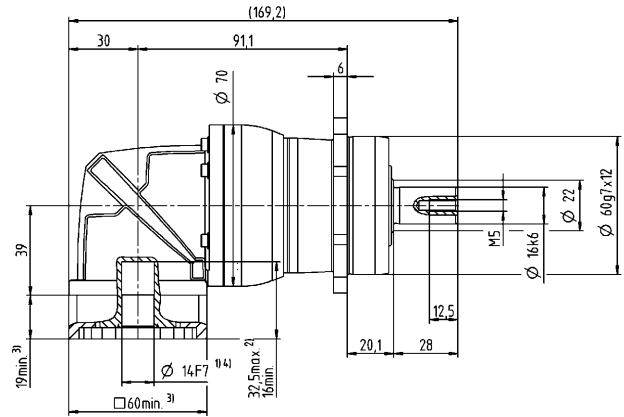
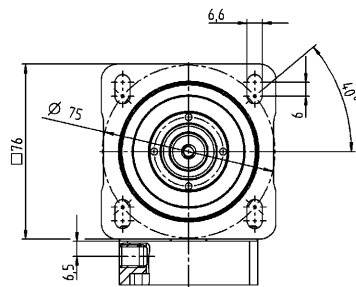
<sup>e)</sup> Valid for: Smooth shaft



Motor shaft diameter [mm]

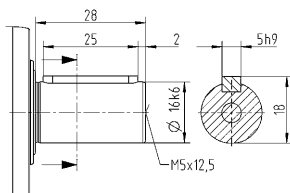
2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter

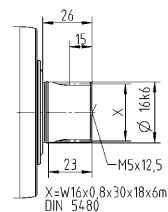


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPRK 015 MF 3-stage

|                                                                                                            |              |                 | 3-stage                               |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 12                                    | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 42                                    | 51   | 56   | 56   | 64   | 56   | 51   | 56   | 64   | 56   | 64   | 56   | 64   | 56   |
|                                                                                                            |              | in.lb           | 372                                   | 451  | 496  | 496  | 566  | 496  | 451  | 496  | 566  | 496  | 566  | 496  | 566  | 496  |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 20                                    | 25   | 27   | 34   | 40   | 35   | 31   | 35   | 40   | 35   | 40   | 35   | 40   | 35   |
|                                                                                                            |              | in.lb           | 177                                   | 221  | 239  | 301  | 354  | 310  | 274  | 310  | 354  | 310  | 354  | 310  | 354  | 310  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 52                                    | 65   | 70   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   |
|                                                                                                            |              | in.lb           | 460                                   | 575  | 620  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  | 708  |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 3800                                  | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$    | Nm              | 0.52                                  | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 |
|                                                                                                            |              | in.lb           | 4.6                                   | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 12                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 3                                     | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    |
|                                                                                                            |              | in.lb/arcmin    | 27                                    | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 2400                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 540                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 2800                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 630                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$  | Nm              | 152                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 1345                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 94                                    |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                               |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 2.4                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 5.3                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 68                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | 0 to +40                              |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              | °F              | +32 to +104                           |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction         |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA016.000-X                   |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | B 11         | $J_t$           | kgcm <sup>2</sup>                     | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
|                                                                                                            |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

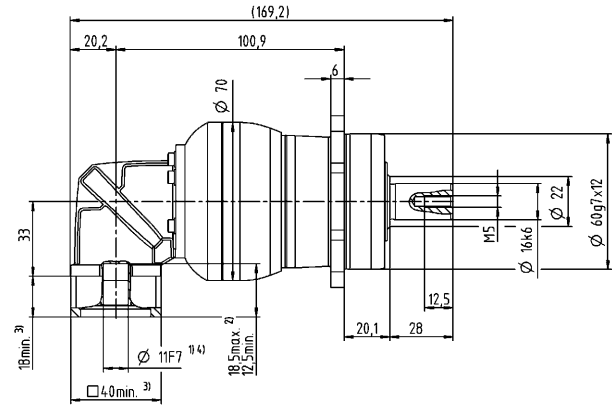
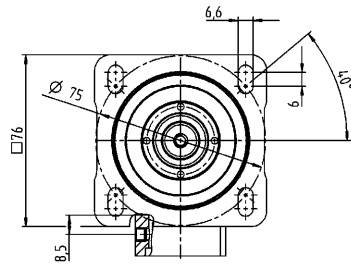
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

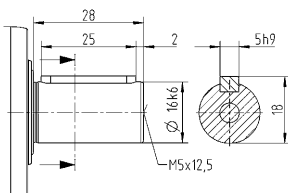
## 3-stage

up to 11<sup>4)</sup> (B)<sup>5)</sup>  
clamping hub  
diameter

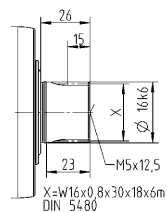


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

- 1) Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPRK 025 MF 2-stage

|                                                                                                            |              |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i            |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 60                                    | 80   | 100  | 140  | 144  | 144  |
|                                                                                                            |              | in.lb           | 531                                   | 708  | 885  | 1239 | 1275 | 1275 |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 35                                    | 47   | 58   | 82   | 90   | 90   |
|                                                                                                            |              | in.lb           | 310                                   | 416  | 513  | 726  | 797  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 90                                    | 120  | 150  | 190  | 190  | 190  |
|                                                                                                            |              | in.lb           | 797                                   | 1062 | 1328 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 2400                                  | 2600 | 2700 | 3000 | 3000 | 3000 |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 5000                                  | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$    | Nm              | 2.4                                   | 2.4  | 2.4  | 2.4  | 2.4  | 2.4  |
|                                                                                                            |              | in.lb           | 21                                    | 21   | 21   | 21   | 21   | 21   |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 15                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 6.2                                   | 6.2  | 6.2  | 6.2  | 6.2  | 6.2  |
|                                                                                                            |              | in.lb/arcmin    | 55                                    | 55   | 55   | 55   | 55   | 55   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 3350                                  |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 754                                   |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ | N               | 4200                                  |      |      |      |      |      |
|                                                                                                            |              | lb <sub>f</sub> | 945                                   |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$  | Nm              | 236                                   |      |      |      |      |      |
|                                                                                                            |              | in.lb           | 2089                                  |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$        | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 4.8                                   |      |      |      |      |      |
|                                                                                                            |              | lb <sub>m</sub> | 11                                    |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 70                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |              | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |              | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |              | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |              |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |              |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |              |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0060BA022.000-X                   |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |              | mm              | X = 012.000 - 032.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E 19         | $J_1$           | kgcm <sup>2</sup>                     | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  |
|                                                                                                            |              |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 1.1  | 1.1  | 1.1  | 1.1  | 1.1  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

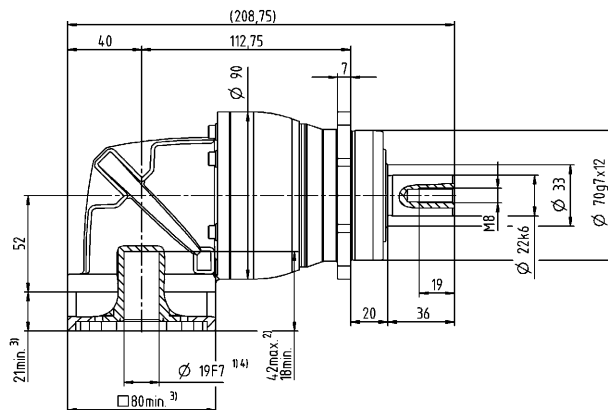
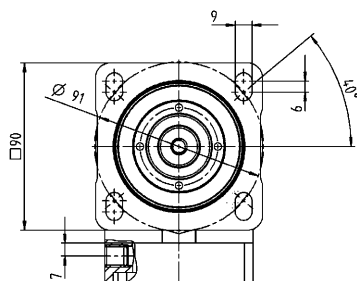
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

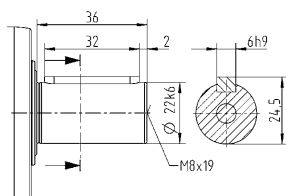
## 2-stage

up to 19 <sup>4)</sup> (E) <sup>5)</sup>  
clamping hub  
diameter

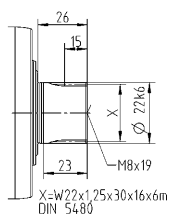


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

- 1) Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated

<sup>5)</sup> Standard clamping hub diameter

# NPRK 025 MF 3-stage

|                                                                                                            |              |    |       | 3-stage                               |                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|--------------|----|-------|---------------------------------------|-----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i            |    |       |                                       | 9                     | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     |    |       | Nm                                    | 99                    | 128  | 128  | 152  | 152  | 160  | 152  | 128  | 152  | 160  | 152  | 160  | 144  | 160  | 144  |
|                                                                                                            |              |    |       | in.lb                                 | 876                   | 1133 | 1133 | 1345 | 1345 | 1416 | 1345 | 1133 | 1345 | 1416 | 1345 | 1416 | 1275 | 1416 | 1275 |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     |    |       | Nm                                    | 48                    | 65   | 80   | 86   | 95   | 100  | 95   | 80   | 95   | 100  | 95   | 100  | 90   | 100  | 90   |
|                                                                                                            |              |    |       | in.lb                                 | 425                   | 575  | 708  | 761  | 841  | 885  | 841  | 708  | 841  | 885  | 841  | 885  | 797  | 885  | 797  |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   |    |       | Nm                                    | 124                   | 166  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  |
|                                                                                                            |              |    |       | in.lb                                 | 1097                  | 1469 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$     |    |       | rpm                                   | 2800                  | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 |
| Max. input speed                                                                                           | $n_{1Max}$   |    |       | rpm                                   | 5000                  | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$    |    |       | Nm                                    | 0.97                  | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
|                                                                                                            |              |    |       | in.lb                                 | 8.6                   | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  | 8.6  |
| Max. backlash                                                                                              | $j_t$        |    |       | arcmin                                | ≤ 13                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    |    |       | Nm/arcmin                             | 8.4                   | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  | 8.4  |
|                                                                                                            |              |    |       | in.lb/arcmin                          | 74                    | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  |    |       | N                                     | 3350                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    |       | lb <sub>f</sub>                       | 754                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMMax}$ |    |       | N                                     | 4200                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    |       | lb <sub>f</sub>                       | 945                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$  |    |       | Nm                                    | 236                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    |       | in.lb                                 | 2089                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$       |    |       | %                                     | 94                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$        |    |       | h                                     | > 20000               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          |    |       | kg                                    | 4.4                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    |       | lb <sub>m</sub>                       | 9.7                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     |    |       | dB(A)                                 | ≤ 70                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |              |    |       | °C                                    | +90                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    |       | °F                                    | +194                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |              |    |       | °C                                    | 0 to +40              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |              |    |       | °F                                    | +32 to +104           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |              |    |       | Lubricated for life                   |                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |              |    |       | In- and output same direction         |                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |              |    |       | IP 64                                 |                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |    |       | ELC-0060BA022.000-X                   |                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |              |    |       | mm                                    | X = 012.000 - 032.000 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C            | 14 | $J_i$ | kgcm <sup>2</sup>                     | 0.45                  | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 |
|                                                                                                            |              |    |       | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.4                   | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

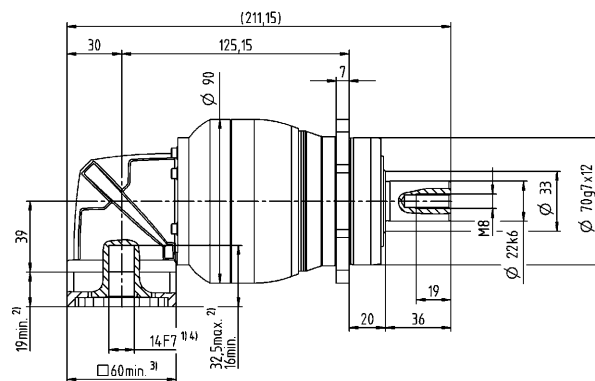
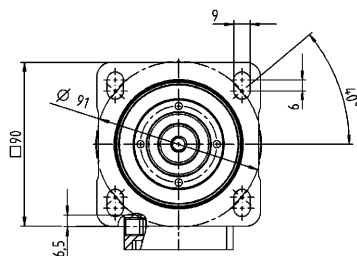
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

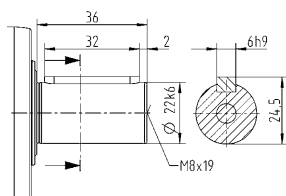
## 3-stage

up to 14 <sup>4)</sup> (C) <sup>5)</sup>  
clamping hub  
diameter

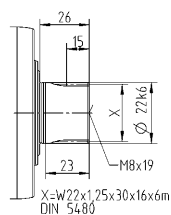


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

- 1) Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPRK 035 MF 2-stage

|                                                                                                            |             |                 | 2-stage                               |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|-----------------|---------------------------------------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                 | 3                                     | 4    | 5    | 7    | 8    | 10   |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | Nm              | 150                                   | 200  | 250  | 350  | 352  | 352  |
|                                                                                                            |             | in.lb           | 1328                                  | 1770 | 2213 | 3098 | 3115 | 3115 |
| Max. acceleration torque <sup>b)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | Nm              | 93                                    | 124  | 155  | 217  | 220  | 220  |
|                                                                                                            |             | in.lb           | 823                                   | 1097 | 1372 | 1921 | 1947 | 1947 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | Nm              | 238                                   | 318  | 397  | 500  | 500  | 500  |
|                                                                                                            |             | in.lb           | 2106                                  | 2815 | 3514 | 4425 | 4425 | 4425 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | rpm             | 1800                                  | 2000 | 2000 | 2000 | 2000 | 2000 |
| Max. input speed                                                                                           | $n_{1Max}$  | rpm             | 4500                                  | 4500 | 4500 | 4500 | 4500 | 4500 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1=3000$ rpm and 20 °C gearbox temperature)             | $T_{012}$   | Nm              | 5.8                                   | 5.8  | 5.8  | 5.8  | 5.8  | 5.8  |
|                                                                                                            |             | in.lb           | 51                                    | 51   | 51   | 51   | 51   | 51   |
| Max. backlash                                                                                              | $j_t$       | arcmin          | ≤ 13                                  |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | Nm/arcmin       | 16                                    | 16   | 16   | 16   | 16   | 16   |
|                                                                                                            |             | in.lb/arcmin    | 142                                   | 142  | 142  | 142  | 142  | 142  |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | N               | 5650                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 1271                                  |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | N               | 6600                                  |      |      |      |      |      |
|                                                                                                            |             | lb <sub>f</sub> | 1485                                  |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | Nm              | 487                                   |      |      |      |      |      |
|                                                                                                            |             | in.lb           | 4310                                  |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %               | 95                                    |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | h               | > 20000                               |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | kg              | 10                                    |      |      |      |      |      |
|                                                                                                            |             | lb <sub>m</sub> | 22                                    |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | dB(A)           | ≤ 74                                  |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C              | +90                                   |      |      |      |      |      |
|                                                                                                            |             | °F              | +194                                  |      |      |      |      |      |
| Ambient temperature                                                                                        |             | °C              | 0 to +40                              |      |      |      |      |      |
|                                                                                                            |             | °F              | +32 to +104                           |      |      |      |      |      |
| Lubrication                                                                                                |             |                 | Lubricated for life                   |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                 | In- and output same direction         |      |      |      |      |      |
| Protection class                                                                                           |             |                 | IP 64                                 |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                 | ELC-0150BA032.000-X                   |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                          |             | mm              | X = 019.000 - 036.000                 |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | H 28        | $J_1$           | kgcm <sup>2</sup>                     | 5.2  | 5.2  | 5.2  | 5.2  | 5.2  |
|                                                                                                            |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 4.6  | 4.6  | 4.6  | 4.6  | 4.6  |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

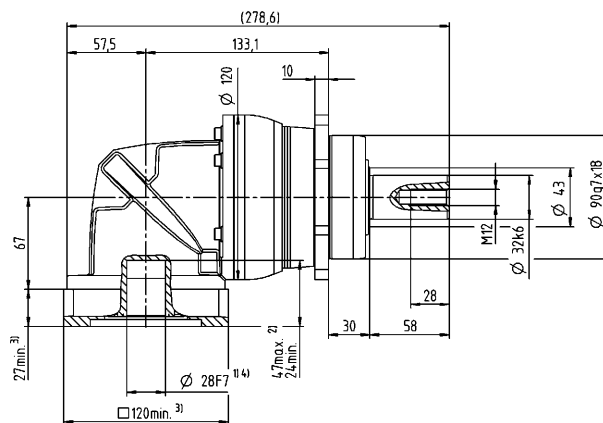
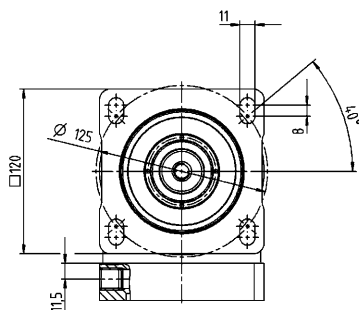
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

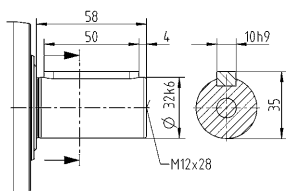
<sup>e)</sup> Valid for: Smooth shaft



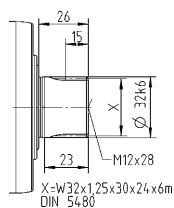
up to 28 <sup>4)</sup> (H) <sup>5)</sup>  
clamping hub  
diameter



Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

- 1) Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated

<sup>5)</sup> Standard clamping hub diameter

# NPRK 035 MF 3-stage

|                                                                                                            |             |                |                     | 3-stage                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|----------------|---------------------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i           |                |                     | 9                             | 12   | 15   | 16   | 20   | 25   | 28   | 30   | 32   | 35   | 40   | 50   | 64   | 70   | 100  |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    | $Nm$           |                     | 180                           | 240  | 300  | 320  | 400  | 400  | 408  | 320  | 408  | 400  | 408  | 400  | 352  | 400  | 352  |
|                                                                                                            |             | $in.lb$        |                     | 1593                          | 2124 | 2655 | 2832 | 3540 | 3540 | 3611 | 2832 | 3611 | 3540 | 3611 | 3540 | 3115 | 3540 | 3115 |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    | $Nm$           |                     | 105                           | 141  | 176  | 188  | 235  | 250  | 255  | 200  | 255  | 250  | 255  | 250  | 220  | 250  | 220  |
|                                                                                                            |             | $in.lb$        |                     | 929                           | 1248 | 1558 | 1664 | 2080 | 2213 | 2257 | 1770 | 2257 | 2213 | 2257 | 2213 | 1947 | 2213 | 1947 |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  | $Nm$           |                     | 270                           | 361  | 451  | 481  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  | 500  |
|                                                                                                            |             | $in.lb$        |                     | 2390                          | 3195 | 3992 | 4257 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 | 4425 |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    | $rpm$          |                     | 2600                          | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| Max. input speed                                                                                           | $n_{1Max}$  | $rpm$          |                     | 5000                          | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$   | $Nm$           |                     | 2.3                           | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  |
|                                                                                                            |             | $in.lb$        |                     | 20                            | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   | 20   |
| Max. backlash                                                                                              | $j_t$       | $arcmin$       |                     | ≤ 13                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   | $Nm/arcmin$    |                     | 19                            | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   |
|                                                                                                            |             | $in.lb/arcmin$ |                     | 168                           | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  | 168  |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$ | $N$            |                     | 5650                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $lb_f$         |                     | 1271                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$ | $N$            |                     | 6600                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $lb_f$         |                     | 1485                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | $M_{2KMax}$ | $Nm$           |                     | 487                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $in.lb$        |                     | 4310                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      | %              |                     | 94                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$       | $h$            |                     | > 20000                       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         | $kg$           |                     | 10                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | $lb_m$         |                     | 22                            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    | $dB(A)$        |                     | ≤ 70                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             | °C             |                     | +90                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | °F             |                     | +194                          |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Ambient temperature<br>(relates to the drive)                                                              |             | °C             |                     | 0 to +40                      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                                                                            |             | °F             |                     | +32 to +104                   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Lubrication                                                                                                |             |                |                     | Lubricated for life           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |             |                |                     | In- and output same direction |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Protection class                                                                                           |             |                |                     | IP 64                         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |             |                |                     | ELC-0150BA032.000-X           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                       |             | $mm$           |                     | X = 019.000 - 036.000         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E 19        | $J_i$          | $kgcm^2$            | 1.7                           | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  | 1.7  |
|                                                                                                            |             |                | $10^{-3} in.lb.s^2$ | 1.5                           | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  |

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Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

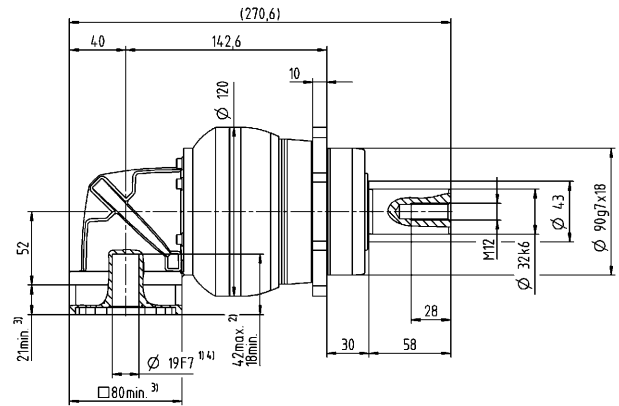
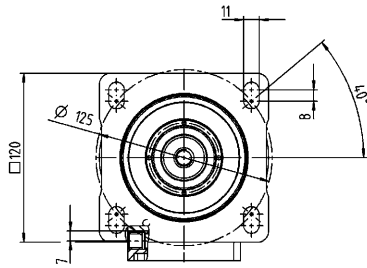
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

Motor shaft diameter [mm]

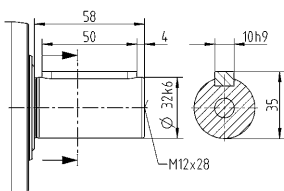
3-stage

up to 19<sup>4)</sup> (E)<sup>5)</sup>  
clamping hub  
diameter

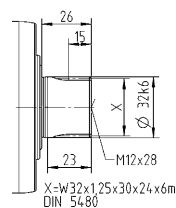


## Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# NPRK 045 MF 2- / 3-stage

|                                                                                                            |              |                 | 2-stage                       |                                       |      | 3-stage     |      |      |      |      |     |
|------------------------------------------------------------------------------------------------------------|--------------|-----------------|-------------------------------|---------------------------------------|------|-------------|------|------|------|------|-----|
| Ratio                                                                                                      | i            |                 | 5                             | 8                                     | 10   | 25          | 32   | 50   | 64   | 100  |     |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$     | Nm              | 500                           | 640                                   | 640  | 700         | 640  | 700  | 640  | 640  |     |
|                                                                                                            |              | in.lb           | 4425                          | 5665                                  | 5665 | 6196        | 5665 | 6196 | 5665 | 5665 |     |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$     | Nm              | 399                           | 400                                   | 400  | 500         | 400  | 500  | 400  | 400  |     |
|                                                                                                            |              | in.lb           | 3531                          | 3540                                  | 3540 | 4425        | 3540 | 4425 | 3540 | 3540 |     |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$   | Nm              | 1000                          | 1000                                  | 1000 | 1000        | 1000 | 1000 | 1000 | 1000 |     |
|                                                                                                            |              | in.lb           | 8851                          | 8851                                  | 8851 | 8851        | 8851 | 8851 | 8851 | 8851 |     |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 | $n_{1N}$     | rpm             | 1600                          | 1600                                  | 1600 | 2000        | 2000 | 2000 | 2000 | 2000 |     |
| Max. input speed                                                                                           | $n_{1Max}$   | rpm             | 4000                          | 4000                                  | 4000 | 4500        | 4500 | 4500 | 4500 | 4500 |     |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ = 3000 rpm and 20 °C gearbox temperature)           | $T_{012}$    | Nm              | 8.7                           | 8.7                                   | 8.7  | 4.7         | 4.7  | 4.7  | 4.7  | 4.7  |     |
|                                                                                                            |              | in.lb           | 77                            | 77                                    | 77   | 42          | 42   | 42   | 42   | 42   |     |
| Max. backlash                                                                                              | $j_t$        | arcmin          | ≤ 11                          |                                       |      | ≤ 11        |      |      |      |      |     |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$    | Nm/arcmin       | 48                            | 48                                    | 48   | 54          | 54   | 54   | 54   | 54   |     |
|                                                                                                            |              | in.lb/arcmin    | 425                           | 425                                   | 425  | 478         | 478  | 478  | 478  | 478  |     |
| Max. axial force <sup>c)</sup>                                                                             | $F_{2AMax}$  | N               | 9870                          |                                       |      | 9870        |      |      |      |      |     |
|                                                                                                            |              | lb <sub>f</sub> | 2221                          |                                       |      | 2221        |      |      |      |      |     |
| Max. lateral force <sup>c)</sup>                                                                           | $F_{2QMax}$  | N               | 9900                          |                                       |      | 9900        |      |      |      |      |     |
|                                                                                                            |              | lb <sub>f</sub> | 2228                          |                                       |      | 2228        |      |      |      |      |     |
| Max. tilting moment                                                                                        | $M_{2KMMax}$ | Nm              | 952                           |                                       |      | 952         |      |      |      |      |     |
|                                                                                                            |              | in.lb           | 8426                          |                                       |      | 8426        |      |      |      |      |     |
| Efficiency at full load                                                                                    | $\eta$       | %               | 95                            |                                       |      | 94          |      |      |      |      |     |
| Service life                                                                                               | $L_h$        | h               | > 20000                       |                                       |      | > 20000     |      |      |      |      |     |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$          | kg              | 24                            |                                       |      | 21          |      |      |      |      |     |
|                                                                                                            |              | lb <sub>m</sub> | 53                            |                                       |      | 46          |      |      |      |      |     |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$     | dB(A)           | ≤ 78                          |                                       |      | ≤ 74        |      |      |      |      |     |
| Max. permitted housing temperature                                                                         |              | °C              | +90                           |                                       |      | +90         |      |      |      |      |     |
|                                                                                                            |              | °F              | +194                          |                                       |      | +194        |      |      |      |      |     |
| Ambient temperature                                                                                        |              | °C              | 0 to +40                      |                                       |      | 0 to +40    |      |      |      |      |     |
|                                                                                                            |              | °F              | +32 to +104                   |                                       |      | +32 to +104 |      |      |      |      |     |
| Lubrication                                                                                                |              |                 | Lubricated for life           |                                       |      |             |      |      |      |      |     |
| Direction of rotation                                                                                      |              |                 | In- and output same direction |                                       |      |             |      |      |      |      |     |
| Protection class                                                                                           |              |                 | IP 64                         |                                       |      |             |      |      |      |      |     |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                             |              |                 | ELC-0300BA040.000-X           |                                       |      |             |      |      |      |      |     |
| Bore diameter of coupling<br>on the application side                                                       |              | mm              | X = 020.000 - 045.000         |                                       |      |             |      |      |      |      |     |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | H            | 28              | $J_1$                         | kgcm <sup>2</sup>                     | –    | –           | –    | 6.7  | 6.7  | 6.7  | 6.7 |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | –    | –           | –    | 5.9  | 5.9  | 5.9  | 5.9 |
|                                                                                                            | K            | 38              | $J_1$                         | kgcm <sup>2</sup>                     | 18   | 18          | 18   | –    | –    | –    | –   |
|                                                                                                            |              |                 |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 16   | 16          | 16   | –    | –    | –    | –   |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please consider the maximal tilting moment caused by the motor  $M_{1KMot}$  – see sizing

<sup>a)</sup> Valid for torque transmission only

<sup>b)</sup> Valid for standard clamping hub diameter

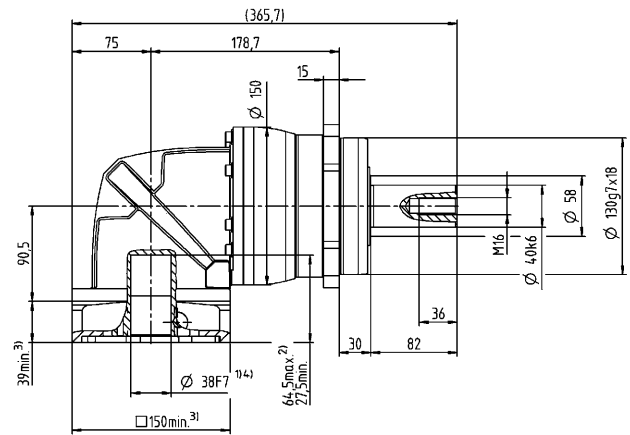
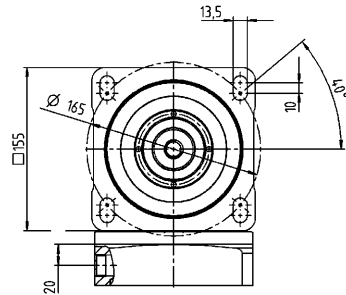
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

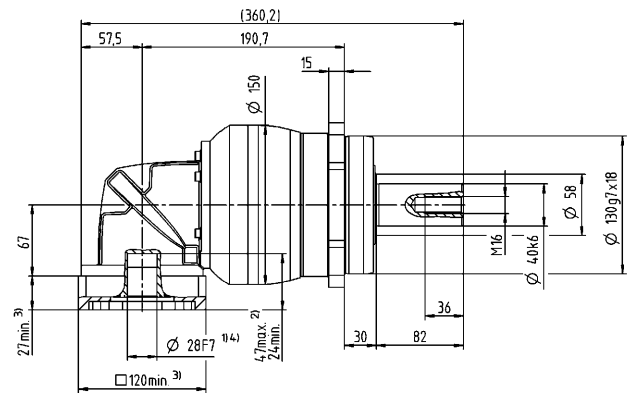
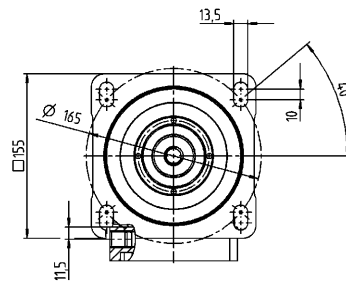
## 2-stage

up to 38<sup>4)</sup> (K)<sup>5)</sup>  
clamping hub  
diameter



## 3-stage

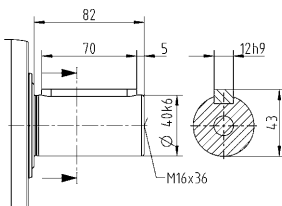
up to 28<sup>4)</sup> (H)<sup>5)</sup>  
clamping hub  
diameter



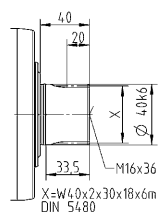
Motor shaft diameter [mm]

### Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated

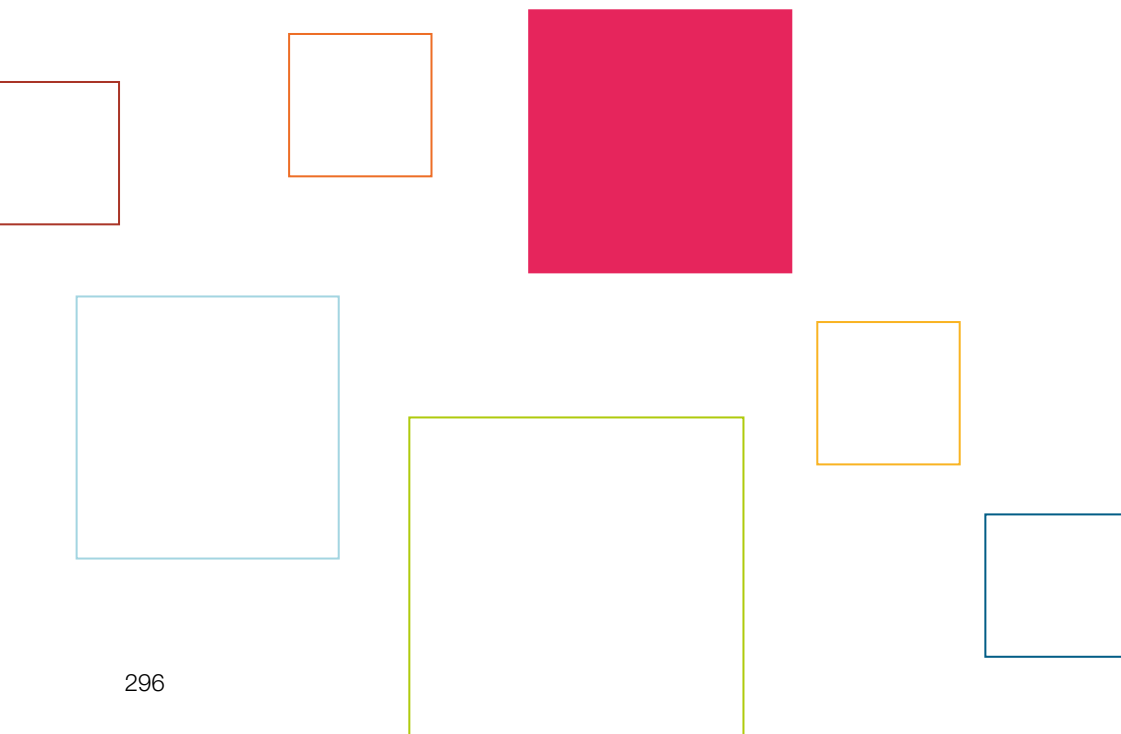
by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

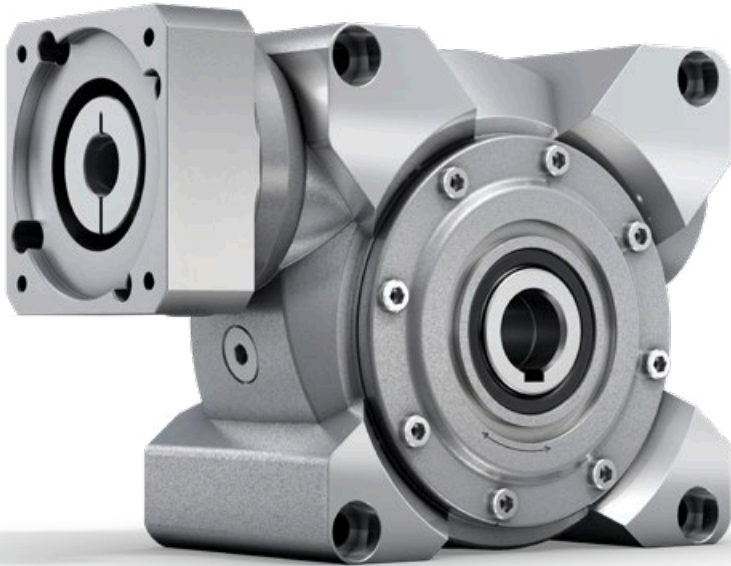
# alpha Value Line

## WORM GEARBOXES NVH / NVS

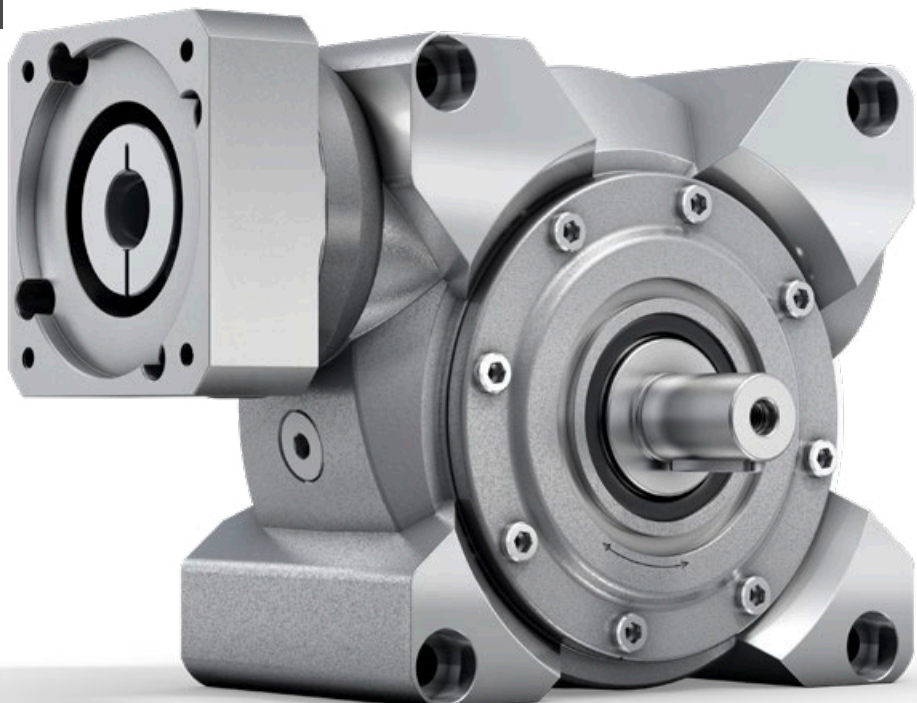
This product line is characterized by high power density, medium backlash over the entire service life, and supreme running smoothness. The gearboxes are also ideal for use in continuous operation thanks to their low temperature development.



NVH

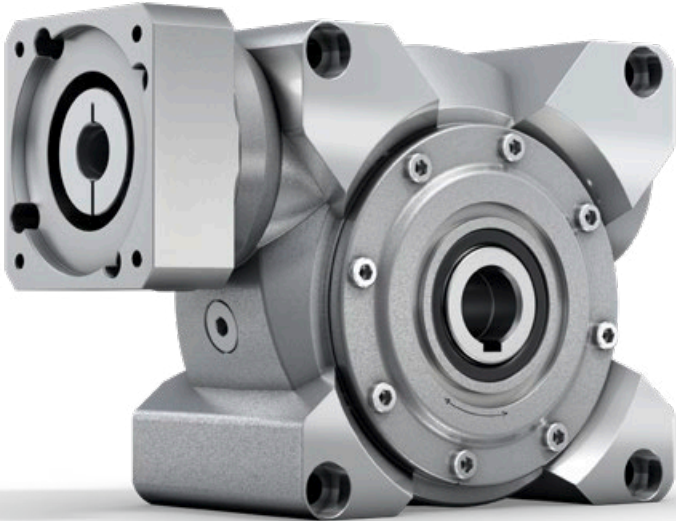


NVS



# NVH / NVS – We drive the Performance

NVH



The servo worm gearboxes with hollow shaft and output shaft impress with high power density combined with medium backlash. The V-Drive Value are especially suitable for economical applications in continuous operation.

## PRODUCT HIGHLIGHTS



### Strong performance

The V-Drive Value convinces with a strong performance in economical standard applications in cyclic and continuous operation. High power density is achieved with medium backlash over the entire service life.



### No stick-slip effect

The stick-slip effect is not an issue in applications with the V-Drive Value thanks to the perfected hollow-flank toothing.



### High flexibility

In addition to the hollow shaft and shaft output shapes, the worm gearboxes are also available in a corrosion-resistant design.

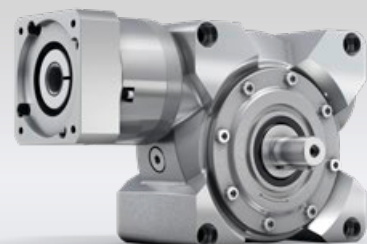


### Constant low backlash

Constant low backlash over the entire service life affords consistent high quality with high positioning accuracy.



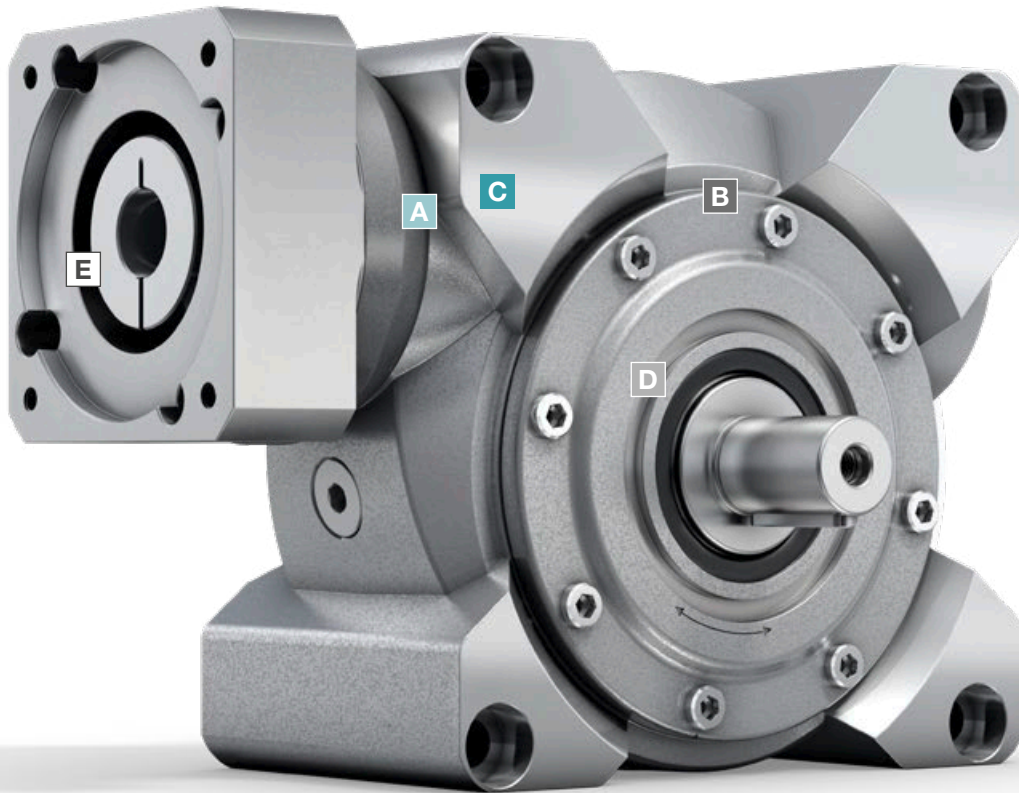
NVH – worm gearbox in corrosion-resistant design



NVS – worm gearbox with integrated planetary input stage



NVS



**A**

#### Radial shaft seal

- Very long service life
- Optimized for continuous operation

**B**

#### Hollow-flank toothing

- Medium torsional backlash accuracy over the entire service life
- High efficiency
- High power density

**C**

#### Input bearing

- Bearing package to absorb axial and radial forces
- Very well suited to high input speeds

**D**

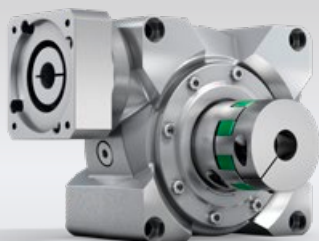
#### Output bearing

- High overload capacity to absorb axial and radial forces

**E**

#### Metal bellows coupling

- Completely backlash free
- Lifetime durable and maintenance free
- Easy assembly
- Protects the motor through thermal linear expansion compensation



NVS – worm gearbox with elastomer coupling ELC



NVS – worm gearbox with rack and pinion

# NVH 040 MF 1- /2-stage

|                                                                                                            |                           |                       | 1-stage               |                                            |      |      |      |      |      | 2-stage |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------|-----------------------|--------------------------------------------|------|------|------|------|------|---------|------|------|------|------|------|------|
| Ratio                                                                                                      | <i>i</i>                  |                       | 4                     | 7                                          | 10   | 16   | 28   | 40   | 50   | 70      | 100  | 140  | 200  | 280  | 400  |      |
| Max. torque <sup>a) b)</sup><br>(at n <sub>1</sub> = 500 rpm)                                              | <i>T</i> <sub>2a</sub>    | <i>Nm</i>             | 74                    | 82                                         | 91   | 94   | 98   | 91   | 91   | 82      | 91   | 98   | 91   | 98   | 91   |      |
|                                                                                                            |                           | <i>in.lb</i>          | 655                   | 726                                        | 805  | 832  | 867  | 805  | 805  | 726     | 805  | 867  | 805  | 867  | 805  |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox)    | <i>T</i> <sub>2Not</sub>  | <i>Nm</i>             | 118                   | 126                                        | 125  | 129  | 134  | 122  | 125  | 126     | 125  | 134  | 122  | 134  | 122  |      |
|                                                                                                            |                           | <i>in.lb</i>          | 1044                  | 1115                                       | 1106 | 1142 | 1186 | 1080 | 1106 | 1115    | 1106 | 1186 | 1080 | 1186 | 1080 |      |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)                              | <i>n</i> <sub>1N</sub>    | <i>rpm</i>            | 4000                  |                                            |      |      |      |      |      | 4400    |      |      |      |      |      |      |
| Max. input speed                                                                                           | <i>n</i> <sub>1Max</sub>  | <i>rpm</i>            | 6000                  |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at n <sub>1</sub> = 3000 rpm and 20 °C gearbox temperature)  | <i>T</i> <sub>012</sub>   | <i>Nm</i>             | 0.8                   | 0.7                                        | 0.6  | 0.5  | 0.4  | 0.4  | 0.4  | 0.2     | 0.2  | 0.4  | 0.4  | 0.3  | 0.2  |      |
|                                                                                                            |                           | <i>in.lb</i>          | 7.1                   | 6.2                                        | 5.3  | 4.4  | 3.5  | 3.5  | 3.5  | 1.8     | 1.8  | 3.5  | 3.5  | 2.7  | 1.8  |      |
| Max. backlash                                                                                              | <i>j</i> <sub>t</sub>     | <i>arcmin</i>         | ≤ 6                   |                                            |      |      |      |      |      | ≤ 7     |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | <i>C</i> <sub>t21</sub>   | <i>Nm/arcmin</i>      | 4.5                   | 4.5                                        | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5     | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      |
|                                                                                                            |                           | <i>in.lb/arcmin</i>   | 40                    | 40                                         | 40   | 40   | 40   | 40   | 40   | 40      | 40   | 40   | 40   | 40   | 40   |      |
| Max. axial force <sup>c)</sup>                                                                             | <i>F</i> <sub>2AMax</sub> | <i>N</i>              | 3000                  |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
|                                                                                                            |                           | <i>lb<sub>f</sub></i> | 675                   |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
| Max. lateral force <sup>b)</sup>                                                                           | <i>F</i> <sub>2QMax</sub> | <i>N</i>              | 2400                  |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
|                                                                                                            |                           | <i>lb<sub>f</sub></i> | 540                   |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | <i>M</i> <sub>2KMax</sub> | <i>Nm</i>             | 205                   |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
|                                                                                                            |                           | <i>in.lb</i>          | 1814                  |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
| Efficiency at full load<br>(at n <sub>1</sub> = 500 rpm)                                                   | <i>η</i>                  | %                     | 93                    | 90                                         | 88   | 82   | 73   | 67   | 86   | 88      | 86   | 71   | 65   | 71   | 65   |      |
| Service life                                                                                               | <i>L</i> <sub>h</sub>     | <i>h</i>              | > 20000               |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | <i>m</i>                  | <i>kg</i>             | 5                     |                                            |      |      |      |      |      | 5.6     |      |      |      |      |      |      |
|                                                                                                            |                           | <i>lb<sub>m</sub></i> | 11.1                  |                                            |      |      |      |      |      | 12      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed –<br>ratio-specific values available in cymex®) | <i>L</i> <sub>PA</sub>    | <i>dB(A)</i>          | < 54                  |                                            |      |      |      |      |      | < 58    |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |                           | °C                    | +90                   |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
|                                                                                                            |                           | °F                    | +194                  |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
| Ambient temperature                                                                                        |                           | °C                    | –15 to +40            |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
|                                                                                                            |                           | °F                    | +5 to +104            |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
| Lubrication                                                                                                |                           |                       | Lubricated for life   |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
| Direction of rotation                                                                                      |                           |                       | See drawing           |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
| Protection class                                                                                           |                           |                       | IP 65                 |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
| Shrink disc<br>(Standard Version)                                                                          |                           |                       | SD 024x050 S2         |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
| Max. torque<br>(without axial force)                                                                       | <i>T</i> <sub>max</sub>   | <i>Nm</i>             | 250                   |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
|                                                                                                            |                           | <i>in.lb</i>          | 2213                  |                                            |      |      |      |      |      |         |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br><br>Clamping hub diameter [mm]                         | C                         | 14                    | <i>J</i> <sub>1</sub> | <i>kgcm<sup>2</sup></i>                    | 0.53 | 0.38 | 0.35 | 0.32 | 0.32 | 0.32    | 0.25 | 0.28 | 0.24 | 0.23 | 0.19 | 0.18 |
|                                                                                                            |                           |                       |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 0.47 | 0.34 | 0.31 | 0.28 | 0.28 | 0.34    | 0.22 | 0.25 | 0.21 | 0.2  | 0.17 | 0.16 |
|                                                                                                            | E                         | 19                    | <i>J</i> <sub>1</sub> | <i>kgcm<sup>2</sup></i>                    | 0.55 | 0.41 | 0.38 | 0.35 | 0.34 | 0.33    | 0.4  | 0.4  | 0.36 | 0.34 | 0.3  | 0.3  |
|                                                                                                            |                           |                       |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 0.49 | 0.36 | 0.34 | 0.31 | 0.3  | 0.29    | 0.35 | 0.35 | 0.32 | 0.30 | 0.27 | 0.27 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

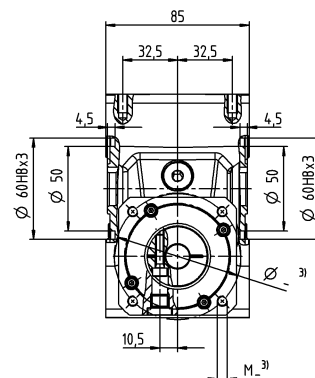
<sup>a)</sup> At max. 10 %  $F_{2QMax}$

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

up to 14/19 <sup>4)</sup> (C <sup>6)</sup>/E)  
clamping hub  
diameter



up to 14/19 <sup>4)</sup> (C <sup>6)</sup>/E)  
clamping hub  
diameter



- ### Worm Gearboxes Value Line

# NVH 050 MF 1- /2-stage

|                                                                                                            |                           |                       | 1-stage               |                                            |      |      |      |      |      | 2-stage |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------|-----------------------|--------------------------------------------|------|------|------|------|------|---------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | <i>i</i>                  |                       | 4                     | 7                                          | 10   | 16   | 28   | 40   | 50   | 70      | 100  | 140  | 200  | 280  | 400  |      |      |
| Max. torque <sup>a) b)</sup><br>(at n <sub>1</sub> = 500 rpm)                                              | <i>T</i> <sub>2a</sub>    | <i>Nm</i>             | 130                   | 150                                        | 153  | 157  | 167  | 141  | 153  | 150     | 153  | 167  | 141  | 167  | 141  |      |      |
|                                                                                                            |                           | <i>in.lb</i>          | 1151                  | 1328                                       | 1354 | 1389 | 1478 | 1248 | 1354 | 1328    | 1354 | 1478 | 1248 | 1478 | 1248 |      |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox)    | <i>T</i> <sub>2Not</sub>  | <i>Nm</i>             | 230                   | 242                                        | 242  | 250  | 262  | 236  | 242  | 242     | 242  | 262  | 236  | 262  | 236  |      |      |
|                                                                                                            |                           | <i>in.lb</i>          | 2036                  | 2142                                       | 2142 | 2213 | 2319 | 2089 | 2142 | 2142    | 2142 | 2319 | 2089 | 2319 | 2089 |      |      |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)                              | <i>n</i> <sub>1N</sub>    | <i>rpm</i>            | 4000                  |                                            |      |      |      |      |      | 3500    |      |      |      |      |      |      |      |
| Max. input speed                                                                                           | <i>n</i> <sub>1Max</sub>  | <i>rpm</i>            | 6000                  |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at n <sub>1</sub> = 3000 rpm and 20 °C gearbox temperature)  | <i>T</i> <sub>012</sub>   | <i>Nm</i>             | 2.3                   | 2.2                                        | 1.6  | 1.5  | 1.2  | 1.1  | 0.7  | 0.5     | 0.4  | 0.6  | 0.6  | 0.4  | 0.4  |      |      |
|                                                                                                            |                           | <i>in.lb</i>          | 20.4                  | 19.5                                       | 14.2 | 13.3 | 10.6 | 9.7  | 6.2  | 4.4     | 3.5  | 5.3  | 5.3  | 3.5  | 3.5  |      |      |
| Max. backlash                                                                                              | <i>j</i> <sub>t</sub>     | <i>arcmin</i>         | ≤ 6                   |                                            |      |      |      |      |      | ≤ 7     |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | <i>C</i> <sub>t21</sub>   | <i>Nm/arcmin</i>      | 8                     | 8                                          | 8    | 8    | 8    | 8    | 8    | 8       | 8    | 8    | 8    | 8    | 8    |      |      |
|                                                                                                            |                           | <i>in.lb/arcmin</i>   | 71                    | 71                                         | 71   | 71   | 71   | 71   | 71   | 71      | 71   | 71   | 71   | 71   | 71   |      |      |
| Max. axial force <sup>c)</sup>                                                                             | <i>F</i> <sub>2AMax</sub> | <i>N</i>              | 5000                  |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                            |                           | <i>lb<sub>f</sub></i> | 1125                  |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Max. lateral force <sup>b)</sup>                                                                           | <i>F</i> <sub>2QMax</sub> | <i>N</i>              | 3800                  |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                            |                           | <i>lb<sub>f</sub></i> | 855                   |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | <i>M</i> <sub>2KMax</sub> | <i>Nm</i>             | 409                   |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                            |                           | <i>in.lb</i>          | 3620                  |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Efficiency at full load<br>(at n <sub>1</sub> = 500 rpm)                                                   | <i>η</i>                  | %                     | 92                    | 89                                         | 86   | 82   | 72   | 64   | 84   | 87      | 84   | 70   | 62   | 70   | 62   |      |      |
| Service life                                                                                               | <i>L</i> <sub>h</sub>     | <i>h</i>              | > 20000               |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | <i>m</i>                  | <i>kg</i>             | 8                     |                                            |      |      |      |      |      | 8.7     |      |      |      |      |      |      |      |
|                                                                                                            |                           | <i>lb<sub>m</sub></i> | 17.7                  |                                            |      |      |      |      |      | 19      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed –<br>ratio-specific values available in cymex®) | <i>L</i> <sub>PA</sub>    | <i>dB(A)</i>          | ≤ 62                  |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |                           | °C                    | +90                   |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                            |                           | °F                    | +194                  |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |                           | °C                    | −15 to +40            |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                            |                           | °F                    | +5 to +104            |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Lubrication                                                                                                |                           |                       | Lubricated for life   |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |                           |                       | See drawing           |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Protection class                                                                                           |                           |                       | IP 65                 |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Shrink disc<br>(Standard Version)                                                                          |                           |                       | SD 030x060 S2V        |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Max. torque<br>(without axial force)                                                                       | <i>T</i> <sub>max</sub>   | <i>Nm</i>             | 550                   |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                            |                           | <i>in.lb</i>          | 4868                  |                                            |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)                                                           | C                         | 14                    | <i>J</i> <sub>1</sub> | <i>kgcm<sup>2</sup></i>                    | -    | -    | -    | -    | -    | 0.8     | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  | 0.7  |      |
|                                                                                                            |                           |                       |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | -    | -    | -    | -    | -    | 0.71    | 0.71 | 0.71 | 0.62 | 0.62 | 0.62 | 0.62 |      |
|                                                                                                            | E                         | 19                    | <i>J</i> <sub>1</sub> | <i>kgcm<sup>2</sup></i>                    | 1.47 | 1.21 | 1.12 | 1.03 | 1    | 1.05    | 1.2  | 1.3  | 1.2  | 1.1  | 1.1  | 1.1  | 1.1  |
|                                                                                                            |                           |                       |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 1.3  | 1.07 | 0.99 | 0.91 | 0.89 | 0.93    | 1.06 | 1.15 | 1.06 | 0.97 | 0.97 | 0.97 | 0.97 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

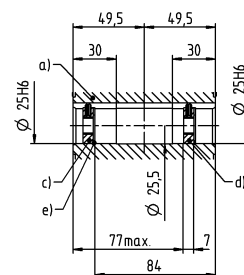
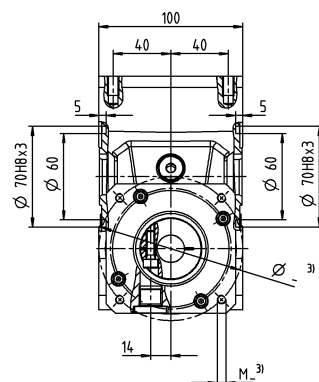
<sup>a)</sup> At max. 10 %  $F_{2QMax}$

<sup>b)</sup> Valid for standard clamping hub diameter

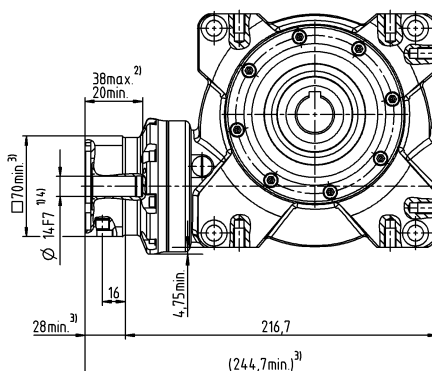
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

up to 19 <sup>4)</sup> (E) <sup>6)</sup>  
clamping hub  
diameter



up to 14/19 <sup>4)</sup> (C <sup>6)</sup>/E)  
clamping hub  
diameter



## Other output variants

- See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

- 303

# NVH 063 MF 1- /2-stage

|                                                                                                            |                           |    | 1-stage               |                                            |      |      |      |      |      | 2-stage |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---------------------------|----|-----------------------|--------------------------------------------|------|------|------|------|------|---------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | <i>i</i>                  |    |                       | 4                                          | 7    | 10   | 16   | 28   | 40   | 50      | 70   | 100  | 140  | 200  | 280  | 400  |      |
| Max. torque <sup>a) b)</sup><br>(at n <sub>1</sub> = 500 rpm)                                              | <i>T</i> <sub>2a</sub>    |    | <i>Nm</i>             | 250                                        | 303  | 319  | 331  | 365  | 321  | 319     | 303  | 319  | 365  | 321  | 365  | 321  |      |
|                                                                                                            |                           |    | <i>in.lb</i>          | 2213                                       | 2682 | 2823 | 2929 | 3230 | 2841 | 2823    | 2682 | 2823 | 3230 | 2841 | 3230 | 2841 |      |
| Emergency stop torque <sup>a) b)</sup><br>(permitted 1000 times during the service life of the gearbox)    | <i>T</i> <sub>2Not</sub>  |    | <i>Nm</i>             | 460                                        | 484  | 491  | 494  | 518  | 447  | 491     | 484  | 494  | 518  | 447  | 518  | 447  |      |
|                                                                                                            |                           |    | <i>in.lb</i>          | 4071                                       | 4283 | 4345 | 4372 | 4584 | 3956 | 4345    | 4283 | 4372 | 4584 | 3956 | 4584 | 3956 |      |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)                              | <i>n</i> <sub>1N</sub>    |    | <i>rpm</i>            | 4000                                       |      |      |      |      |      |         | 3100 |      |      |      |      |      |      |
| Max. input speed                                                                                           | <i>n</i> <sub>1Max</sub>  |    | <i>rpm</i>            | 4500                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at n <sub>1</sub> = 3000 rpm and 20 °C gearbox temperature)  | <i>T</i> <sub>012</sub>   |    | <i>Nm</i>             | 4.2                                        | 3.1  | 3    | 2.4  | 2.3  | 2.2  | 1.2     | 0.7  | 0.7  | 1.1  | 1.1  | 0.8  | 0.6  |      |
|                                                                                                            |                           |    | <i>in.lb</i>          | 37.2                                       | 27.4 | 26.6 | 21.2 | 20.4 | 19.5 | 10.6    | 6.2  | 6.2  | 9.7  | 9.7  | 7.1  | 5.3  |      |
| Max. backlash                                                                                              | <i>j</i> <sub>t</sub>     |    | <i>arcmin</i>         | ≤ 6                                        |      |      |      |      |      |         | ≤ 7  |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | <i>C</i> <sub>t21</sub>   |    | <i>Nm/arcmin</i>      | 28                                         | 28   | 28   | 28   | 28   | 28   | 28      | 28   | 28   | 28   | 28   | 28   | 28   |      |
|                                                                                                            |                           |    | <i>in.lb/arcmin</i>   | 248                                        | 248  | 248  | 248  | 248  | 248  | 248     | 248  | 248  | 248  | 248  | 248  | 248  |      |
| Max. axial force <sup>c)</sup>                                                                             | <i>F</i> <sub>2AMax</sub> |    | <i>N</i>              | 8250                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                            |                           |    | <i>lb<sub>f</sub></i> | 1856                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Max. lateral force <sup>b)</sup>                                                                           | <i>F</i> <sub>2QMax</sub> |    | <i>N</i>              | 6000                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                            |                           |    | <i>lb<sub>f</sub></i> | 1350                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                        | <i>M</i> <sub>2KMax</sub> |    | <i>Nm</i>             | 843                                        |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                            |                           |    | <i>in.lb</i>          | 7461                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Efficiency at full load<br>(at n <sub>1</sub> = 500 rpm)                                                   | <i>η</i>                  |    | %                     | 93                                         | 91   | 88   | 83   | 74   | 68   | 86      | 89   | 86   | 72   | 66   | 72   | 66   |      |
| Service life                                                                                               | <i>L</i> <sub>h</sub>     |    | <i>h</i>              | > 20000                                    |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | <i>m</i>                  |    | <i>kg</i>             | 13                                         |      |      |      |      |      |         | 13.7 |      |      |      |      |      |      |
|                                                                                                            |                           |    | <i>lb<sub>m</sub></i> | 28.7                                       |      |      |      |      |      |         | 30   |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed –<br>ratio-specific values available in cymex®) | <i>L</i> <sub>PA</sub>    |    | <i>dB(A)</i>          | ≤ 64                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |                           |    | °C                    | +90                                        |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                            |                           |    | °F                    | +194                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |                           |    | °C                    | −15 to +40                                 |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                            |                           |    | °F                    | +5 to +104                                 |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Lubrication                                                                                                |                           |    |                       | Lubricated for life                        |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |                           |    |                       | See drawing                                |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Protection class                                                                                           |                           |    |                       | IP 65                                      |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Shrink disc<br>(Standard Version)                                                                          |                           |    |                       | SD 036x072 S2V                             |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Max. torque<br>(without axial force)                                                                       | <i>T</i> <sub>max</sub>   |    | <i>Nm</i>             | 640                                        |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                            |                           |    | <i>in.lb</i>          | 5664                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br><br>Clamping hub diameter [mm]                         | E                         | 19 | <i>J</i> <sub>1</sub> | <i>kgcm<sup>2</sup></i>                    | -    | -    | -    | -    | -    | -       | 2.6  | 2.8  | 2.5  | 2.4  | 2.4  | 2.4  | 2.3  |
|                                                                                                            |                           |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | -    | -    | -    | -    | -    | -       | 2.3  | 2.48 | 2.21 | 2.12 | 2.12 | 2.12 | 2.04 |
|                                                                                                            | G                         | 24 | <i>J</i> <sub>1</sub> | <i>kgcm<sup>2</sup></i>                    | -    | -    | -    | -    | -    | -       | 4.1  | 4.3  | 4.1  | 4    | 4    | 3.9  | 3.9  |
|                                                                                                            |                           |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | -    | -    | -    | -    | -    | -       | 3.63 | 3.81 | 3.63 | 3.54 | 3.54 | 3.45 | 3.45 |
|                                                                                                            | H                         | 28 | <i>J</i> <sub>1</sub> | <i>kgcm<sup>2</sup></i>                    | 4.8  | 3.89 | 3.65 | 3.56 | 3.52 | 3.47    | -    | -    | -    | -    | -    | -    | -    |
|                                                                                                            |                           |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 4.25 | 3.44 | 3.23 | 3.15 | 3.12 | 3.07    | -    | -    | -    | -    | -    | -    | -    |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> At max. 10 %  $F_{2QMax}$

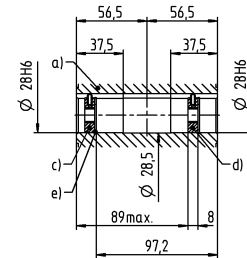
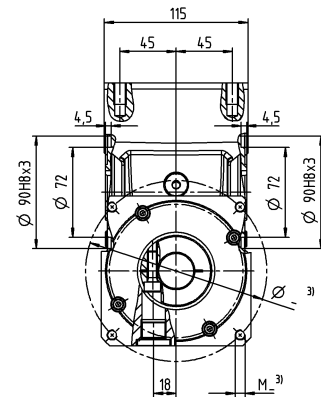
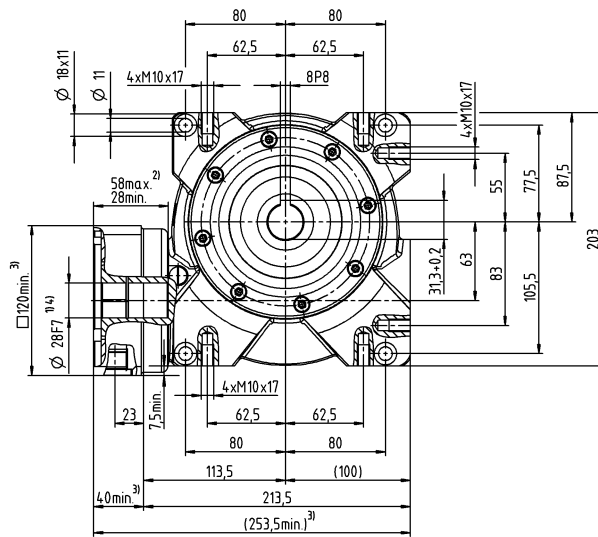
<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

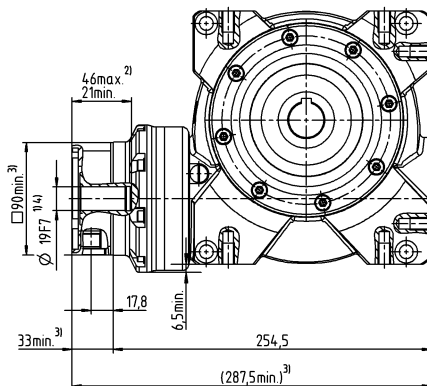
# 1-stage

up to 28<sup>4)</sup> (H)<sup>6)</sup>  
clamping hub  
diameter



# 2-stage

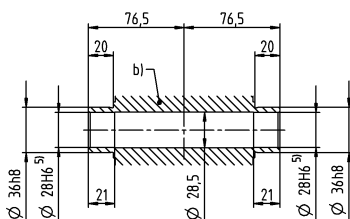
up to 19/24<sup>4)</sup> (E<sup>6)</sup>/G)  
clamping hub  
diameter



Motor shaft diameter [mm]

## Other output variants

Hollow shaft interfaces on both sides



- a) Hollow shaft, keyed on both sides
- b) Hollow shaft interfaces on both sides
- c) End disc for screw M10 (on request)
- d) End disc as forcing washer for screw M12 (on request)
- e) Locking ring – DIN 472 (on request)

See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

- <sup>1)</sup> Check motor shaft fit
- <sup>2)</sup> Min./Max. permissible motor shaft length  
Longer motor shafts are adaptable, please contact us
- <sup>3)</sup> The dimensions depend on the motor
- <sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
- <sup>5)</sup> Tolerance h6 for mounted shaft
- <sup>6)</sup> Standard clamping hub diameter

# NVS 040 MF 1-/2-stage

|                                                                                                                  |                           |                       | 1-stage                                     |      |      |      |      |      | 2-stage |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------|---------------------------------------------|------|------|------|------|------|---------|------|------|------|------|------|------|------|
| Ratio                                                                                                            | <i>i</i>                  |                       |                                             | 4    | 7    | 10   | 16   | 28   | 40      | 50   | 70   | 100  | 140  | 200  | 280  | 400  |
| Max. torque <sup>a) b) e)</sup><br>(at <i>n</i> <sub>1</sub> = 500 rpm)                                          | <i>T</i> <sub>2a</sub>    | <i>Nm</i>             | 63                                          | 73   | 87   | 89   | 96   | 84   | 91      | 82   | 91   | 98   | 91   | 98   | 91   |      |
|                                                                                                                  |                           | <i>in.lb</i>          | 558                                         | 646  | 770  | 788  | 850  | 743  | 805     | 726  | 805  | 867  | 805  | 867  | 805  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox)       | <i>T</i> <sub>2Not</sub>  | <i>Nm</i>             | 118                                         | 126  | 125  | 129  | 134  | 122  | 125     | 126  | 125  | 134  | 122  | 134  | 122  |      |
|                                                                                                                  |                           | <i>in.lb</i>          | 1044                                        | 1115 | 1106 | 1142 | 1186 | 1080 | 1106    | 1115 | 1106 | 1186 | 1080 | 1186 | 1080 |      |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)                                    | <i>n</i> <sub>1N</sub>    | <i>rpm</i>            | 4000                                        |      |      |      |      |      |         | 4400 |      |      |      |      |      |      |
| Max. input speed                                                                                                 | <i>n</i> <sub>1Max</sub>  | <i>rpm</i>            | 6000                                        |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at <i>n</i> <sub>1</sub> = 3000 rpm and 20 °C gearbox temperature) | <i>T</i> <sub>012</sub>   | <i>Nm</i>             | 0.8                                         | 0.7  | 0.6  | 0.5  | 0.4  | 0.4  | 0.4     | 0.2  | 0.2  | 0.4  | 0.4  | 0.3  | 0.2  |      |
|                                                                                                                  |                           | <i>in.lb</i>          | 7.1                                         | 6.2  | 5.3  | 4.4  | 3.5  | 3.5  | 3.5     | 1.8  | 1.8  | 3.5  | 3.5  | 2.7  | 1.8  |      |
| Max. backlash                                                                                                    | <i>j</i> <sub>t</sub>     | <i>arcmin</i>         | ≤ 6                                         |      |      |      |      |      |         | ≤ 7  |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                                 | <i>C</i> <sub>t21</sub>   | <i>Nm/arcmin</i>      | 4.5                                         | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5     | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |
|                                                                                                                  |                           | <i>in.lb/arcmin</i>   | 40                                          | 40   | 40   | 40   | 40   | 40   | 40      | 40   | 40   | 40   | 40   | 40   | 40   | 40   |
| Max. axial force <sup>c)</sup>                                                                                   | <i>F</i> <sub>2AMax</sub> | <i>N</i>              | 3000                                        |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                                  |                           | <i>lb<sub>f</sub></i> | 675                                         |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Max. lateral force <sup>b)</sup>                                                                                 | <i>F</i> <sub>2QMax</sub> | <i>N</i>              | 2400                                        |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                                  |                           | <i>lb<sub>f</sub></i> | 540                                         |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                              | <i>M</i> <sub>2KMax</sub> | <i>Nm</i>             | 205                                         |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                                  |                           | <i>in.lb</i>          | 1814                                        |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Efficiency at full load<br>(at <i>n</i> <sub>1</sub> = 500 rpm)                                                  | <i>η</i>                  | %                     | 93                                          | 90   | 88   | 82   | 73   | 67   | 86      | 88   | 86   | 71   | 65   | 71   | 65   |      |
| Service life                                                                                                     | <i>L</i> <sub>h</sub>     | <i>h</i>              | > 20000                                     |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                         | <i>m</i>                  | <i>kg</i>             | 5                                           |      |      |      |      |      |         | 5.6  |      |      |      |      |      |      |
|                                                                                                                  |                           | <i>lb<sub>m</sub></i> | 11.1                                        |      |      |      |      |      |         | 12   |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed –<br>ratio-specific values available in cymex®)       | <i>L</i> <sub>PA</sub>    | <i>dB(A)</i>          | ≤ 54                                        |      |      |      |      |      |         | ≤ 58 |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                               |                           | °C                    | +90                                         |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                                  |                           | °F                    | +194                                        |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Ambient temperature                                                                                              |                           | °C                    | −15 to +40                                  |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                                  |                           | °F                    | +5 to +104                                  |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Lubrication                                                                                                      |                           |                       | Lubricated for life                         |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Direction of rotation                                                                                            |                           |                       | See drawing                                 |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Protection class                                                                                                 |                           |                       | IP 65                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                                   |                           |                       | ELC - 00060B - 016.000 - X                  |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                             |                           | <i>mm</i>             | X = 016.000 - 032.000                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)                                                                 | C 14                      | <i>J</i> <sub>1</sub> | <i>kgcm</i> <sup>2</sup>                    | 0.53 | 0.38 | 0.35 | 0.33 | 0.32 | 0.32    | 0.25 | 0.28 | 0.24 | 0.23 | 0.19 | 0.18 | 0.18 |
|                                                                                                                  |                           |                       | <i>10<sup>-3</sup> in.lb.s</i> <sup>2</sup> | 0.47 | 0.34 | 0.31 | 0.29 | 0.28 | 0.28    | 0.22 | 0.25 | 0.21 | 0.2  | 0.17 | 0.16 | 0.16 |
| Clamping hub diameter [mm]                                                                                       | E 19                      | <i>J</i> <sub>1</sub> | <i>kgcm</i> <sup>2</sup>                    | 0.55 | 0.41 | 0.38 | 0.35 | 0.34 | 0.34    | 0.36 | 0.4  | 0.36 | 0.34 | 0.3  | 0.3  | 0.3  |
|                                                                                                                  |                           |                       | <i>10<sup>-3</sup> in.lb.s</i> <sup>2</sup> | 0.49 | 0.36 | 0.34 | 0.31 | 0.3  | 0.3     | 0.32 | 0.35 | 0.32 | 0.3  | 0.27 | 0.27 | 0.27 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> At max. 10 %  $F_{2QMax}$

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

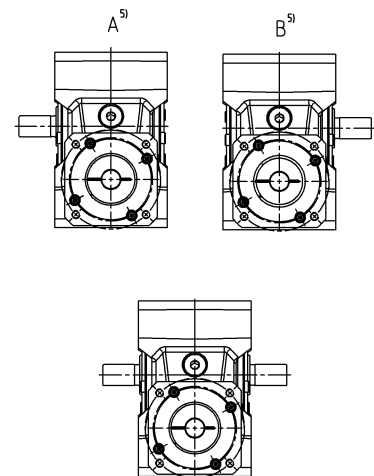
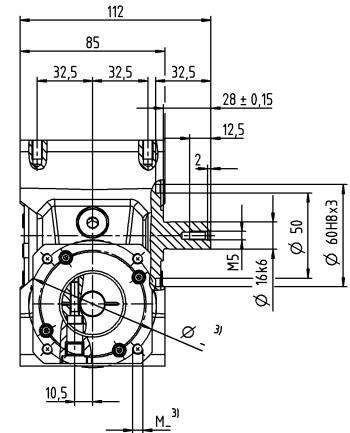
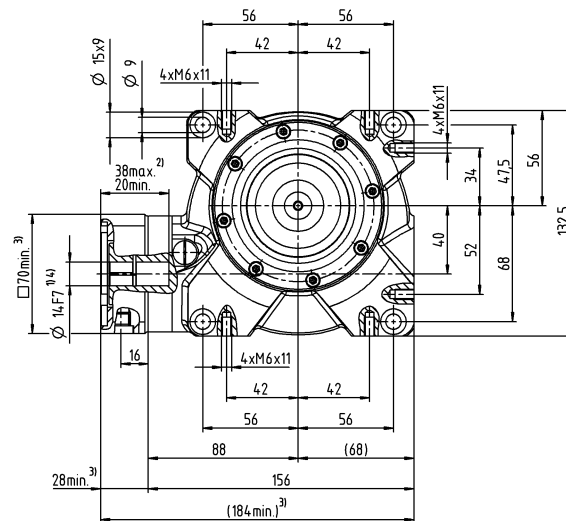
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft



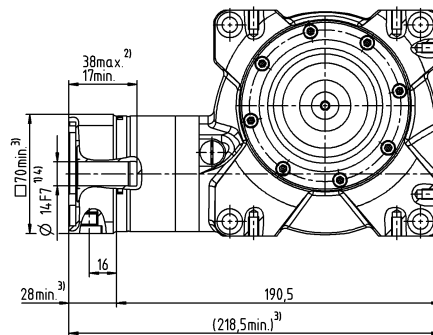
# 1-stage

up to 14/19 <sup>4)</sup> (C <sup>6)</sup>/E)  
clamping hub  
diameter



# 2-stage

up to 14/19 <sup>4)</sup> (C <sup>6)</sup>/E)  
clamping hub  
diameter

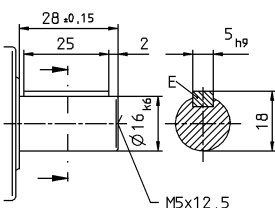


Optional dual-shaft output. Drawings available on request.  
Involute gearing is not possible.

Motor shaft diameter [mm]

## Other output variants

Shaft with key



See technical data sheet for available clamping hub diameters  
(mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length

Longer motor shafts are adaptable, please contact us

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a  
bushing with a minimum thickness of 1 mm

<sup>5)</sup> Output side

<sup>6)</sup> Standard clamping hub diameter

# NVS 050 MF 1-/2-stage

|                                                                                                                  |                           |                       | 1-stage                    |                                             |      |      |      |      |      | 2-stage |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------|----------------------------|---------------------------------------------|------|------|------|------|------|---------|------|------|------|------|------|------|
| Ratio                                                                                                            | <i>i</i>                  |                       | 4                          | 7                                           | 10   | 16   | 28   | 40   | 50   | 70      | 100  | 140  | 200  | 280  | 400  |      |
| Max. torque <sup>a) b) e)</sup><br>(at <i>n</i> <sub>1</sub> = 500 rpm)                                          | <i>T</i> <sub>2a</sub>    | <i>Nm</i>             | 130                        | 150                                         | 153  | 157  | 167  | 141  | 153  | 150     | 153  | 167  | 141  | 167  | 141  |      |
|                                                                                                                  |                           | <i>in.lb</i>          | 1151                       | 1328                                        | 1354 | 1389 | 1478 | 1248 | 1354 | 1328    | 1354 | 1478 | 1248 | 1478 | 1248 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox)       | <i>T</i> <sub>2Not</sub>  | <i>Nm</i>             | 230                        | 242                                         | 242  | 250  | 262  | 236  | 242  | 242     | 242  | 262  | 236  | 262  | 236  |      |
|                                                                                                                  |                           | <i>in.lb</i>          | 2036                       | 2142                                        | 2142 | 2213 | 2319 | 2089 | 2142 | 2142    | 2142 | 2319 | 2089 | 2319 | 2089 |      |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)                                    | <i>n</i> <sub>1N</sub>    | <i>rpm</i>            | 4000                       |                                             |      |      |      |      |      | 3500    |      |      |      |      |      |      |
| Max. input speed                                                                                                 | <i>n</i> <sub>1Max</sub>  | <i>rpm</i>            | 6000                       |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at <i>n</i> <sub>1</sub> = 3000 rpm and 20 °C gearbox temperature) | <i>T</i> <sub>012</sub>   | <i>Nm</i>             | 2.3                        | 2.2                                         | 1.6  | 1.5  | 1.2  | 1.1  | 0.7  | 0.5     | 0.4  | 0.6  | 0.6  | 0.4  | 0.4  |      |
|                                                                                                                  |                           | <i>in.lb</i>          | 20.4                       | 19.5                                        | 14.2 | 13.3 | 10.6 | 9.7  | 6.2  | 4.4     | 3.5  | 5.3  | 5.3  | 3.5  | 3.5  |      |
| Max. backlash                                                                                                    | <i>j</i> <sub>t</sub>     | <i>arcmin</i>         | ≤ 6                        |                                             |      |      |      |      |      | ≤ 7     |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                                 | <i>C</i> <sub>t21</sub>   | <i>Nm/arcmin</i>      | 8                          | 8                                           | 8    | 8    | 8    | 8    | 8    | 8       | 8    | 8    | 8    | 8    | 8    |      |
|                                                                                                                  |                           | <i>in.lb/arcmin</i>   | 71                         | 71                                          | 71   | 71   | 71   | 71   | 71   | 71      | 71   | 71   | 71   | 71   | 71   |      |
| Max. axial force <sup>c)</sup>                                                                                   | <i>F</i> <sub>2AMax</sub> | <i>N</i>              | 5000                       |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
|                                                                                                                  |                           | <i>lb<sub>f</sub></i> | 1125                       |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
| Max. lateral force <sup>b)</sup>                                                                                 | <i>F</i> <sub>2QMax</sub> | <i>N</i>              | 3800                       |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
|                                                                                                                  |                           | <i>lb<sub>f</sub></i> | 855                        |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
| Max. tilting moment                                                                                              | <i>M</i> <sub>2KMax</sub> | <i>Nm</i>             | 409                        |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
|                                                                                                                  |                           | <i>in.lb</i>          | 3620                       |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
| Efficiency at full load<br>(at <i>n</i> <sub>1</sub> = 500 rpm)                                                  | <i>η</i>                  | %                     | 92                         | 89                                          | 86   | 82   | 72   | 64   | 84   | 87      | 84   | 70   | 62   | 70   | 62   |      |
| Service life                                                                                                     | <i>L</i> <sub>h</sub>     | <i>h</i>              | > 20000                    |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                         | <i>m</i>                  | <i>kg</i>             | 8                          |                                             |      |      |      |      |      | 8.7     |      |      |      |      |      |      |
|                                                                                                                  |                           | <i>lb<sub>m</sub></i> | 17.7                       |                                             |      |      |      |      |      | 19      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed –<br>ratio-specific values available in cymex®)       | <i>L</i> <sub>PA</sub>    | <i>dB(A)</i>          | ≤ 62                       |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                               |                           | °C                    | +90                        |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
|                                                                                                                  |                           | °F                    | +194                       |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
| Ambient temperature                                                                                              |                           | °C                    | −15 to +40                 |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
|                                                                                                                  |                           | °F                    | +5 to +104                 |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
| Lubrication                                                                                                      |                           |                       | Lubricated for life        |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
| Direction of rotation                                                                                            |                           |                       | See drawing                |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
| Protection class                                                                                                 |                           |                       | IP 65                      |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                                   |                           |                       | ELC - 00150B - 022.000 - X |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
| Bore diameter of coupling<br>on the application side                                                             |                           | <i>mm</i>             | X = 022.000 - 036.000      |                                             |      |      |      |      |      |         |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)                                                                 | C                         | 14                    | <i>J</i> <sub>1</sub>      | <i>kgcm</i> <sup>2</sup>                    | -    | -    | -    | -    | -    | -       | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 0.7  |
|                                                                                                                  |                           |                       |                            | <i>10<sup>-3</sup> in.lb.s</i> <sup>2</sup> | -    | -    | -    | -    | -    | -       | 0.71 | 0.71 | 0.71 | 0.62 | 0.62 | 0.62 |
| Clamping hub diameter [mm]                                                                                       | E                         | 19                    | <i>J</i> <sub>1</sub>      | <i>kgcm</i> <sup>2</sup>                    | 1.47 | 1.21 | 1.12 | 1.03 | 1    | 1.05    | 1.2  | 1.3  | 1.2  | 1.1  | 1.1  | 1.1  |
|                                                                                                                  |                           |                       |                            | <i>10<sup>-3</sup> in.lb.s</i> <sup>2</sup> | 1.3  | 1.07 | 0.99 | 0.91 | 0.89 | 0.93    | 1.06 | 1.15 | 1.06 | 0.97 | 0.97 | 0.97 |

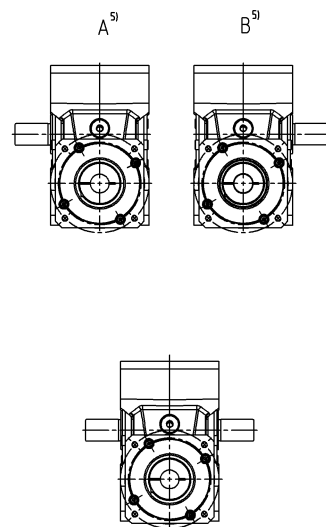
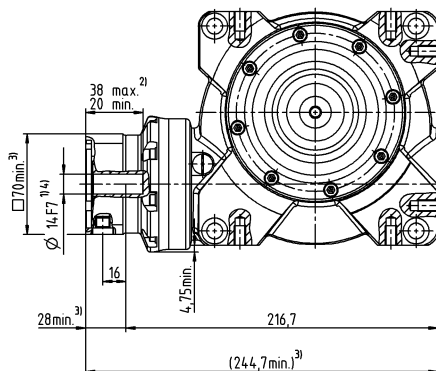
Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

- <sup>a)</sup> At max. 10 %  $F_{2QMax}$
- <sup>b)</sup> Valid for standard clamping hub diameter
- <sup>c)</sup> Refers to center of the output shaft or flange
- <sup>d)</sup> Please reduce input speed at higher ambient temperatures
- <sup>e)</sup> Valid for: Smooth shaft

up to 19 <sup>4)</sup> (E) <sup>6)</sup>  
clamping hub  
diameter

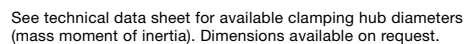
## 2-stage

up to 14/19 <sup>4)</sup> (C <sup>6)</sup>/E)  
clamping hub  
diameter



Worm Gearboxes  
Value Line

Shaft with key



Non-tolerated dimensions are nominal dimensions

- 1) Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length

Longer motor shafts are adaptable, please contact us

- 3) The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a

bushing with a minimum thickness of 1 mm

5) Output side

6) Standard clamping hub diameter

# NVS 063 MF 1- / 2-stage

|                                                                                                                  |                           |    | 1-stage               |                                            |      |      |      |      |      | 2-stage |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------------|---------------------------|----|-----------------------|--------------------------------------------|------|------|------|------|------|---------|------|------|------|------|------|------|------|
| Ratio                                                                                                            | <i>i</i>                  |    |                       | 4                                          | 7    | 10   | 16   | 28   | 40   | 50      | 70   | 100  | 140  | 200  | 280  | 400  |      |
| Max. torque <sup>a) b) e)</sup><br>(at <i>n</i> <sub>1</sub> = 500 rpm)                                          | <i>T</i> <sub>2a</sub>    |    | <i>Nm</i>             | 250                                        | 303  | 319  | 331  | 365  | 321  | 319     | 303  | 319  | 365  | 321  | 365  | 321  |      |
|                                                                                                                  |                           |    | <i>in.lb</i>          | 2213                                       | 2682 | 2823 | 2929 | 3230 | 2841 | 2823    | 2682 | 2823 | 3230 | 2841 | 3230 | 2841 |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox)       | <i>T</i> <sub>2Not</sub>  |    | <i>Nm</i>             | 460                                        | 484  | 491  | 494  | 518  | 447  | 491     | 484  | 494  | 518  | 447  | 518  | 447  |      |
|                                                                                                                  |                           |    | <i>in.lb</i>          | 4071                                       | 4283 | 4345 | 4372 | 4584 | 3956 | 4345    | 4283 | 4372 | 4584 | 3956 | 4584 | 3956 |      |
| Permitted average input speed <sup>d)</sup><br>(at 20 °C ambient temperature)                                    | <i>n</i> <sub>1N</sub>    |    | <i>rpm</i>            | 4000                                       |      |      |      |      |      | 3100    |      |      |      |      |      |      |      |
| Max. input speed                                                                                                 | <i>n</i> <sub>1Max</sub>  |    | <i>rpm</i>            | 4500                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Mean no load running torque <sup>b)</sup><br>(at <i>n</i> <sub>1</sub> = 3000 rpm and 20 °C gearbox temperature) | <i>T</i> <sub>012</sub>   |    | <i>Nm</i>             | 4.2                                        | 3.1  | 3    | 2.4  | 2.3  | 2.2  | 1.2     | 0.7  | 0.7  | 1.1  | 1.1  | 0.8  | 0.6  |      |
|                                                                                                                  |                           |    | <i>in.lb</i>          | 37.2                                       | 27.4 | 26.6 | 21.2 | 20.4 | 19.5 | 10.6    | 6.2  | 6.2  | 9.7  | 9.7  | 7.1  | 5.3  |      |
| Max. backlash                                                                                                    | <i>j</i> <sub>t</sub>     |    | <i>arcmin</i>         | ≤ 6                                        |      |      |      |      |      | ≤ 7     |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                                 | <i>C</i> <sub>t21</sub>   |    | <i>Nm/arcmin</i>      | 28                                         | 28   | 28   | 28   | 28   | 28   | 28      | 28   | 28   | 28   | 28   | 28   | 28   |      |
|                                                                                                                  |                           |    | <i>in.lb/arcmin</i>   | 248                                        | 248  | 248  | 248  | 248  | 248  | 248     | 248  | 248  | 248  | 248  | 248  | 248  |      |
| Max. axial force <sup>c)</sup>                                                                                   | <i>F</i> <sub>2AMax</sub> |    | <i>N</i>              | 8250                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                                  |                           |    | <i>lb<sub>f</sub></i> | 1856                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Max. lateral force <sup>b)</sup>                                                                                 | <i>F</i> <sub>2QMax</sub> |    | <i>N</i>              | 6000                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                                  |                           |    | <i>lb<sub>f</sub></i> | 1350                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Max. tilting moment                                                                                              | <i>M</i> <sub>2KMax</sub> |    | <i>Nm</i>             | 843                                        |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                                  |                           |    | <i>in.lb</i>          | 7461                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Efficiency at full load<br>(at <i>n</i> <sub>1</sub> = 500 rpm)                                                  | <i>η</i>                  |    | %                     | 93                                         | 91   | 88   | 83   | 74   | 68   | 86      | 89   | 86   | 72   | 66   | 72   | 66   |      |
| Service life                                                                                                     | <i>L</i> <sub>h</sub>     |    | <i>h</i>              | > 20000                                    |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                         | <i>m</i>                  |    | <i>kg</i>             | 13                                         |      |      |      |      |      | 13.7    |      |      |      |      |      |      |      |
|                                                                                                                  |                           |    | <i>lb<sub>m</sub></i> | 28.7                                       |      |      |      |      |      | 30      |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)          | <i>L</i> <sub>PA</sub>    |    | <i>dB(A)</i>          | ≤ 64                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                               |                           |    | °C                    | +90                                        |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                                  |                           |    | °F                    | +194                                       |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Ambient temperature                                                                                              |                           |    | °C                    | −15 to +40                                 |      |      |      |      |      |         |      |      |      |      |      |      |      |
|                                                                                                                  |                           |    | °F                    | +5 to +104                                 |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Lubrication                                                                                                      |                           |    |                       | Lubricated for life                        |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Direction of rotation                                                                                            |                           |    |                       | See drawing                                |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Protection class                                                                                                 |                           |    |                       | IP 65                                      |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Elastomer coupling<br>(recommended product type – validate sizing with cymex®)                                   |                           |    |                       | ELC - 00300B - 032.000 - X                 |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Bore diameter of coupling on the application side                                                                |                           |    | <i>mm</i>             | X = 032.000 - 045.000                      |      |      |      |      |      |         |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br><br>Clamping hub diameter [mm]                               | E                         | 19 | <i>J</i> <sub>1</sub> | <i>kgcm<sup>2</sup></i>                    | -    | -    | -    | -    | -    | -       | 2.6  | 2.8  | 2.50 | 2.4  | 2.4  | 2.4  | 2.3  |
|                                                                                                                  |                           |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | -    | -    | -    | -    | -    | -       | 2.3  | 2.48 | 2.21 | 2.12 | 2.12 | 2.12 | 2.04 |
|                                                                                                                  | G                         | 24 | <i>J</i> <sub>1</sub> | <i>kgcm<sup>2</sup></i>                    | -    | -    | -    | -    | -    | -       | 4.1  | 4.3  | 4.1  | 4    | 4    | 3.9  | 3.9  |
|                                                                                                                  |                           |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | -    | -    | -    | -    | -    | -       | 3.63 | 3.81 | 3.63 | 3.54 | 3.54 | 3.45 | 3.45 |
|                                                                                                                  | H                         | 28 | <i>J</i> <sub>1</sub> | <i>kgcm<sup>2</sup></i>                    | 4.8  | 3.89 | 3.65 | 3.56 | 3.52 | 3.47    | -    | -    | -    | -    | -    | -    | -    |
|                                                                                                                  |                           |    |                       | <i>10<sup>-3</sup> in.lb.s<sup>2</sup></i> | 4.25 | 3.44 | 3.23 | 3.15 | 3.12 | 3.07    | -    | -    | -    | -    | -    | -    | -    |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> At max. 10 %  $F_{2QMax}$

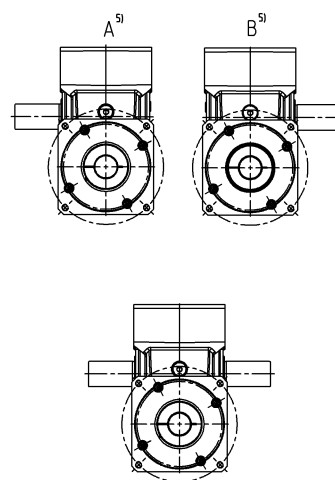
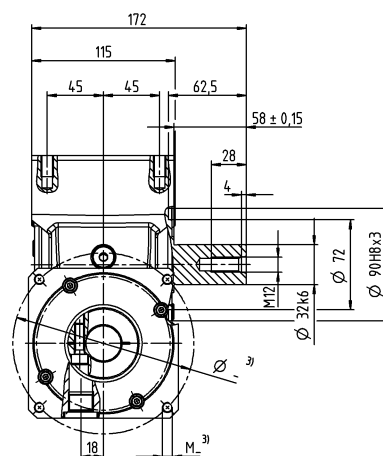
<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

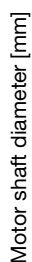
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

up to 28 <sup>4)</sup> (H) <sup>6)</sup>  
clamping hub  
diameter

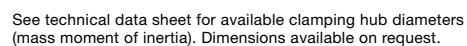


up to 19/24 <sup>4)</sup> (E <sup>6)</sup>/G)  
clamping hub  
diameter



Worm Gearboxes  
Value Line

Shaft with key



Non-tolerated dimensions are nominal dimensions

- 1) Check motor shaft fit
- 2) Min./Max. permissible motor shaft length

Longer motor shafts are adaptable, please contact us

- 3) The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm

5) Output side

6) Standard clamping hub diameter

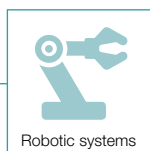
# Application-specific solutions

## HYGIENIC DESIGN HDV

Our Hygienic Design products are specially developed for unusual fields of application in food processing. They are made with highly resistant stainless steel and ideally suited for cleaning with aggressive cleaning agents and disinfectants. Direct process integration allows new design freedom and an open machine concept without encasings.



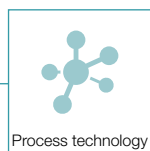
The world's first  
EHEDG-certified  
planetary gearbox



Robotic systems



Food and drinks  
industry



Process technology



Cosmetics



Pharmaceuticals

## AREAS OF APPLICATION



# HDV – Reliably Clean



HDV

Aseptic, highly dynamic, and outstanding positioning accuracy: the HDV is the world's first planetary gearbox with EHEDG certification and meets the strict hygiene requirements of production and packaging facilities. The gearbox in hygienic design not only offers you maximum safety against contamination-related product and process risks, but also guarantees maximum plant availability and productivity of the equipment.

## PRODUCT HIGHLIGHTS



### New design freedom

Direct process integration opens up new design options.



### Resistance

Resistant against chemical cleaning agents and disinfectants.



### Cleaning

Fast, efficient, and safe cleaning, also suitable for CIP processes.



### Max. achievable impermeability

IP69X (max. 30 bar).  
Relating to DIN 60529:2014-09



The world's first  
EHEDG-certified  
planetary gearbox



Pharmaceuticals – bottling plant for liquid pharmaceutical products



Cosmetics – bottling plant for creams





More information about the HDV: simply scan the QR code using your smartphone.  
[www.wittenstein.de/en-en/hygienic-design/](http://www.wittenstein.de/en-en/hygienic-design/)



**A**

#### **Certification**

- World's first EHEDG-certified planetary gearbox
- FDA certified
- NSF certified

**B**

#### **Surface texture**

- Smooth-rolled surface made of hygienic steel 1.4404
- Electropolished surface also optionally possible

**C**

#### **Cavity-free housing design**

- No undercuts
- Large radii
- No horizontal surfaces

**D**

#### **Maximum safety**

- Triple sealing concept
- Seals resistant to cleaning agents
- IP69X (max. 30 bar)



Sweet goods – packaging plant for cookies



Milk products – cheese processing plant

# HDV 015 MF 1-/2-stage

|                                                                                                            |             |    |                               | 1-stage                               |      |      |      | 2-stage     |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|-------------|----|-------------------------------|---------------------------------------|------|------|------|-------------|------|------|------|------|------|------|------|
| Ratio                                                                                                      | i           |    |                               | 4                                     | 5    | 7    | 10   | 16          | 20   | 25   | 35   | 50   | 70   | 100  |      |
| Max. torque <sup>a) b) e)</sup>                                                                            | $T_{2a}$    |    | Nm                            | 51                                    | 51   | 51   | 46   | 51          | 51   | 51   | 51   | 51   | 51   | 46   |      |
|                                                                                                            |             |    | in.lb                         | 451                                   | 451  | 451  | 407  | 451         | 451  | 451  | 451  | 451  | 451  | 407  |      |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      | $T_{2B}$    |    | Nm                            | 32                                    | 32   | 32   | 29   | 32          | 32   | 32   | 32   | 32   | 32   | 29   |      |
|                                                                                                            |             |    | in.lb                         | 283                                   | 283  | 283  | 257  | 283         | 283  | 283  | 283  | 283  | 283  | 257  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) | $T_{2Not}$  |    | Nm                            | 75                                    | 75   | 75   | 75   | 75          | 75   | 75   | 75   | 75   | 75   | 75   |      |
|                                                                                                            |             |    | in.lb                         | 664                                   | 664  | 664  | 664  | 664         | 664  | 664  | 664  | 664  | 664  | 664  |      |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2a}$ and 20 °C ambient temperature)                 | $n_{1N}$    |    | rpm                           | 3000                                  | 3000 | 3000 | 3000 | 3700        | 3700 | 3700 | 3700 | 3700 | 3700 | 3700 |      |
| Max. input speed                                                                                           | $n_{1Max}$  |    | rpm                           | 6000                                  | 6000 | 6000 | 6000 | 6000        | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            | $T_{012}$   |    | Nm                            | 0.15                                  | 0.15 | 0.15 | 0.15 | 0.15        | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |      |
|                                                                                                            |             |    | in.lb                         | 1.3                                   | 1.3  | 1.3  | 1.3  | 1.3         | 1.3  | 1.3  | 1.3  | 1.3  | 1.3  | 1.3  |      |
| Max. backlash                                                                                              | $j_t$       |    | arcmin                        | ≤ 10                                  |      |      |      | ≤ 15        |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           | $C_{t21}$   |    | Nm/arcmin                     | 2.3                                   | 2.3  | 2.3  | 2    | 2.3         | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2    |      |
|                                                                                                            |             |    | in.lb/arcmin                  | 20                                    | 20   | 20   | 18   | 20          | 20   | 20   | 20   | 20   | 20   | 18   |      |
| Max. axial force <sup>c)</sup><br>(Standard / HIGH FORCES)                                                 | $F_{2AMax}$ |    | N                             | 500 / 1000                            |      |      |      | 500 / 1000  |      |      |      |      |      |      |      |
|                                                                                                            |             |    | lb <sub>f</sub>               | 113 / 225                             |      |      |      | 113 / 225   |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup><br>(Standard / HIGH FORCES)                                               | $F_{2QMax}$ |    | N                             | 350 / 1600                            |      |      |      | 350 / 1600  |      |      |      |      |      |      |      |
|                                                                                                            |             |    | lb <sub>f</sub>               | 79 / 360                              |      |      |      | 79 / 360    |      |      |      |      |      |      |      |
| Max. tilting moment<br>(Standard / HIGH FORCES)                                                            | $M_{2KMax}$ |    | Nm                            | 20 / 105                              |      |      |      | 20 / 105    |      |      |      |      |      |      |      |
|                                                                                                            |             |    | in.lb                         | 177 / 929                             |      |      |      | 177 / 929   |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    | $\eta$      |    | %                             | 97                                    |      |      |      | 95          |      |      |      |      |      |      |      |
| Service life                                                                                               | $L_h$       |    | h                             | > 20000                               |      |      |      | > 20000     |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   | $m$         |    | kg                            | 3.2                                   |      |      |      | 3.8         |      |      |      |      |      |      |      |
|                                                                                                            |             |    | lb <sub>m</sub>               | 7.1                                   |      |      |      | 8.4         |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    | $L_{PA}$    |    | dB(A)                         | ≤ 60                                  |      |      |      | ≤ 60        |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |             |    | °C                            | +90                                   |      |      |      | +90         |      |      |      |      |      |      |      |
|                                                                                                            |             |    | °F                            | +194                                  |      |      |      | +194        |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |             |    | °C                            | -25 to +40                            |      |      |      | -25 to +40  |      |      |      |      |      |      |      |
|                                                                                                            |             |    | °F                            | -13 to +104                           |      |      |      | -13 to +104 |      |      |      |      |      |      |      |
| Lubrication                                                                                                |             |    | Lubricated for life           |                                       |      |      |      |             |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |             |    | In- and output same direction |                                       |      |      |      |             |      |      |      |      |      |      |      |
| Protection class                                                                                           |             |    | IP 69X                        |                                       |      |      |      |             |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | C           | 14 | $J_1$                         | kgcm <sup>2</sup>                     | 0.18 | 0.17 | 0.15 | 0.15        | 0.17 | 0.16 | 0.16 | 0.15 | 0.15 | 0.15 | 0.15 |
|                                                                                                            |             |    |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.16 | 0.15 | 0.13 | 0.13        | 0.15 | 0.14 | 0.14 | 0.13 | 0.13 | 0.13 | 0.13 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> At max. 10 %  $F_{2QMax}$

<sup>b)</sup> Valid for standard clamping hub diameter

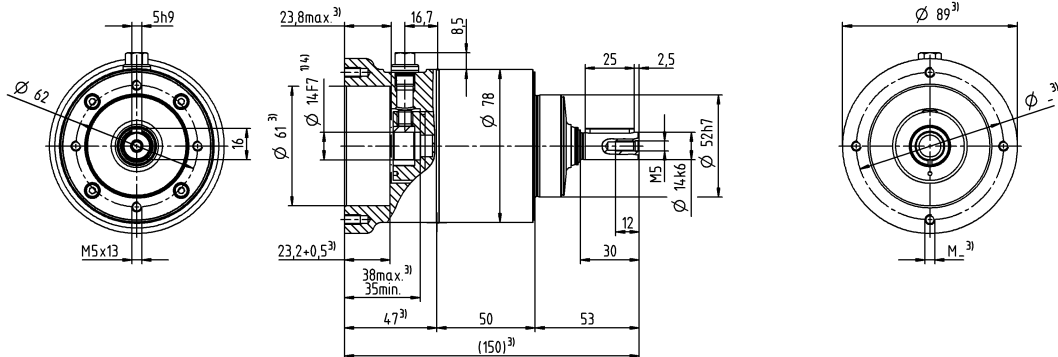
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

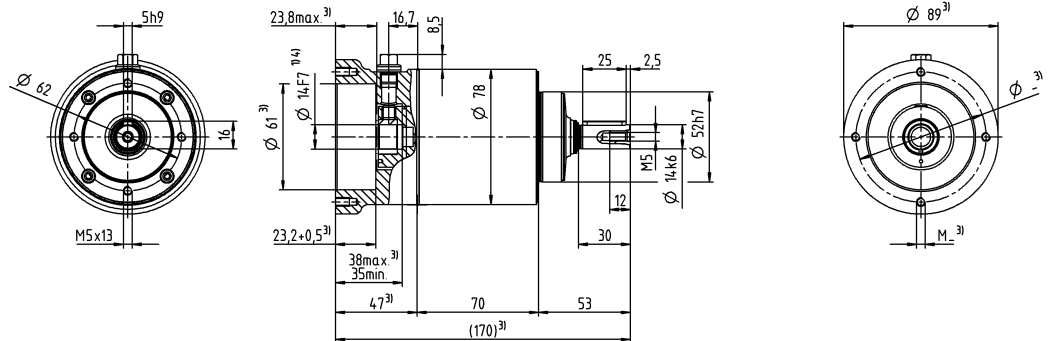
# 1-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



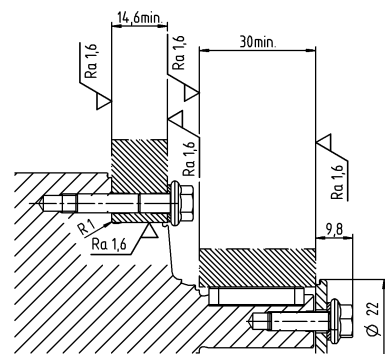
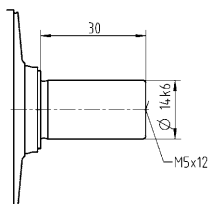
# 2-stage

up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



## Other output variants

Smooth shaft



Mounting accessories:  
Mounting kit comprising stainless steel screws, washers,  
seals and O-rings available as an option.

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated  
by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# HDV 025 MF 1-/2-stage

|                                                                                                            |   |              |                               | 1-stage                               |      |      |      | 2-stage     |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------------------------------|---|--------------|-------------------------------|---------------------------------------|------|------|------|-------------|------|------|------|------|------|------|------|
| Ratio                                                                                                      |   | i            |                               | 4                                     | 5    | 7    | 10   | 16          | 20   | 25   | 35   | 50   | 70   | 100  |      |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$     | Nm                            | 128                                   | 128  | 128  | 115  | 128         | 128  | 128  | 128  | 128  | 128  | 115  |      |
|                                                                                                            |   |              | in.lb                         | 1133                                  | 1133 | 1133 | 1018 | 1133        | 1133 | 1133 | 1133 | 1133 | 1133 | 1018 |      |
| Max. acceleration torque <sup>a)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$     | Nm                            | 80                                    | 80   | 80   | 72   | 80          | 80   | 80   | 80   | 80   | 80   | 72   |      |
|                                                                                                            |   |              | in.lb                         | 708                                   | 708  | 708  | 637  | 708         | 708  | 708  | 708  | 708  | 708  | 637  |      |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$   | Nm                            | 190                                   | 190  | 190  | 190  | 190         | 190  | 190  | 190  | 190  | 190  | 190  |      |
|                                                                                                            |   |              | in.lb                         | 1682                                  | 1682 | 1682 | 1682 | 1682        | 1682 | 1682 | 1682 | 1682 | 1682 | 1682 |      |
| Permitted average input speed <sup>d)</sup><br>(at $n_i$ =3000 rpm and 20 °C ambient temperature)          |   | $n_{1N}$     | rpm                           | 2700                                  | 2700 | 2700 | 2700 | 3400        | 3400 | 3400 | 3400 | 3400 | 3400 | 3400 |      |
| Max. input speed                                                                                           |   | $n_{1Max}$   | rpm                           | 6000                                  | 6000 | 6000 | 6000 | 6000        | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 |      |
| Mean no load running torque <sup>b)</sup><br>(at $n_i$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$    | Nm                            | 0.3                                   | 0.3  | 0.3  | 0.3  | 0.3         | 0.3  | 0.3  | 0.3  | 0.3  | 0.3  | 0.3  |      |
|                                                                                                            |   |              | in.lb                         | 2.7                                   | 2.7  | 2.7  | 2.7  | 2.7         | 2.7  | 2.7  | 2.7  | 2.7  | 2.7  | 2.7  |      |
| Max. backlash                                                                                              |   | $j_t$        | arcmin                        | ≤ 10                                  |      |      |      | ≤ 15        |      |      |      |      |      |      |      |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$    | Nm/arcmin                     | 7.5                                   | 7.5  | 7.5  | 5.5  | 7.5         | 7.5  | 7.5  | 7.5  | 7.5  | 7.5  | 5.5  |      |
|                                                                                                            |   |              | in.lb/arcmin                  | 66                                    | 66   | 66   | 49   | 66          | 66   | 66   | 66   | 66   | 66   | 49   |      |
| Max. axial force <sup>c)</sup><br>(Standard / HIGH FORCES)                                                 |   | $F_{2AMax}$  | N                             | 500 / 1500                            |      |      |      | 500 / 1500  |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub>               | 113 / 338                             |      |      |      | 113 / 338   |      |      |      |      |      |      |      |
| Max. lateral force <sup>c)</sup><br>(Standard / HIGH FORCES)                                               |   | $F_{2QMMax}$ | N                             | 500 / 2500                            |      |      |      | 500 / 2500  |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>f</sub>               | 113 / 563                             |      |      |      | 113 / 563   |      |      |      |      |      |      |      |
| Max. tilting moment<br>(Standard / HIGH FORCES)                                                            |   | $M_{2KMax}$  | Nm                            | 31 / 185                              |      |      |      | 31 / 185    |      |      |      |      |      |      |      |
|                                                                                                            |   |              | in.lb                         | 274 / 1637                            |      |      |      | 274 / 1637  |      |      |      |      |      |      |      |
| Efficiency at full load                                                                                    |   | $\eta$       | %                             | 97                                    |      |      |      | 95          |      |      |      |      |      |      |      |
| Service life                                                                                               |   | $L_h$        | h                             | > 20000                               |      |      |      | > 20000     |      |      |      |      |      |      |      |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$          | kg                            | 5.2                                   |      |      |      | 6.5         |      |      |      |      |      |      |      |
|                                                                                                            |   |              | lb <sub>m</sub>               | 11                                    |      |      |      | 14          |      |      |      |      |      |      |      |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$     | dB(A)                         | ≤ 63                                  |      |      |      | ≤ 63        |      |      |      |      |      |      |      |
| Max. permitted housing temperature                                                                         |   |              | °C                            | +90                                   |      |      |      | +90         |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F                            | +194                                  |      |      |      | +194        |      |      |      |      |      |      |      |
| Ambient temperature                                                                                        |   |              | °C                            | –25 to +40                            |      |      |      | –25 to +40  |      |      |      |      |      |      |      |
|                                                                                                            |   |              | °F                            | –13 to +104                           |      |      |      | –13 to +104 |      |      |      |      |      |      |      |
| Lubrication                                                                                                |   |              | Lubricated for life           |                                       |      |      |      |             |      |      |      |      |      |      |      |
| Direction of rotation                                                                                      |   |              | In- and output same direction |                                       |      |      |      |             |      |      |      |      |      |      |      |
| Protection class                                                                                           |   |              | IP 69X                        |                                       |      |      |      |             |      |      |      |      |      |      |      |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | E | 19           | $J_1$                         | kgcm <sup>2</sup>                     | 0.63 | 0.54 | 0.52 | 0.46        | 0.6  | 0.52 | 0.54 | 0.5  | 0.52 | 0.52 | 0.46 |
|                                                                                                            |   |              |                               | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 0.56 | 0.48 | 0.46 | 0.41        | 0.53 | 0.46 | 0.48 | 0.44 | 0.46 | 0.46 | 0.41 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> At max. 10 %  $F_{2QMax}$

<sup>b)</sup> Valid for standard clamping hub diameter

<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft



# HDV 035 MF 1-/2-stage

|                                                                                                            |   |             |                 | 1-stage                               |      |      |      | 2-stage     |      |      |      |      |      |      |     |
|------------------------------------------------------------------------------------------------------------|---|-------------|-----------------|---------------------------------------|------|------|------|-------------|------|------|------|------|------|------|-----|
| Ratio                                                                                                      |   | i           |                 | 4                                     | 5    | 7    | 10   | 16          | 20   | 25   | 35   | 50   | 70   | 100  |     |
| Max. torque <sup>a) b) e)</sup>                                                                            |   | $T_{2a}$    | Nm              | 320                                   | 320  | 320  | 288  | 320         | 320  | 320  | 320  | 320  | 320  | 288  |     |
|                                                                                                            |   |             | in.lb           | 2832                                  | 2832 | 2832 | 2549 | 2832        | 2832 | 2832 | 2832 | 2832 | 2832 | 2549 |     |
| Max. acceleration torque <sup>e)</sup><br>(max. 1000 cycles per hour)                                      |   | $T_{2B}$    | Nm              | 200                                   | 200  | 200  | 180  | 200         | 200  | 200  | 200  | 200  | 200  | 180  |     |
|                                                                                                            |   |             | in.lb           | 1770                                  | 1770 | 1770 | 1593 | 1770        | 1770 | 1770 | 1770 | 1770 | 1770 | 1593 |     |
| Emergency stop torque <sup>a) b) e)</sup><br>(permitted 1000 times during the service life of the gearbox) |   | $T_{2Not}$  | Nm              | 480                                   | 480  | 480  | 480  | 480         | 480  | 480  | 480  | 480  | 480  | 480  |     |
|                                                                                                            |   |             | in.lb           | 4248                                  | 4248 | 4248 | 4248 | 4248        | 4248 | 4248 | 4248 | 4248 | 4248 | 4248 |     |
| Permitted average input speed <sup>d)</sup><br>(at $T_{2N}$ and 20 °C ambient temperature)                 |   | $n_{1N}$    | rpm             | 2000                                  | 2000 | 2000 | 2000 | 2600        | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 |     |
| Max. input speed                                                                                           |   | $n_{1Max}$  | rpm             | 4800                                  | 4800 | 4800 | 4800 | 4800        | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 |     |
| Mean no load running torque <sup>b)</sup><br>(at $n_1$ =3000 rpm and 20 °C gearbox temperature)            |   | $T_{012}$   | Nm              | 0.5                                   | 0.5  | 0.5  | 0.5  | 0.5         | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  |     |
|                                                                                                            |   |             | in.lb           | 4.4                                   | 4.4  | 4.4  | 4.4  | 4.4         | 4.4  | 4.4  | 4.4  | 4.4  | 4.4  | 4.4  |     |
| Max. backlash                                                                                              |   | $j_t$       | arcmin          | ≤ 10                                  |      |      |      | ≤ 15        |      |      |      |      |      |      |     |
| Torsional rigidity <sup>b)</sup>                                                                           |   | $C_{t21}$   | Nm/arcmin       | 24                                    | 24   | 24   | 24   | 24          | 24   | 24   | 24   | 24   | 24   | 24   |     |
|                                                                                                            |   |             | in.lb/arcmin    | 212                                   | 212  | 212  | 212  | 212         | 212  | 212  | 212  | 212  | 212  | 212  |     |
| Max. axial force <sup>c)</sup><br>(Standard / HIGH FORCES)                                                 |   | $F_{2AMax}$ | N               | 1700 / 3000                           |      |      |      | 1700 / 3000 |      |      |      |      |      |      |     |
|                                                                                                            |   |             | lb <sub>f</sub> | 383 / 675                             |      |      |      | 383 / 675   |      |      |      |      |      |      |     |
| Max. lateral force <sup>c)</sup><br>(Standard / HIGH FORCES)                                               |   | $F_{2QMax}$ | N               | 1200 / 4250                           |      |      |      | 1200 / 4250 |      |      |      |      |      |      |     |
|                                                                                                            |   |             | lb <sub>f</sub> | 270 / 956                             |      |      |      | 270 / 956   |      |      |      |      |      |      |     |
| Max. tilting moment<br>(Standard / HIGH FORCES)                                                            |   | $M_{2KMax}$ | Nm              | 95 / 407                              |      |      |      | 95 / 407    |      |      |      |      |      |      |     |
|                                                                                                            |   |             | in.lb           | 841 / 3602                            |      |      |      | 841 / 3602  |      |      |      |      |      |      |     |
| Efficiency at full load                                                                                    |   | $\eta$      | %               | 97                                    |      |      |      | 95          |      |      |      |      |      |      |     |
| Service life                                                                                               |   | $L_h$       | h               | > 20000                               |      |      |      | > 20000     |      |      |      |      |      |      |     |
| Weight<br>(incl. standard adapter plate)                                                                   |   | $m$         | kg              | 13.6                                  |      |      |      | 16.6        |      |      |      |      |      |      |     |
|                                                                                                            |   |             | lb <sub>m</sub> | 30                                    |      |      |      | 37          |      |      |      |      |      |      |     |
| Operating noise<br>(at reference ratio and reference speed – ratio-specific values available in cymex®)    |   | $L_{PA}$    | dB(A)           | ≤ 68                                  |      |      |      | ≤ 68        |      |      |      |      |      |      |     |
| Max. permitted housing temperature                                                                         |   |             | °C              | +90                                   |      |      |      | +90         |      |      |      |      |      |      |     |
|                                                                                                            |   |             | °F              | +194                                  |      |      |      | +194        |      |      |      |      |      |      |     |
| Ambient temperature                                                                                        |   |             | °C              | –25 to +40                            |      |      |      | –25 to +40  |      |      |      |      |      |      |     |
|                                                                                                            |   |             | °F              | –13 to +104                           |      |      |      | –13 to +104 |      |      |      |      |      |      |     |
| Lubrication                                                                                                |   |             |                 | Lubricated for life                   |      |      |      |             |      |      |      |      |      |      |     |
| Direction of rotation                                                                                      |   |             |                 | In- and output same direction         |      |      |      |             |      |      |      |      |      |      |     |
| Protection class                                                                                           |   |             |                 | IP 69X                                |      |      |      |             |      |      |      |      |      |      |     |
| Mass moment of inertia<br>(relates to the drive)<br>Clamping hub diameter [mm]                             | G | 24          | $J_1$           | kgcm <sup>2</sup>                     | 2.6  | 2.3  | 2    | 1.8         | 2.3  | 2.1  | 2.1  | 1.9  | 1.8  | 1.8  | 1.8 |
|                                                                                                            |   |             |                 | 10 <sup>-3</sup> in.lb.s <sup>2</sup> | 2.3  | 2    | 1.8  | 1.6         | 2    | 1.9  | 1.9  | 1.7  | 1.6  | 1.6  | 1.6 |

Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>a)</sup> At max. 10 %  $F_{2QMax}$

<sup>b)</sup> Valid for standard clamping hub diameter

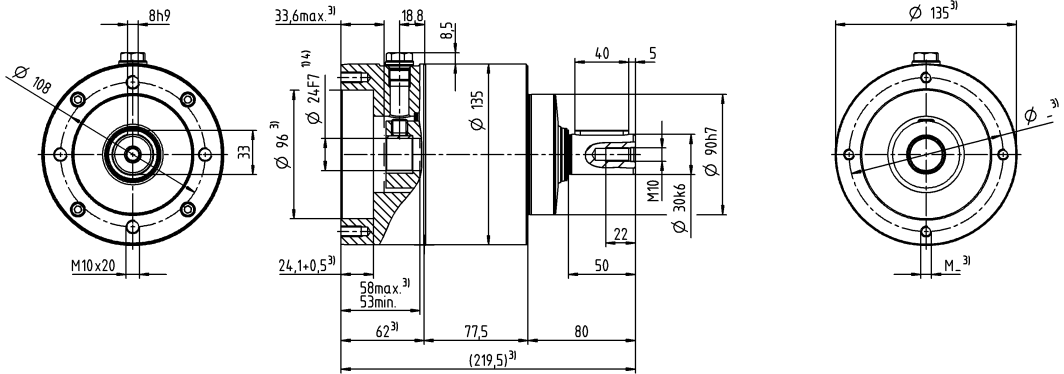
<sup>c)</sup> Refers to center of the output shaft or flange

<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>e)</sup> Valid for: Smooth shaft

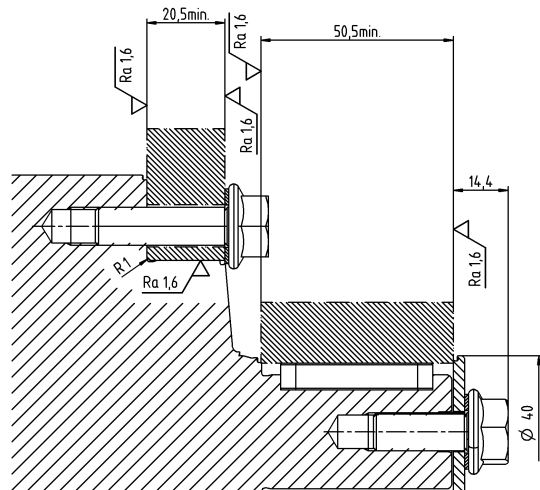
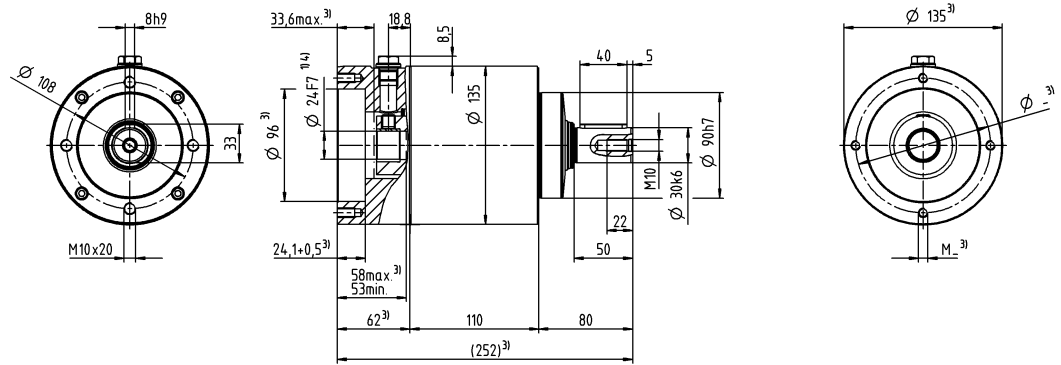
# 1-stage

up to 24<sup>4)</sup> (G)<sup>5)</sup>  
clamping hub  
diameter



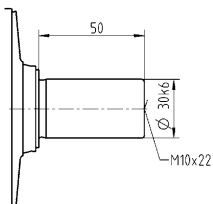
# 2-stage

up to 24<sup>4)</sup> (G)<sup>5)</sup>  
clamping hub  
diameter



## Other output variants

Smooth shaft



Mounting accessories:  
Mounting kit comprising stainless steel screws, washers,  
seals and O-rings available as an option.

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated  
by a bushing with a minimum thickness of 1 mm

<sup>5)</sup> Standard clamping hub diameter

# Basic Line gearbox overview



| Product type                                                                  |            | CP   | CPS  | CPK  | CPSK | CVH     | CVS     |
|-------------------------------------------------------------------------------|------------|------|------|------|------|---------|---------|
| Gearbox model                                                                 |            | MF   | MF   | MF   | MF   | MF / MT | MF / MT |
| Catalog pages                                                                 |            | 22   | 40   | 56   | 74   | 92      | 98      |
| Ratio <sup>a)</sup>                                                           | min. $i =$ | 3    | 3    | 3    | 3    | 7       | 7       |
|                                                                               | max. $i =$ | 100  | 100  | 100  | 100  | 40      | 40      |
| Max. torsional backlash <sup>a)</sup><br>[arcmin]                             | Standard   | ≤ 12 | ≤ 12 | ≤ 14 | ≤ 14 | ≤ 15    | ≤ 15    |
|                                                                               | Reduced    | –    | –    | –    | –    | –       | –       |
| <b>Output shape</b>                                                           |            |      |      |      |      |         |         |
| Smooth shaft                                                                  |            | x    | x    | x    | x    | –       | x       |
| Shaft with key <sup>d)</sup>                                                  |            | x    | x    | x    | x    | –       | x       |
| Splined shaft (DIN 5480)                                                      |            | –    | –    | –    | –    | –       | –       |
| Blind hollow shaft                                                            |            | –    | –    | –    | –    | –       | –       |
| Hollow shaft interface                                                        |            | –    | –    | –    | –    | x       | –       |
| Keyed hollow shaft                                                            |            | –    | –    | –    | –    | x       | –       |
| Flanged hollow shaft                                                          |            | –    | –    | –    | –    | –       | –       |
| Flange                                                                        |            | –    | –    | –    | –    | –       | –       |
| System output                                                                 |            | –    | –    | –    | –    | –       | –       |
| Output on both sides                                                          |            | –    | –    | –    | –    | x       | x       |
| <b>Input type</b>                                                             |            |      |      |      |      |         |         |
| Motor-mounted                                                                 |            | x    | x    | x    | x    | x       | x       |
| Self-contained version                                                        |            | –    | –    | –    | –    | –       | –       |
| <b>Characteristic</b>                                                         |            |      |      |      |      |         |         |
| Flange with slotted holes                                                     |            | –    | –    | –    | –    | –       | –       |
| ATEX <sup>a)</sup>                                                            |            | –    | –    | –    | –    | –       | –       |
| Food-grade lubrication <sup>a) b)</sup>                                       |            | x    | x    | x    | x    | x       | x       |
| Corrosion resistant <sup>a) b)</sup>                                          |            | –    | –    | –    | –    | –       | –       |
| Optimized mass inertia <sup>a)</sup>                                          |            | –    | –    | –    | –    | –       | –       |
| <b>System solutions</b>                                                       |            |      |      |      |      |         |         |
| Linear system (rack / pinion)                                                 |            | –    | –    | –    | –    | –       | –       |
| Actuator                                                                      |            | –    | –    | –    | –    | –       | –       |
| <b>Accessories</b><br>(please refer to the product pages for further options) |            |      |      |      |      |         |         |
| Coupling                                                                      |            | x    | x    | x    | x    | –       | x       |
| Shrink disc                                                                   |            | –    | –    | –    | –    | x       | –       |
| Mounting ring                                                                 |            | –    | –    | –    | –    | –       | –       |

<sup>a)</sup> Power reduction: technical data available on request

<sup>b)</sup> Please contact WITTENSTEIN alpha

<sup>c)</sup> In relation to reference sizes

<sup>d)</sup> Power reduction: Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)



# Value Line gearbox overview



| Product type                                                                  |            | NP      | NPL     | NPS     | NPT     | NPR     | NPK  | NPLK | NPSK | NPTK | NPRK | NVH | NVS | HDV     |
|-------------------------------------------------------------------------------|------------|---------|---------|---------|---------|---------|------|------|------|------|------|-----|-----|---------|
| Gearbox model                                                                 |            | MF / MA | MF / MA | MF / MA | MF / MA | MF / MA | MF   | MF   | MF   | MF   | MF   | MF  | MF  | MF / MT |
| Catalog pages                                                                 |            | 110     | 134     | 154     | 174     | 198     | 222  | 238  | 252  | 266  | 282  | 300 | 306 | 316     |
| Ratio <sup>a)</sup>                                                           | min. $i =$ | 3       | 3       | 3       | 3       | 3       | 3    | 3    | 3    | 3    | 3    | 4   | 4   | 4       |
|                                                                               | max. $i =$ | 100     | 100     | 100     | 100     | 100     | 100  | 100  | 100  | 100  | 100  | 400 | 400 | 100     |
| Max. torsional backlash [arcmin] <sup>a)</sup>                                | Standard   | ≤ 8     | ≤ 8     | ≤ 8     | ≤ 8     | ≤ 8     | ≤ 10 | ≤ 10 | ≤ 10 | ≤ 10 | ≤ 10 | ≤ 6 | ≤ 6 | ≤ 10    |
|                                                                               | Reduced    | –       | –       | –       | –       | –       | –    | –    | –    | –    | –    | –   | –   | –       |
| <b>Output type</b>                                                            |            |         |         |         |         |         |      |      |      |      |      |     |     |         |
| Smooth shaft                                                                  |            | x       | x       | x       | –       | x       | x    | x    | x    | –    | x    | –   | x   | x       |
| Shaft with key <sup>a)</sup>                                                  |            | x       | x       | x       | –       | x       | x    | x    | x    | –    | x    | –   | x   | x       |
| Splined shaft (DIN 5480)                                                      |            | –       | x       | x       | –       | x       | –    | x    | x    | –    | x    | –   | –   | –       |
| Blind hollow shaft                                                            |            | –       | –       | –       | –       | –       | –    | –    | –    | –    | –    | –   | –   | –       |
| Hollow shaft interface                                                        |            | –       | –       | –       | –       | –       | –    | –    | –    | –    | –    | x   | –   | –       |
| Keyed hollow shaft                                                            |            | –       | –       | –       | –       | –       | –    | –    | –    | –    | –    | x   | –   | –       |
| Flanged hollow shaft                                                          |            | –       | –       | –       | –       | –       | –    | –    | –    | –    | –    | –   | –   | –       |
| Flange                                                                        |            | –       | –       | –       | x       | –       | –    | –    | –    | x    | –    | –   | –   | –       |
| System output                                                                 |            | –       | –       | –       | –       | –       | –    | –    | –    | –    | –    | –   | –   | –       |
| Output on both sides                                                          |            | –       | –       | –       | –       | –       | –    | –    | –    | –    | –    | x   | x   | –       |
| <b>Input type</b>                                                             |            |         |         |         |         |         |      |      |      |      |      |     |     |         |
| Motor-mounted                                                                 |            | x       | x       | x       | x       | x       | x    | x    | x    | x    | x    | x   | x   | x       |
| Self-contained version                                                        |            | –       | –       | –       | –       | –       | –    | –    | –    | –    | –    | –   | –   | –       |
| <b>Characteristic</b>                                                         |            |         |         |         |         |         |      |      |      |      |      |     |     |         |
| Flange with slotted holes                                                     |            | –       | –       | –       | –       | x       | –    | –    | –    | –    | x    | –   | –   | –       |
| ATEX <sup>a)</sup>                                                            |            | –       | –       | –       | –       | –       | –    | –    | –    | –    | –    | –   | –   | –       |
| Food-grade lubrication <sup>a) b)</sup>                                       |            | x       | x       | x       | x       | x       | x    | x    | x    | x    | x    | x   | x   | x       |
| Corrosion resistant <sup>a) b)</sup>                                          |            | –       | –       | –       | –       | –       | –    | –    | –    | –    | –    | x   | x   | x       |
| Optimized mass inertia <sup>a)</sup>                                          |            | –       | –       | –       | –       | –       | –    | –    | –    | –    | –    | –   | –   | –       |
| <b>System solutions</b>                                                       |            |         |         |         |         |         |      |      |      |      |      |     |     |         |
| Linear system (rack / pinion)                                                 |            | x       | x       | x       | –       | x       | x    | x    | x    | –    | x    | –   | x   | –       |
| Actuator                                                                      |            | –       | –       | –       | –       | –       | –    | –    | –    | –    | –    | –   | –   | –       |
| <b>Accessories</b><br>(please refer to the product pages for further options) |            |         |         |         |         |         |      |      |      |      |      |     |     |         |
| Coupling                                                                      |            | x       | x       | x       | x       | x       | x    | x    | x    | x    | x    | –   | x   | –       |
| Shrink disc                                                                   |            | –       | –       | –       | –       | –       | –    | –    | –    | –    | –    | x   | –   | –       |
| Mounting ring                                                                 |            | –       | –       | –       | –       | –       | –    | –    | –    | –    | –    | –   | –   | –       |

<sup>a)</sup> Power reduction: technical data available on request

<sup>b)</sup> Please contact WITTENSTEIN alpha

<sup>c)</sup> In relation to reference sizes

<sup>d)</sup> Power reduction: Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

# Advanced Line gearbox overview



| Product type                                                                  |            | SP+ | SP+<br>HIGH SPEED | SP+<br>HIGH SPEED | TP+ | TP+<br>HIGH TORQUE | HG+ | SK+ | SPK+  |
|-------------------------------------------------------------------------------|------------|-----|-------------------|-------------------|-----|--------------------|-----|-----|-------|
| Gearbox model                                                                 |            | MF  | MC                | MC-L              | MF  | MA                 | MF  | MF  | MF    |
| Ratio <sup>c)</sup>                                                           | min. $i =$ | 3   | 3                 | 3                 | 4   | 22                 | 3   | 3   | 12    |
|                                                                               | max. $i =$ | 100 | 100               | 10                | 100 | 302,5              | 100 | 100 | 10000 |
| Max. torsional backlash <sup>c)</sup><br>[arcmin]                             | Standard   | ≤ 3 | ≤ 4               | ≤ 4               | ≤ 3 | ≤ 1                | ≤ 4 | ≤ 4 | ≤ 4   |
|                                                                               | Reduced    | ≤ 1 | ≤ 2               | ≤ 2               | ≤ 1 | –                  | –   | –   | ≤ 2   |
| <b>Output shape</b>                                                           |            |     |                   |                   |     |                    |     |     |       |
| Smooth shaft                                                                  |            | x   | x                 | x                 | –   | –                  | –   | x   | x     |
| Shaft with key <sup>d)</sup>                                                  |            | x   | x                 | x                 | –   | –                  | –   | x   | x     |
| Splined shaft (DIN 5480)                                                      |            | x   | x                 | x                 | –   | –                  | –   | x   | x     |
| Blind hollow shaft                                                            |            | x   | x                 | x                 | –   | –                  | –   | –   | x     |
| Hollow shaft interface                                                        |            | –   | –                 | –                 | –   | –                  | x   | –   | –     |
| Keyed hollow shaft                                                            |            | –   | –                 | –                 | –   | –                  | –   | –   | –     |
| Flanged hollow shaft                                                          |            | –   | –                 | –                 | –   | –                  | –   | –   | –     |
| Flange                                                                        |            | –   | –                 | –                 | x   | x                  | –   | –   | –     |
| System output                                                                 |            | –   | –                 | –                 | x   | x                  | –   | –   | –     |
| Output on both sides                                                          |            | –   | –                 | –                 | –   | –                  | x   | x   | x     |
| <b>Input type</b>                                                             |            |     |                   |                   |     |                    |     |     |       |
| Motor-mounted                                                                 |            | x   | x                 | x                 | x   | x                  | x   | x   | x     |
| Self-contained version                                                        |            | x   | –                 | –                 | x   | –                  | –   | –   | –     |
| <b>Characteristic</b>                                                         |            |     |                   |                   |     |                    |     |     |       |
| Flange with slotted holes                                                     |            | x   | –                 | –                 | –   | –                  | –   | –   | –     |
| ATEX <sup>a)</sup>                                                            |            | x   | x                 | –                 | –   | –                  | x   | x   | –     |
| Food-grade lubrication <sup>a) b)</sup>                                       |            | x   | x                 | x                 | x   | x                  | x   | x   | x     |
| Corrosion resistant <sup>a) b)</sup>                                          |            | x   | x                 | x                 | x   | x                  | x   | x   | x     |
| Optimized mass inertia <sup>a)</sup>                                          |            | x   | x                 | x                 | x   | x                  | –   | –   | –     |
| <b>System solutions</b>                                                       |            |     |                   |                   |     |                    |     |     |       |
| Linear system (rack / pinion)                                                 |            | x   | x                 | –                 | x   | x                  | –   | x   | x     |
| Actuator                                                                      |            | –   | –                 | –                 | x   | x                  | –   | –   | –     |
| <b>Accessories</b><br>(please refer to the product pages for further options) |            |     |                   |                   |     |                    |     |     |       |
| Coupling                                                                      |            | x   | x                 | x                 | x   | x                  | –   | x   | x     |
| Shrink disc                                                                   |            | x   | x                 | x                 | –   | –                  | x   | –   | x     |
| Mounting ring                                                                 |            | –   | –                 | –                 | x   | x                  | –   | –   | –     |

<sup>a)</sup> Power reduction: technical data available on request

<sup>b)</sup> Please contact WITTENSTEIN alpha

<sup>c)</sup> In relation to reference sizes

<sup>d)</sup> Power reduction: Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)



| TK+ | TPK+  | TPK+<br>HIGH TORQUE | SC+ | SPC+ | TPC+ | VH+ | VS+ | VT+ | DP+     | HDP+ |
|-----|-------|---------------------|-----|------|------|-----|-----|-----|---------|------|
| MF  | MF    | MA                  | MF  | MF   | MF   | MF  | MF  | MF  | MF / MA | MA   |
| 3   | 12    | 66                  | 1   | 4    | 4    | 4   | 4   | 4   | 16      | 22   |
| 100 | 10000 | 5500                | 2   | 20   | 20   | 400 | 400 | 400 | 55      | 55   |
| ≤ 4 | ≤ 4   | ≤ 1,3               | ≤ 4 | ≤ 4  | ≤ 4  | ≤ 3 | ≤ 3 | ≤ 3 | ≤ 3     | ≤ 1  |
| –   | ≤ 2   | –                   | –   | ≤ 2  | ≤ 2  | ≤ 2 | ≤ 2 | ≤ 2 | ≤ 1     | –    |

|   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|
| – | – | – | x | x | – | – | x | – | – | – |
| – | – | – | x | x | – | – | x | – | – | – |
| – | – | – | – | x | – | – | x | – | – | – |
| – | – | – | – | x | – | – | – | – | – | – |
| – | – | – | – | – | – | x | – | – | – | – |
| – | – | – | – | – | – | x | – | – | – | – |
| x | – | – | – | – | – | – | – | x | – | – |
| – | x | x | – | – | x | – | – | – | x | x |
| – | x | x | – | – | x | – | – | – | – | – |
| x | x | x | – | – | – | x | x | – | – | – |

|   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|
| x | x | x | x | x | x | x | x | x | x | x |
| – | – | – | – | – | – | – | – | – | – | – |

|   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|
| – | – | – | – | – | – | – | – | – | – | – |
| x | – | – | – | – | – | – | – | – | – | – |
| x | x | x | x | x | x | x | x | x | x | x |
| x | x | x | – | – | – | x | x | x | x | x |
| – | – | – | – | – | – | – | – | – | x | x |

|   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|
| x | x | x | x | x | x | – | x | x | – | – |
| – | – | – | – | – | – | – | – | – | – | – |

|   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|
| x | x | x | x | x | x | – | x | x | – | – |
| – | – | – | – | x | – | x | – | – | – | – |
| – | – | – | – | – | – | – | – | – | x | – |

# Premium Line gearbox overview



| Product type                                                                  |            | XP+      | RP+      | XPK+     | RPK+       | XPC+     | RPC+       |
|-------------------------------------------------------------------------------|------------|----------|----------|----------|------------|----------|------------|
| Gearbox model                                                                 |            | MF / MC  | MF / MA  | MF       | MF / MA    | MF       | MF / MA    |
| Ratio <sup>a)</sup>                                                           | min. $i =$ | 3        | 22       | 12       | 48         | 4        | 22         |
|                                                                               | max. $i =$ | 100      | 220      | 1000     | 5500       | 20       | 55         |
| Max. torsional backlash <sup>c)</sup><br>[arcmin]                             | Standard   | $\leq 3$ | $\leq 1$ | $\leq 4$ | $\leq 1,3$ | $\leq 4$ | $\leq 1,3$ |
|                                                                               | Reduced    | $\leq 1$ | –        | $\leq 2$ | –          | $\leq 2$ | –          |
| <b>Output shape</b>                                                           |            |          |          |          |            |          |            |
| Smooth shaft                                                                  |            | x        | –        | x        | –          | x        | –          |
| Shaft with key <sup>d)</sup>                                                  |            | x        | –        | x        | –          | x        | –          |
| Splined shaft (DIN 5480)                                                      |            | x        | –        | x        | –          | x        | –          |
| Blind hollow shaft                                                            |            | x        | –        | x        | –          | x        | –          |
| Hollow shaft interface                                                        |            | –        | –        | –        | –          | –        | –          |
| Keyed hollow shaft                                                            |            | –        | –        | –        | –          | –        | –          |
| Flanged hollow shaft                                                          |            | –        | –        | –        | –          | –        | –          |
| Flange                                                                        |            | –        | x        | –        | x          | –        | x          |
| System output                                                                 |            | x        | x        | x        | x          | x        | x          |
| Output on both sides                                                          |            | –        | –        | –        | –          | –        | –          |
| <b>Input type</b>                                                             |            |          |          |          |            |          |            |
| Motor-mounted                                                                 |            | x        | x        | x        | x          | x        | x          |
| Self-contained version                                                        |            | x        | –        | –        | –          | –        | –          |
| <b>Characteristic</b>                                                         |            |          |          |          |            |          |            |
| Flange with slotted holes                                                     |            | x        | x        | x        | x          | x        | x          |
| ATEX <sup>a)</sup>                                                            |            | –        | –        | –        | –          | –        | –          |
| Food-grade lubrication <sup>a) b)</sup>                                       |            | x        | x        | x        | x          | x        | x          |
| Corrosion resistant <sup>a) b)</sup>                                          |            | –        | –        | –        | –          | –        | –          |
| Optimized mass inertia <sup>a)</sup>                                          |            | x        | x        | –        | –          | –        | –          |
| <b>System solutions</b>                                                       |            |          |          |          |            |          |            |
| Linear system (rack / pinion)                                                 |            | x        | x        | x        | x          | x        | x          |
| Actuator                                                                      |            | x        | x        | –        | –          | –        | –          |
| <b>Accessories</b><br>(please refer to the product pages for further options) |            |          |          |          |            |          |            |
| Coupling                                                                      |            | x        | –        | x        | –          | x        | –          |
| Shrink disc                                                                   |            | x        | –        | x        | –          | x        | –          |
| Mounting ring                                                                 |            | –        | –        | –        | –          | –        | –          |

<sup>a)</sup> Power reduction: technical data available on request

<sup>b)</sup> Please contact WITTENSTEIN alpha

<sup>c)</sup> In relation to reference sizes

<sup>d)</sup> Power reduction: Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

# Servo actuator overview



| Product type                                                                  |            | PBG          | PAG          | PHG      | RPM+              | TPM+<br>DYNAMIC | TPM+<br>HIGH TORQUE | TPM+<br>POWER |
|-------------------------------------------------------------------------------|------------|--------------|--------------|----------|-------------------|-----------------|---------------------|---------------|
| Version                                                                       |            | Standard     | Standard     | Standard | Customer specific | Standard        | Standard            | Standard      |
| Ratio <sup>c)</sup>                                                           | min. $i =$ | 16           | 16           | 16       | 22                | 16              | 22                  | 4             |
|                                                                               | max. $i =$ | 100          | 100          | 100      | 220               | 91              | 220                 | 100           |
| Max. torsional backlash <sup>c)</sup><br>[arcmin]                             | Standard   | $\leq 6$     | $\leq 3$ (4) | $\leq 3$ | $\leq 1$          | $\leq 3$        | $\leq 1$            | $\leq 3$      |
|                                                                               | Reduced    | $\leq 3$ (4) | $\leq 1$ (2) | $\leq 1$ | –                 | $\leq 1$        | $\leq 1$            | $\leq 1$      |
| <b>Output shape</b>                                                           |            |              |              |          |                   |                 |                     |               |
| Smooth shaft                                                                  |            | x            | –            | x        | –                 | –               | –                   | –             |
| Shaft with key <sup>d)</sup>                                                  |            | x            | –            | x        | –                 | –               | –                   | –             |
| Splined shaft (DIN 5480)                                                      |            | x            | –            | x        | –                 | –               | –                   | –             |
| Blind hollow shaft                                                            |            | –            | –            | –        | –                 | –               | –                   | –             |
| Hollow shaft interface                                                        |            | –            | –            | –        | –                 | –               | –                   | –             |
| Keyed hollow shaft                                                            |            | –            | –            | –        | –                 | –               | –                   | –             |
| Flanged hollow shaft                                                          |            | –            | –            | –        | –                 | –               | –                   | –             |
| Flange                                                                        |            | –            | x            | –        | x                 | x               | x                   | x             |
| System output                                                                 |            | –            | x            | x        | x                 | x               | x                   | x             |
| Output on both sides                                                          |            | –            | –            | –        | –                 | –               | –                   | –             |
| <b>Input type</b>                                                             |            |              |              |          |                   |                 |                     |               |
| Motor-mounted                                                                 |            | –            | –            | –        | –                 | –               | –                   | –             |
| Self-contained version                                                        |            | –            | –            | –        | –                 | –               | –                   | –             |
| <b>Characteristic</b>                                                         |            |              |              |          |                   |                 |                     |               |
| Flange with slotted holes                                                     |            | –            | –            | x        | x                 | –               | –                   | –             |
| ATEX <sup>a)</sup>                                                            |            | –            | –            | –        | –                 | –               | –                   | –             |
| Food-grade lubrication <sup>a) b)</sup>                                       |            | x            | x            | x        | x                 | x               | x                   | x             |
| Corrosion resistant <sup>a) b)</sup>                                          |            | –            | –            | –        | –                 | x               | x                   | x             |
| Optimized mass Inertia <sup>a)</sup>                                          |            | –            | –            | –        | –                 | –               | –                   | –             |
| <b>System solutions</b>                                                       |            |              |              |          |                   |                 |                     |               |
| Linear system (rack / pinion)                                                 |            | x            | x            | x        | x                 | x               | x                   | x             |
| <b>Accessories</b><br>(please refer to the product pages for further options) |            |              |              |          |                   |                 |                     |               |
| Belt pulley                                                                   |            | –            | –            | –        | –                 | –               | –                   | –             |
| Shrink disc                                                                   |            | –            | –            | –        | –                 | –               | –                   | –             |
| Power cable, signal cable, hybrid cable                                       |            | x            | x            | x        | x                 | x               | x                   | x             |

<sup>a)</sup> Power reduction: technical data available on request

<sup>b)</sup> Please contact WITTENSTEIN alpha

<sup>c)</sup> In relation to reference sizes

<sup>d)</sup> Power reduction: Please use our sizing software cymex® for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

# Value Linear Systems

## System solutions count

The Value Linear Systems are adapted to linear applications in the Value Segment with comparatively low requirements in terms of smooth running, positioning accuracy, and feed force. The systems are typically used in woodworking machinery, plasma cutting systems, and automation.

## High-end technology – the R-flange

The R-flange adapted from the Premium Segment allows greater design freedom in the Value Segment. The gearbox flange with integrated slots enables easy positioning of the gearbox with mounted pinion in relation to the rack. Cumber-  
some solutions with complicated designs featuring intermediate plates are therefore not required.

## The alpha preferred Linear System

Our preferred Linear Systems in the Value Segment are the ideal combination of gearbox, pinion, rack, and lubrication system. The systems have been optimized to achieve the required feed force, feed speed, stiffness, and degree of utilization of the individual components. They cover a feed force range of up to 8,000 N. Feed speeds of up to 400 m/min are possible.



**Refer to our alpha Linear Systems catalog and the website for more information on the Value, Advanced, and Premium Linear System.**

[www.wittenstein-alpha.com/linear-systems](http://www.wittenstein-alpha.com/linear-systems)

## For a wide range of applications

alpha Linear Systems are suitable for a wide range of applications and industries. New standards are being set in the following areas:

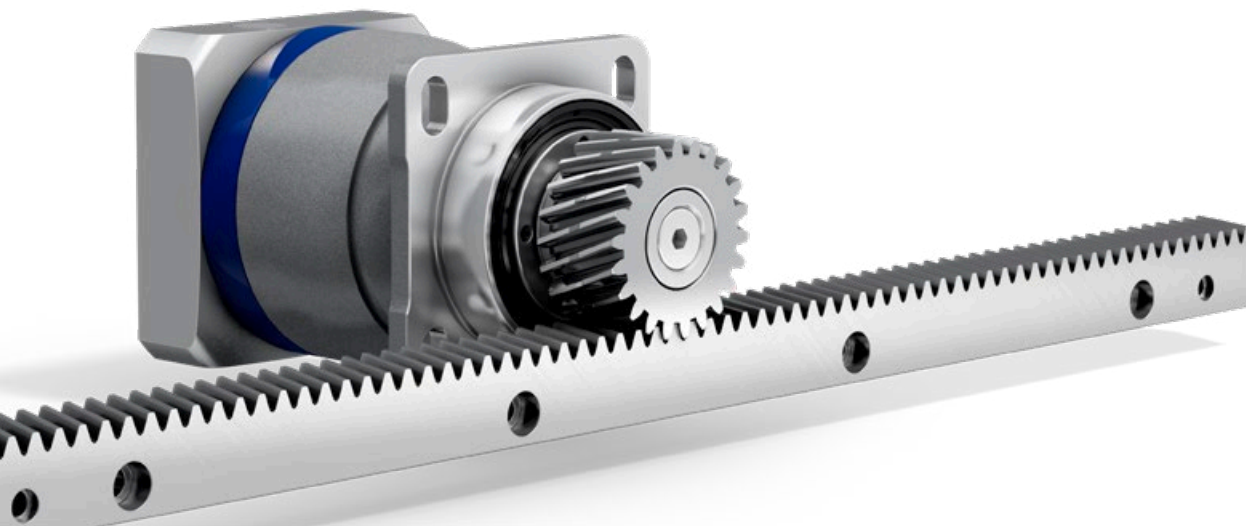
- Smooth running
- Positioning accuracy
- Feed force
- Power density
- Rigidity
- Ease of installation
- Structural design
- Scalability

Paired with a comprehensive range of services, we support you from the constructional draft to sizing, assembly, and commissioning. We will also ensure a consistent supply of spare parts.

## The benefits of the alpha Linear Systems for you

- Perfectly matched components
- Maximum efficiency and power density
- Exceptional Linear System rigidity for even greater dynamics and precision
- Simple mounting and perfect integration in the drive train
- Available in different sizes, power categories, and segments

**Consultation and quality – everything from a single source!**



# premo – servo actuators by WITTENSTEIN alpha

premo is the new, powerful servo actuator platform that combines absolute precision with perfect movement. The central idea behind this first fully scalable servo actuator platform is uncompromising flexibility from the viewpoint of the user: motors and gearboxes with application-related graduated performance characteristics can be configured modularly into individual servo actuators. The result is a highly versatile modular system with customizable power, designed for a wide range of applications. The core of the servo actuator is a torsionally rigid precision gearbox with low backlash and excellent torque density combined with the equally powerful, permanent magnet servo motor with an evenly distributed winding that guarantees low cogging and high speed constancy.

## Typical areas of application and industry solutions

- Delta robot (axes 1–3, swivel axis)
- Handling gantry (Z-axis, swivel/rotating axis)
- Machine tool milling (rotating axes A–C, tool changer)
- Fill and seal machine (incl. jaw stroke, sealing jaw, blade)
- Folding carton packaging (incl. assembly/folding, filling valve)
- Plastic thermoform (tool axis)

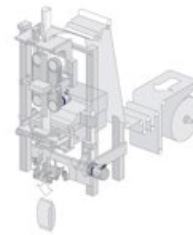
## premo application examples

### premo PRODUCT HIGHLIGHTS

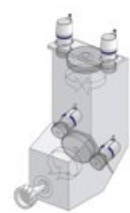
- Optimized power density for greater energy efficiency and productivity
- Flexible mechanical and electrical interfaces for high scalability
- Individual upgrading of the basic configuration through a variety of options



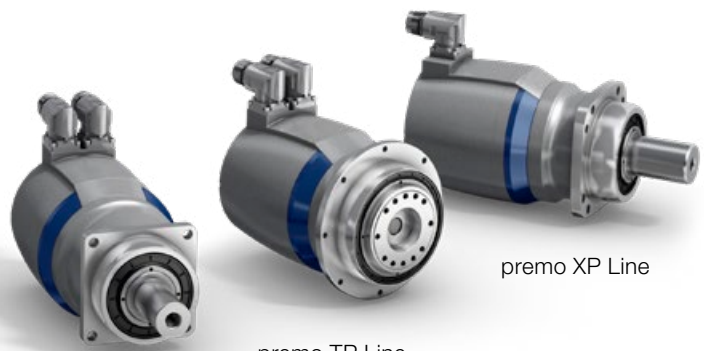
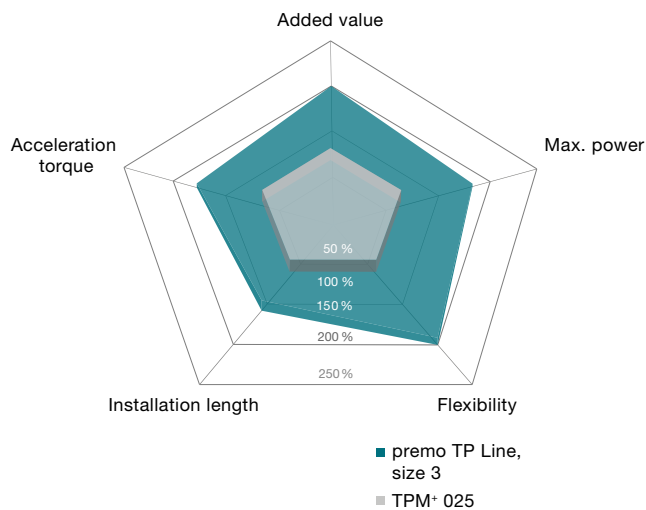
Handling gantry  
premo SP Line



Fill and seal machine  
premo TP Line



Milling head of a  
machining center  
premo XP Line



premo SP Line

premo TP Line

premo XP Line

# Accessories – smart addition of intelligent performance

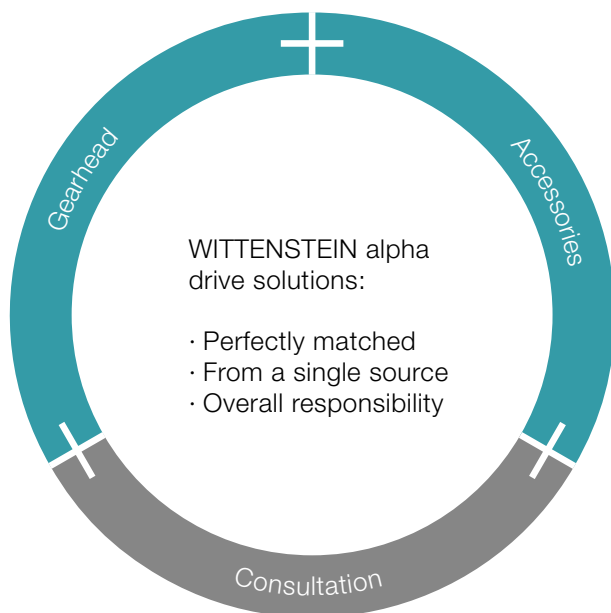
In addition to gearboxes, servo actuators, and linear systems, we offer our customers an extensive portfolio of matching accessories.

Shrink discs and couplings are primarily used in the Basic and Value Line. Shrink discs are mainly

used in applications with hollow shafts and couplings in shaft connections.

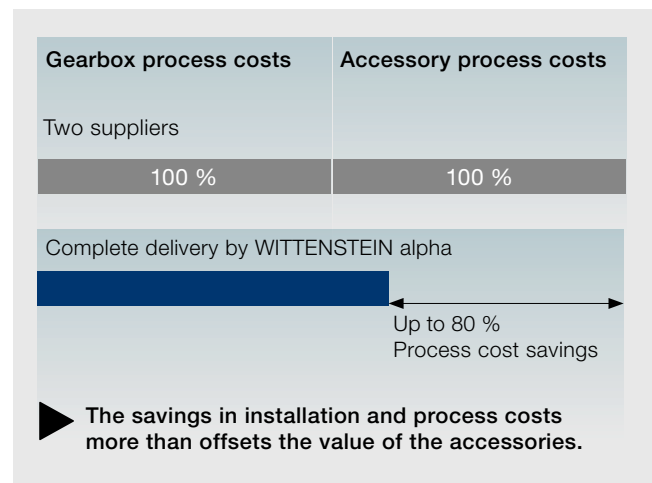
Perfectly match with the gearbox, they meet the expectations of customers.

Gearboxes, accessories, and consultation from a single source



Optimization of your value creation chain

Use the combination of gearboxes and accessories in a complete package to streamline your internal processes.



## Shrink discs

Shrink discs are frictional hub-shaft connections. Together with our hollow shaft or blind hollow shaft gearboxes for direct mounting to load shafts, machine designs with a minimal installation space can be realized.

The benefits:

- Simple assembly and disassembly
- Corrosion-resistant stainless steel version
- Maximum safety during the transmission of the emergency stop torques

Preferred shrink disc series

Provided it is possible to mount a shrink disc, you will find the matching shrink discs on the product page for your selected gearbox. To view more nickel-plated, stainless steel, and other shrink discs as well as all the relevant technical data and dimensions, visit our homepage

[www.wittenstein-alpha.com](http://www.wittenstein-alpha.com)



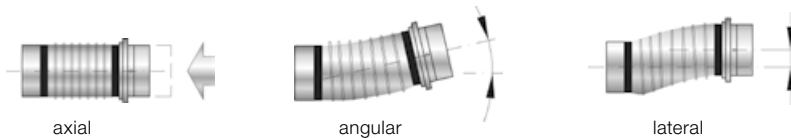


# Couplings

Our innovative couplings, which are used in various drive technology sectors, ensure efficiency and process reliability in the applications.

## Our couplings have the following properties:

- Completely backlash-free torque transmission
- Maintenance free
- Durable
- Compensation of shaft misalignments (axial, angular, lateral)




**Metal bellows coupling**

- High torsional rigidity
- Minimal reset forces
- High true-running accuracy
- Corrosion resistant version available as an option (BC2, BC3, BCT)
- Large temperature range  
-30 °C to +300 °C
- Preferred coupling for alpha Advanced Line and alpha Premium Line

alpha Premium

alpha Advanced



**Elastomer coupling**

- Choice of torsional rigid/damping
- Compact, plug-in design
- Extremely easy assembly
- Temperature range -30 °C to +120 °C
- Preferred coupling for alpha Basic Line and alpha Value Line

alpha Value

alpha Basic



**Torque limiter**

- Torque infinitely adjustable
- Easy to assemble
- Precise repeatability
- Precise, preset overload protection (switch-off in 1–3 ms)

Suitable for all alpha gearbox series

## Preferred coupling series

The technical dimensional sheets for the gearboxes include a preselection of couplings. These are based on the maximum transmittable torque of the gearbox. Standard industrial conditions for the number of cycles (1,000/h) and ambient temperature were adopted.

Please note that the coupling load is based on the torque the gearbox can transmit and not the torque in your application. For a detailed sizing we recommend using our cymex®5 design software.

You can find detailed information about our couplings at [www.wittenstein-alpha.com](http://www.wittenstein-alpha.com)

# Support at each interaction stage

**With the WITTENSTEIN alpha service concept, we are also setting new standards in the field of customer support.**

## DESIGN



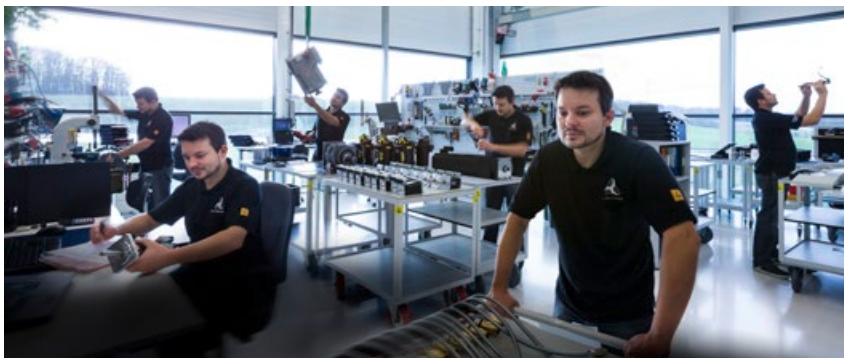
We offer the right sizing methodology for every requirement. Whether easy downloading of CAD data, quick and easy calculation, or precise sizing of the drive train.

## STARTUP



Our service experts are happy to support you in the installation and startup of complex mechatronic systems, guaranteeing maximum availability of your plant.

## SERVICING



WITTENSTEIN alpha guarantees fast repairs of the highest quality and precision. In addition, we will provide you with information about various measurements, material analyses, and condition monitoring inspections.



### Consultation

- Personal contact on site
- Competent application calculations and drive sizing

### Engineering

#### Catalog gearboxes:

- Advanced software tools for accurate calculation, simulation, and analysis of the drive train
- Optimization of your productivity

#### Special gearboxes:

- Development and production of customized gearboxes
- Gearing design and development
- Inquiries: [sondergetriebe@wittenstein.de](mailto:sondergetriebe@wittenstein.de)



**CAD POINT**  
YOUR SMART CATALOG



**SIZING ASSISTANT**  
YOUR GEARBOX WITHIN SECONDS



**cymex<sup>®</sup> 5**  
CALCULATE ON THE BEST

See pages 12–15 for more information about the software tools



### speedline<sup>®</sup> delivery

Tel. +49 7931 493-10444

- Delivery of standard product range in 24 or 48 hours ex works\*
- Fast deliveries at short notice

### Installation on site

- Professional installation
- Optimal application integration
- Introduction to the operation of the drive

### Operating and installation instructions

- Detail description of how to use the product
- Installation and motor mounting videos

### Pick-up & return service

- Minimization of downtimes
- Professional logistics organization
- Reduction of transport risks

\* Non-binding delivery time depending on part availability



### 24 h service hotline

Tel. +49 7931 493-12900

### Maintenance and inspection

- Documentation regarding condition and expected service life
- Customer-specific maintenance schedules

### Repairs

- Repair to nominal condition
- Immediate response in time-critical situations

### cymex<sup>®</sup> statistics

- Systematic field data acquisition
- Reliability calculations (MTBF)

### Modernization

- Professional retrofitting
- Reliable compatibility testing of existing solutions





# Individual training without limits

**All delivered products are perfectly matched to your application environment and immediately 100 % operational.**

**Our service experts support you in the commissioning of complex mechatronic systems, guaranteeing maximum availability of your plant.**

## **Product training**

Greater knowledge enables greater achievement. We will be pleased to share our expert knowledge with you: Profit from our many years of experience and learn more about the product portfolio of WITTENSTEIN alpha.

## **Installation training**

We offer you individual training courses on-site for your system application of selected linear axes as well as professional installation.

## **Sizing training**

Become a design expert! We will provide you with training courses on our design software, adapted to your requirements. Whether for beginners or experts, for occasional or regular users – we adapt our training course to your wishes and requirements.

## **Service training**

Participation in a service training course is a prerequisite for sourcing spare parts at the parts list level. We offer you training courses at our premises or on-site at your plant. Moreover, we regularly host maintenance workshops at which the participants are instructed in safe handling during mounting of the motor to the gearbox as well as the independent replacement of wearing parts and gearbox assemblies.

# Global presence. Personal consultation.

No matter where you need us:

A comprehensive sales and service network provides quick availability and competent support worldwide.

**24 h service hotline: +49 7931 493-12900**





# The WITTENSTEIN group – The company and its fields of business

With approximately 2,600 employees worldwide, WITTENSTEIN SE stands for innovation, precision and excellence in the world of mechatronic drive technology, both nationally and internationally. The group is active in six innovative fields of business.

Furthermore, WITTENSTEIN SE is represented by some 60 subsidiaries in around 40 countries in all important technology and sales markets worldwide.

## Our fields of expertise

- Machine and plant construction
- Software development
- Aerospace
- Automotive & E-mobility
- Energy
- Oil & Gas Exploration
- Medical technology
- Measurement and testing technology
- Nanotechnology
- Simulation



**WITTENSTEIN**



WITTENSTEIN alpha GmbH  
High-precision servo drives and linear systems



WITTENSTEIN motion control GmbH  
Customized linear and rotary servo systems



WITTENSTEIN cyber motor GmbH  
Highly dynamic servo motors and drive electronics



WITTENSTEIN intens GmbH  
Smart drive solutions in and on the human body



WITTENSTEIN aerospace & simulation GmbH  
Mechatronic drive systems for aerospace & simulation

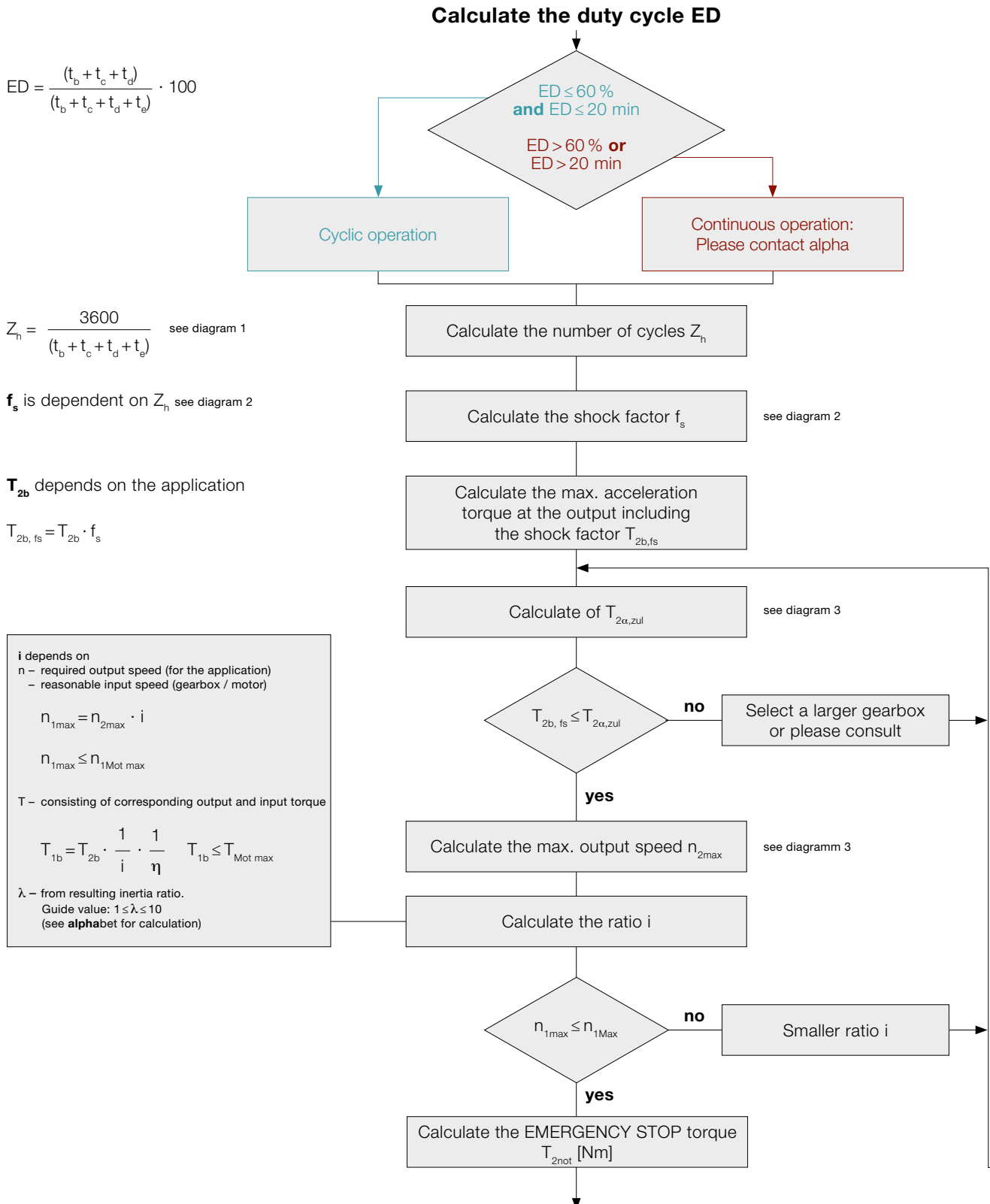


attocube systems AG  
Nanoprecision drive and measurement technology solutions

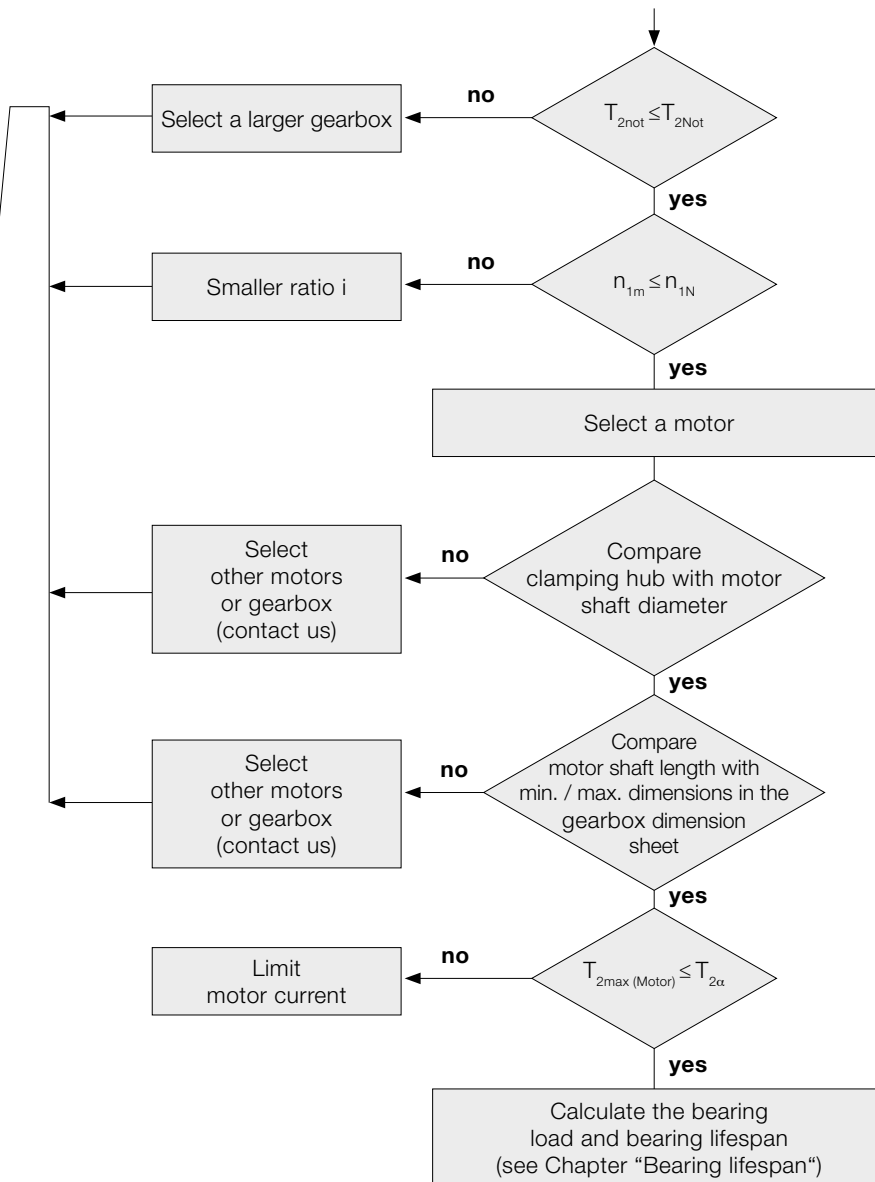
# Sizing – Planetary / Bevel gearboxes

The following schematic shows the steps of the sizing of planetary and bevel gearboxes.  
Please use cymex® - [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com) for a detailed sizing.

Schematic cyclic operation **S5** and continuous operation **S1**







$$D_{W, Mot} \leq D_{clamping\ hub}$$

The motor shaft must be inserted far enough into the clamping hub.

The motor shaft must protrude far enough into the clamping hub without making contact.

The gearbox should not be damaged when the motor operates at full load, limit the motor current if necessary.

Diagram 1

Standard collective load at output. At input speeds up to rated speed  $n_{1N}$  or thermal speed limit  $n_{1T}$ , the temperature of the gearbox will not exceed 90 °C under average ambient conditions.

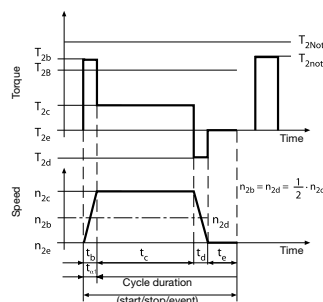


Diagram 2

Large number of cycles combined with short acceleration times may cause the drive train to vibrate. Use the shock factor  $f_s$  to include the resulting excess torque values in calculations.

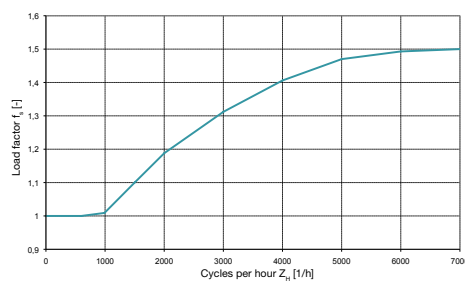
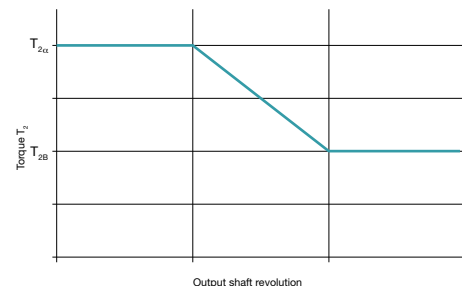


Diagram 3

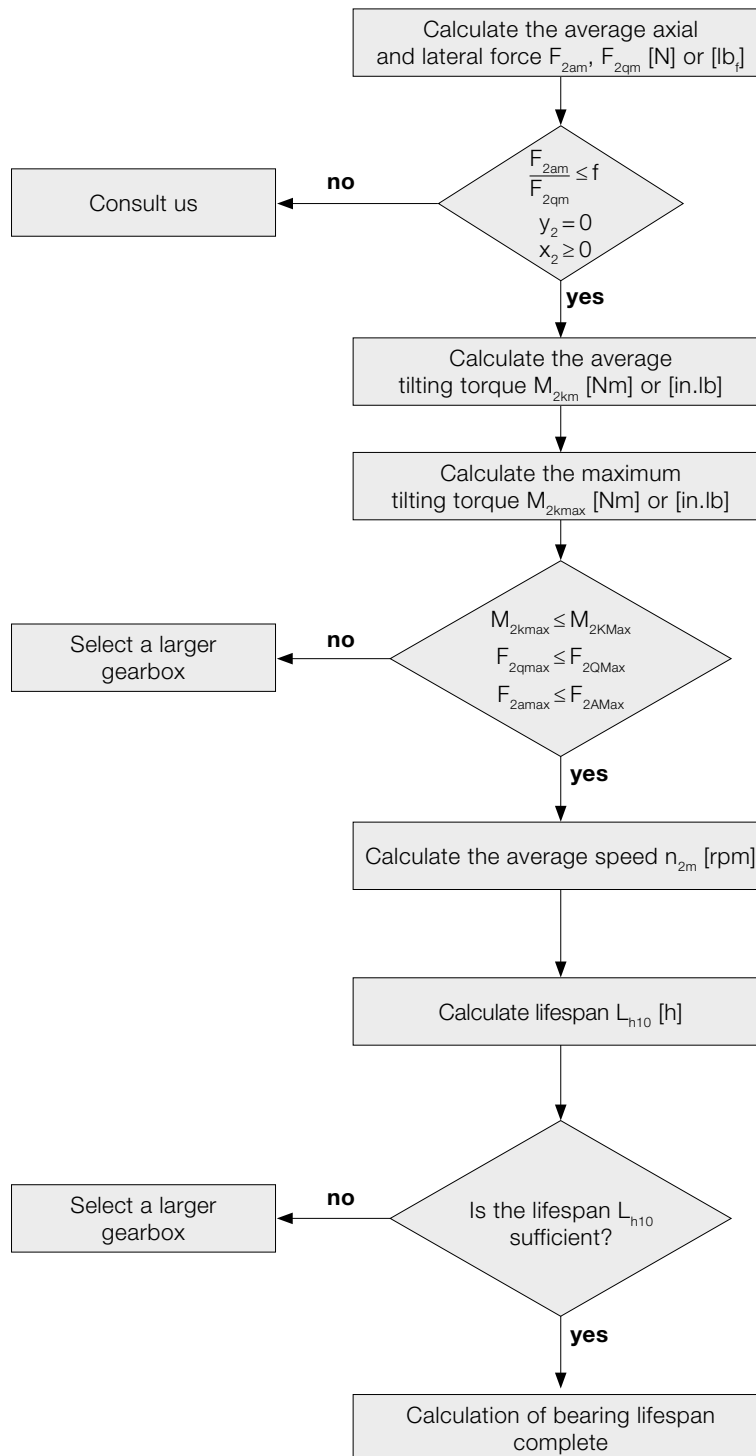
The transmittable torque  $T_{2u, per}$  of the gearbox is dependent on the number of output shaft revolutions. In the lower output shaft revolution range, the fatigue strength range of the toothing can be fully utilized up to the maximum value  $T_{2u}$ .



# Sizing – Planetary / Bevel gearboxes

Please use cymex® - [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com) for a detailed sizing.

## Calculation bearing lifespan $L_{h10}$



$$F_{2am} = \sqrt[3]{\frac{|n_{2b}| \cdot t_b \cdot |F_{2ab}|^3 + \dots + |n_{2n}| \cdot t_n \cdot |F_{2an}|^3}{|n_{2b}| \cdot t_b + \dots + |n_{2n}| \cdot t_n}}$$

$$F_{2qm} = \sqrt[3]{\frac{|n_{2b}| \cdot t_b \cdot |F_{2qb}|^3 + \dots + |n_{2n}| \cdot t_n \cdot |F_{2qn}|^3}{|n_{2b}| \cdot t_b + \dots + |n_{2n}| \cdot t_n}}$$

$$M_{2km} = \frac{F_{2am} \cdot y_2 + F_{2qm} \cdot (x_2 + z_2)^a}{W}$$

$$M_{2kmax} = \frac{F_{2amax} \cdot y_2 + F_{2qmax} \cdot (x_2 + z_2)^a}{W}$$

a) x, y, z in mm

$$n_{2m} = \frac{n_{2b} \cdot t_b + \dots + n_{2n} \cdot t_n}{t_b + \dots + t_n}$$

$$L_{h10} = \frac{16666}{n_{2m}} \cdot \left[ \frac{K1_2}{M_{2km}} \right]^{p_2}$$

|   |               |
|---|---------------|
|   | <b>metric</b> |
| W | 1000          |

|   |                                                              |                                               |
|---|--------------------------------------------------------------|-----------------------------------------------|
|   | <b>CP / CPS / NP / NPT / HDV<br/>CPK / CPSK / NPK / NPTK</b> | <b>NPL / NPS / NPR<br/>NPLK / NPSK / NPRK</b> |
| f | 0.24                                                         | 0.4                                           |

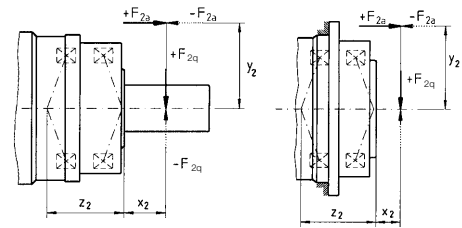
| CP / CPS<br>CPK / CPSK |                 |         | 005  | 015  | 025  | 035  | 045   |
|------------------------|-----------------|---------|------|------|------|------|-------|
| MF                     | z <sub>2</sub>  | [mm]    | 12.4 | 19.3 | 27.7 | 31.5 | 47    |
|                        |                 | [in]    | 0.49 | 0.76 | 1.1  | 1.2  | 1.9   |
|                        | K1 <sub>2</sub> | [Nm]    | 20   | 69   | 238  | 501  | 1512  |
|                        |                 | [in.lb] | 177  | 610  | 2106 | 4433 | 13381 |
|                        | p <sub>2</sub>  |         | 3    | 3    | 3    | 3    | 3     |

| NP / NPK   |                 |         | 005  | 015  | 025  | 035  | 045   |
|------------|-----------------|---------|------|------|------|------|-------|
| MF /<br>MA | z <sub>2</sub>  | [mm]    | 20   | 28.5 | 31   | 40   | 47    |
|            |                 | [in]    | 0.79 | 1.1  | 1.2  | 1.6  | 1.9   |
|            | K1 <sub>2</sub> | [Nm]    | 75   | 252  | 314  | 876  | 1728  |
|            |                 | [in.lb] | 663  | 2230 | 2778 | 7752 | 15292 |
|            | p <sub>2</sub>  |         | 3    | 3    | 3    | 3    | 3     |

| NPT / NPTK |                 |         | 005  | 015  | 025  | 035  | 045  |
|------------|-----------------|---------|------|------|------|------|------|
| MF /<br>MA | z <sub>2</sub>  | [mm]    | 27.7 | 34.6 | 39.3 | 44.5 | 58.2 |
|            |                 | [in]    | 1.1  | 1.4  | 1.6  | 1.8  | 2.3  |
|            | K1 <sub>2</sub> | [Nm]    | 136  | 211  | 310  | 628  | 995  |
|            |                 | [in.lb] | 1203 | 1867 | 2743 | 5557 | 8805 |
|            | p <sub>2</sub>  |         | 3    | 3    | 3    | 3    | 3    |

| NPL / NPS / NPR<br>NPLK / NPSK / NPRK |                 |         | 015  | 025  | 035   | 045   |
|---------------------------------------|-----------------|---------|------|------|-------|-------|
| MF /<br>MA                            | z <sub>2</sub>  | [mm]    | 42.2 | 44.8 | 50.5  | 63    |
|                                       |                 | [in]    | 1.7  | 1.8  | 2     | 2.5   |
|                                       | K1 <sub>2</sub> | [Nm]    | 795  | 1109 | 1894  | 3854  |
|                                       |                 | [in.lb] | 7035 | 9814 | 16761 | 34107 |
|                                       | p <sub>2</sub>  |         | 3.33 | 3.33 | 3.33  | 3.33  |

Example with output shaft and flange:



| HDV |                 |         | 015  | 025   | 035   |
|-----|-----------------|---------|------|-------|-------|
| MF  | z <sub>2</sub>  | [mm]    | 41.7 | 45.65 | 57.25 |
|     |                 | [in]    | 1.6  | 1.8   | 2.3   |
|     | K1 <sub>2</sub> | [Nm]    | 84   | 131   | 406   |
|     |                 | [in.lb] | 743  | 1159  | 3593  |
| MT  | z <sub>2</sub>  | [mm]    | 53   | 58.65 | 74.75 |
|     |                 | [in]    | 2.1  | 2.3   | 2.9   |
|     | K1 <sub>2</sub> | [Nm]    | 217  | 452   | 1370  |
|     |                 | [in.lb] | 1920 | 4000  | 12125 |
|     | p <sub>2</sub>  |         | 3    | 3     | 3     |

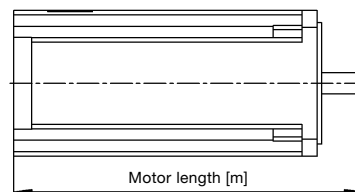
Calculation tilting moment caused by the motor **M<sub>1kMot</sub>**  
For NPK, NPSK, NPLK, NPRK, NPTK, CPK, and CPSK

Particularly when the motor is installed in a horizontal mounting position (xx/B5)

|                                                        |                    |    |     |    |    |    |     |
|--------------------------------------------------------|--------------------|----|-----|----|----|----|-----|
| Clamping hub diameter                                  | —                  | mm | 11  | 14 | 19 | 28 | 38  |
| Max. permissible static tilting moment caused by motor | M <sub>1kMot</sub> | Nm | 5.5 | 7  | 18 | 55 | 130 |

In horizontal mounting position B5  
and symmetrical weight distribution of the motor:

M<sub>1kMot</sub> = motor weight [kg] · 4,9 · motor length [m]



# Sizing – Worm gearboxes

The following schematic shows the steps of the sizing of worm gearboxes.  
Please use cymex® - [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com) for a detailed sizing.

**A:** Simplified sizing for servo motors based on the maximum motor torque:  $M_{\max} * i \leq T_{2\alpha}$

**B:** Sizing based on the application

## Step 1:

Determine the application data

$T_{2b} = \text{_____ [Nm]}$      $n_{1n} = \text{_____ [rpm]}$

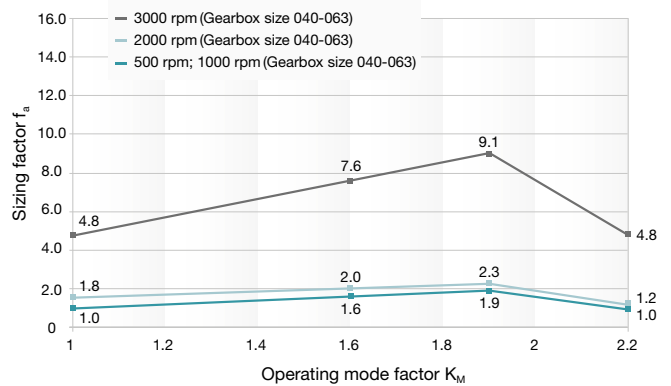
## Step 2:

Determine the operating mode factor  $K_M = \text{_____}$

| Typical applications                                                                         | Cycle                                                                                  | Torque characteristic | Operating mode factor $K_M$ |
|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------|-----------------------------|
| Format changing, e.g. in packaging machines, drives for processing equipment, actuators etc. | <b>S5 operation:</b><br>Low duty cycle<br>Small number of cycles<br>Low dynamics       |                       | 1.0                         |
| Tool changers with low dynamics, pick & place gantry axes, tire building machines etc.       | <b>S5 operation:</b><br>Medium duty cycle<br>Small number of cycles<br>Medium dynamics |                       | 1.6                         |
| Linear axes in plasma, laser or water jet cutters, portals, tool changers with high dynamics | <b>S5 operation:</b><br>Medium duty cycle<br>Medium number of cycles<br>High dynamics  |                       | 1.9                         |
| Roller drives in printing presses, star drives in rackers etc.                               | <b>S1 operation:</b><br>High duty cycle                                                |                       | 2.2                         |
| cymex® 5 also allows sizing calculations for other applications / cycles!                    |                                                                                        |                       |                             |

## Step 3:

Determine the sizing factor  $f_a$  with the operating mode factor  $K_M$      $f_a = \text{_____}$



## Step 4:

Compare the equivalent application torque with the maximum gearbox  $T_{2\alpha}$  (see table, [Step 5](#))

$$T_{2,eq} = f_a * T_{2b} \leq T_{2\alpha}$$

$$T_{2,eq} = \text{_____} * \text{_____} \leq T_{2\alpha}$$

$$T_{2,eq} = \text{_____ [Nm]} \leq \text{_____ [Nm]}$$

We recommend using a vent screw for duty cycles  $\geq 60\%$ , longer than 20 min (S1 operation) and  $n_{1N} \geq 3000$  rpm.

## Step 5: Quick selection of the technical data

|                                                   |              |        | V-Drive Basic             |                           |                           | V-Drive Value |           |           |
|---------------------------------------------------|--------------|--------|---------------------------|---------------------------|---------------------------|---------------|-----------|-----------|
|                                                   |              |        | 040                       | 050                       | 063                       | 040           | 050       | 063       |
| Ratio                                             | i            |        | 7-40                      |                           |                           | 4-400         |           |           |
| Max. torque <sup>a)</sup><br>(at $n_1 = 500$ rpm) | $T_{2b}$     | Nm     | 68-82                     | 116-140                   | 265-301                   | 74-98         | 150-167   | 303-365   |
| Max. input speed                                  | $n_{1max}$   | rpm    | 6000                      | 6000                      | 4500                      | 6000          | 6000      | 4500      |
| Max. lateral force                                | $F_{2QMmax}$ | N      | 1000 / 2400 <sup>b)</sup> | 1200 / 3800 <sup>b)</sup> | 2000 / 6000 <sup>b)</sup> | 2400          | 3800      | 6000      |
| Operating noise                                   | $L_{pA}$     | dB(A)  | $\leq 54$                 | $\leq 62$                 | $\leq 64$                 | $\leq 54$     | $\leq 62$ | $\leq 64$ |
| Max. backlash                                     | $j_t$        | arcmin | $\leq 15$                 | $\leq 15$                 | $\leq 15$                 | $\leq 6$      | $\leq 6$  | $\leq 6$  |
| Service life                                      | $L_n$        | h      | > 15000                   | > 15000                   | > 15000                   | > 20000       | > 20000   | > 20000   |

<sup>a)</sup> The maximum torques depend on the ratio.

<sup>b)</sup> Refers to center of the output shaft or flange. First value for MF-version (Standard), second value for MT-version (reinforced bearing).

**Account must be taken of the lateral and axial forces at the output:**

Please also carry out steps 6 and 7 if forces are present at the output (e.g. if timing belt pulleys, pinions or levers are mounted there).

**Step 6 (if external forces are present):**

Determine the forces acting on the output and check the boundary conditions

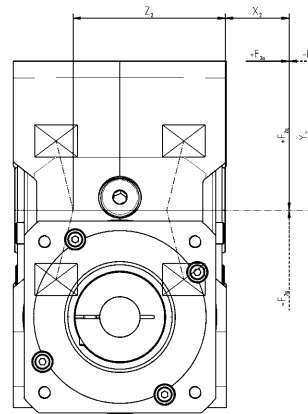
Lateral force  $F_{2q} = \underline{\hspace{2cm}} \text{ [N]}$

Lateral force distance  $x_2 = \underline{\hspace{2cm}}$  [mm]

Axial force  $F_{2a} = \underline{\hspace{2cm}} \text{ [N]}$

Axial force distance  $y_2 = \underline{\hspace{2cm}}$  [mm]

(required if  $F_{2a}$  is present)



Conditions if axial force  $F_{2a}$  is present:

$$1. F_{2a} \leq 0.25 * F_{2q} \Rightarrow ( \quad \leq 0.25 * \quad )$$

☐ **Met**   ☐ **Not met:** Sizing with cymex® 5

**2.  $y_2 \leq x_2 \Rightarrow (\underline{\hspace{1cm}} \leq \underline{\hspace{1cm}})$**

☐ **Met**   ☐ **Not met:** Sizing with cymex® 5

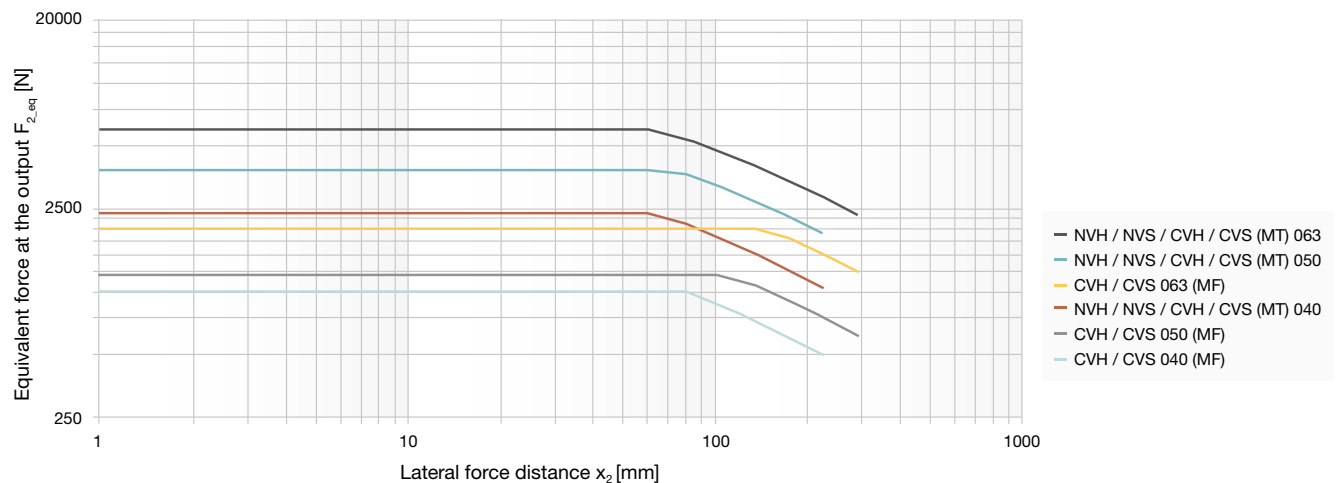
### Step 7:

Determine the maximum equivalent force acting on the output  $F_{2\text{eq}}$

$$F_{2eq} = F_{2q} + 0.25 * F_{2a} \leq F_{2QMax} \quad (F_{2QMax} \text{ can be determined from the diagram below})$$

$$F_{2eq} = \text{_____} + 0.25 * \text{_____} \leq \text{_____}$$

$$F_{2 \text{ eq}} = \text{_____} [N] \leq \text{_____} [N]$$

☐ Met    ☐ Not met: Sizing with cymex® 5

# Glossary – the **alphabet**

## Acceleration torque ( $T_{2B}$ )

The acceleration torque  $T_{2B}$  is the maximum permissible torque that can briefly be transmitted at the output by the gearhead after  $\leq 1000/h$  cycles. For  $> 1000/h$  cycles, the **Shock factor** must be taken into account.  $T_{2B}$  is the limiting parameter in cyclic operation.

## Adapter plate

WITTENSTEIN alpha uses a system of standardized adapter plates to connect the motor and the gearbox, making it possible to mount a WITTENSTEIN alpha gearbox to any desired motor without difficulty.

## Angular minute

A degree is subdivided into 60 angular minutes ( $= 60 \text{ arcmin} = 60'$ ).

Example:

If the torsional backlash is  $j_t = 1 \text{ arcmin}$ , the output can be turned  $1/60^\circ$ . The repercussions for the application are determined by the arc length:  
 $b = 2 \cdot \pi \cdot r \cdot \alpha^\circ / 360^\circ$ .

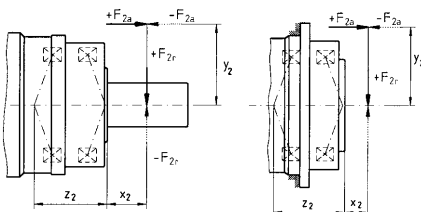
Example:

A pinion with a radius  $r = 50 \text{ mm}$  mounted on a gearbox with torsional backlash  $j_t = 3 \text{ arcmin}$  can be turned  $b = 0.04 \text{ mm}$ .

## Axial force ( $F_{2AMax}$ )

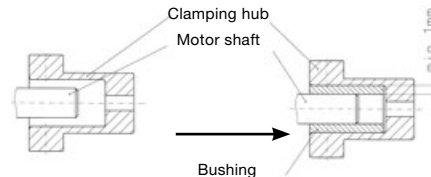
The axial force acting on a gearbox runs parallel to its output shaft or perpendicular to its output shaft. It may be applied with axial offset via a lever arm  $y_2$  under certain circumstances, in which case it also generates a bending moment. If the axial force exceeds the permissible catalog values (max. axial force  $F_{2AMax}$ ), additional design features (e.g. axial bearings) must be implemented to absorb these forces.

Example with output shaft and flange:



## Bushing

If the motor shaft diameter is smaller than the **clamping hub**, a bushing is used to compensate the difference in diameter. The bushing must have a minimum thickness of 1 mm and a motor shaft diameter of 2 mm.



## CAD POINT

Performance data, dimension sheets and CAD data for all types of gearbox can be found online in our CAD POINT together with comprehensive documentation of the selection.  
[www.wittenstein-cad-point.com](http://www.wittenstein-cad-point.com)

## Clamping hub

The clamping hub ensures a frictional connection between the motor shaft and gearbox. A **bushing** is used as the connecting element if the motor shaft diameter is smaller than that of the clamping hub. Optionally, a positive connection via a parallel key is also possible.

## Continuous operation (S1)

Continuous operation is defined by the **duty cycle**. If the duty cycle is greater than 60 % and / or longer than 20 minutes, this qualifies as continuous operation. **Operating modes**

## Cyclic operation (S5)

Cyclic operation is defined via the **duty cycle**. If the duty cycle is less than 60 % and shorter than 20 minutes, it qualifies as cyclic operation (**operating modes**).

## cymex®

cymex® is the calculation software developed by our company for dimensioning complete drive trains. The software enables the precise simulation of motion and load variables. The software is available for download from our website ([www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)). We can also provide training to enable you to make full use of all the possibilities provided by the software.

## Degree of protection (IP)

The various degrees of protection are defined in DIN EN 60529 "Degrees of protection offered by enclosure (IP code)". The IP degree of protection (International Protection) is represented by two digits. The first digit indicates the protection against the ingress of impurities and the second the protection against the ingress of water.

Example:

**IP65**

Protection against the ingress of dust (dust-proof)

Protection against spray water

## Delivery of speedline®

If necessary, you can receive delivery of standard series in 24 or 48 hours ex works. Outstanding flexibility for fast deliveries at short notice.

## Duty cycle (DC)

The cycle determines the duty cycle DC. The times for acceleration ( $t_a$ ), constant travel if applicable ( $t_c$ ) and deceleration ( $t_d$ ) combined yield the duty cycle in minutes. The duty cycle is expressed as a percentage with inclusion of the pause time  $t_e$ .

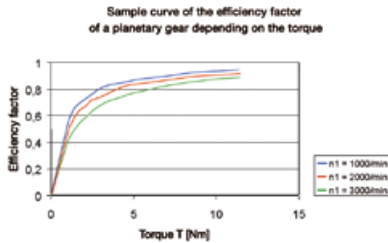
$$DC [\%] = \left[ \frac{t_b + t_c + t_d}{t_b + t_c + t_d + t_e} \right] \cdot 100 \frac{\text{Motion duration}}{\text{Cycle duration}}$$

$$DC [\text{min}] = t_b + t_c + t_d$$

## Efficiency ( $\eta$ )

Efficiency [%]  $\eta$  is the ratio of output power to input power. Power lost through friction reduces efficiency to less than 1 or 100 %.

$$\eta = P_{\text{off}} / P_{\text{on}} = (P_{\text{on}} - P_{\text{loss}}) / P_{\text{on}}$$



WITTENSTEIN alpha always measures the efficiency of a gearbox during operation at full load. If the input power or torque are lower, the efficiency rating is also lower due to the constant no-load torque. Power losses do not increase as a result. A lower efficiency is also expected at high speeds (see illustration).

## Emergency stop torque ( $T_{2\text{Not}}$ )

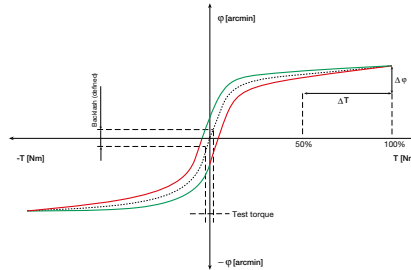
The Emergency stop torque  $T_{2\text{Not}}$  is the maximum permissible torque at the gearbox output and must not be reached more than 1000 times during the life of the gearbox. It must never be exceeded!

## HIGH TORQUE (MA)

WITTENSTEIN alpha gearboxes are also available in a HIGH TORQUE version. These gearboxes are particularly suited to applications requiring extremely high torques and maximum stiffness.

## Hysteresis curve

The hysteresis is measured to determine the torsional rigidity of a gearbox. The result of this measurement is known as the hysteresis curve.



If the input shaft is locked, the gearbox is continuously loaded and relieved at the output in both directions up to a defined torque. The torsional angle is plotted against the torque. This yields a closed curve from which the **→ torsional backlash** and **→ torsional rigidity** can be calculated.

## Jerk ( $j$ )

Jerk is derived from acceleration and is defined as the change in acceleration within a unit of time. The term impact is used if the acceleration curve changes abruptly and the jerk is infinitely large.

## Lateral force ( $F_{2Q\text{Max}}$ )

The max. lateral force  $F_{2Q\text{Max}}$  [Nm] is the force component acting at right angles to the output shaft or parallel to the output flange. It acts perpendicular to the **→ axial force** and can assume an axial distance of  $x_2$  in relation to the shaft nut or shaft flange, which acts as a lever arm. The lateral force produces a bending moment (see also **→ axial force**).

Gearboxes of the CP series with size 005 and 015 may be used with higher lateral forces if the  $T_{2B}$  is reduced according to the tables below.

| GP 005             | 1-stage |      |      |      |    | 2-stage |      |      |      |      |      |
|--------------------|---------|------|------|------|----|---------|------|------|------|------|------|
| Ratio              | 4       | 5    | 7    | 10   | 16 | 20      | 25   | 35   | 50   | 70   | 100  |
| T <sub>2B</sub>    | 10.5    | 11.5 | 11.5 | 10.5 |    | 10.5    | 10.5 | 11.5 | 11.5 | 11.5 | 10.5 |
| F <sub>2Qmax</sub> | 200     |      |      |      |    | 200     |      |      |      |      |      |

| CP 015             | 1-stage |    |    |    |    | 2-stage |    |    |    |    |     |
|--------------------|---------|----|----|----|----|---------|----|----|----|----|-----|
| Ratio              | 4       | 5  | 7  | 10 | 16 | 20      | 25 | 35 | 50 | 70 | 100 |
| T <sub>2B</sub>    | 32      | 32 | 32 | 29 | 32 | 32      | 32 | 32 | 32 | 32 | 29  |
| F <sub>2Qmax</sub> | 650     |    |    |    |    | 650     |    |    |    |    |     |

## Mass inertia ratio ( $\lambda = \text{Lambda}$ )

The mass inertia ratio  $\lambda$  is the ratio of external inertia (application side) to internal inertia (motor and gearbox side). It is an important parameter determining the controllability of an application. Accurate control of dynamic processes becomes more difficult with differing mass moments of inertia and as  $\lambda$  becomes greater. WITTENSTEIN alpha recommends that a guideline value of  $\lambda < 5$  is maintained. A gearbox reduces the external mass moment of inertia by a factor of  $1/i^2$ .

$$\lambda = \frac{J'_{\text{extern}}}{J_{\text{intern}}}$$

$J$  reduced externally at input:

$$J'_{\text{external}} = J_{\text{external}} / i^2$$

Simple applications  $\leq 10$

Dynamic applications  $\leq 5$

Highly dynamic applications  $\leq 1$

## Mass moment of inertia ( $J$ )

The mass moment of inertia  $J$  [kg/cm<sup>2</sup>] is a measurement of the effort applied by an object to maintain its momentary condition (at rest or moving).

## Mesh frequency ( $f_z$ )

The mesh frequency may cause problems regarding vibrations in an application, especially if the excitation frequency corresponds to a intrinsic frequency of the application. The mesh frequency can be calculated for planetary gearboxes from WITTENSTEIN alpha (exception: gearboxes with ratio  $i = 8$ ) using the formula  $f_z = 1.8 \cdot n_2$  [rpm].

# Glossary – the alphabet

## No-load running torque ( $T_{012}$ )

The no-load running torque  $T_{012}$  is the torque which must be applied to a gearbox in order to overcome the internal friction; it is therefore considered lost torque. The values specified in the catalog are calculated by WITTENSTEIN alpha at a speed of  $n_1 = 3000$  rpm and an ambient and gearbox temperature of 20 °C.

$T_{012}$ : 0      1 → 2  
without load      from input side towards output side

Idling torques decrease during operation.

## NSF

Lubricants certified as grade H1 by the NSF (National Sanitation Foundation) can be used in the food sector where occasional unavoidable contact with food cannot be excluded.



## Operating modes

(continuous operation **S1** and cyclic operation **S5**)

Gearboxes are selected depending on whether the motion profile is characterized by frequent acceleration and deceleration phases in → **cyclic operation** (S5) as well as pauses, or whether it is designed for → **continuous operation** (S1), i.e. with long phases of constant motion.

## Operating noise ( $L_{PA}$ )

The gear ratio and speed affect the noise level. As a general rule: A higher speed means a higher noise level, while a higher ratio means a lower noise level. The values specified in our catalog are based on a reference ratio and speed. The reference speed is either  $n_1 = 3000$  rpm or  $n_1 = 2000$  rpm depending on the size of the gearbox. You can find ratio-specific values in cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com).

## Output shaft revolution ( $f_\alpha$ )

Factor  $f_\alpha$  determines the number of cycles for the required gearbox service life. It describes the number of revolutions at the output used to assess the torque permitted at the output.

## Positioning accuracy

The positioning accuracy is determined by the angular deviation from a setpoint and equals the sum of the torsional angles due to load → **(torsional rigidity and → torsional backlash)** and kinetics → **(synchronization error)** occurring simultaneously in practise.

## Ratio (i)

The gear ratio  $i$  indicates the factor by which the gearbox transforms the three relevant parameters of motion (speed, torque and mass moment of inertia). The factor is a result of the geometry of the gearing elements (Example:  $i = 10$ ).

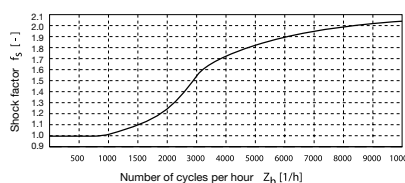
$n_1 = 3000$  rpm       $T_2 = 200$  Nm  
 $T_1 = 20$  Nm       $n_2 = 300$  rpm  
 $J_1 = 0,10$  kgm<sup>2</sup>       $J_2 = 10$  kgm<sup>2</sup> (Application)

## Safety note

For applications with special safety requirements (e.g. vertical axes, clamped drives), we recommend exclusive use of our Premium and Advanced products (excluding V-Drive).

## Shock factor ( $f_s$ )

The maximum permissible acceleration torque during cyclic operation specified in the catalog applies for a cycle rate less than 1000/h. Higher cycle rates combined with short acceleration times can cause vibrations in the drive train. Use the shock factor  $f_s$  to include the resulting excess torque values in calculations. The shock factor  $f_s$  can be determined with reference to the curve. This calculated value is multiplied by the actual acceleration torque  $T_{2b}$  and then compared with the maximum permissible acceleration torque  $T_{2B}$ .  
( $T_{2b} \cdot f_s = T_{2B}$ ,  $f_s < T_{2B}$ )

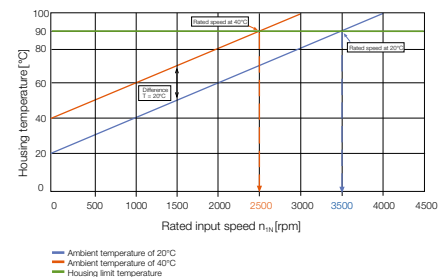


## SIZING ASSISTANT

The online SIZING ASSISTANT from WITTENSTEIN alpha allows the efficient selection of a gearbox in seconds. You can use various motor or application entry options to select the right gearbox for your application in seconds ([www.sizing-assistant.de](http://www.sizing-assistant.de)).

## Speed (n)

Two speeds are of relevance when dimensioning a gearbox: the maximum speed and the thermal speed limit at the input. The maximum permissible speed  $n_{1Max}$  must not be exceeded because it serves as the basis for dimensioning → **cyclic operation**. The nominal speed  $n_{1N}$  must not be exceeded in → **continuous operation**. The thermal speed limit  $n_{1T}$  at an ambient temperature of 20 °C, is determined by the maximum gearbox temperature of  $T = 90$  °C at no-load. As can be seen in the diagram below, the temperature limit is reached more quickly in the presence of an elevated outside temperature. In other words: the nominal input speed must be reduced if the ambient temperature is high. The values applicable to your gearbox are available from WITTENSTEIN alpha on request.



## Synchronization

Synchronization refers to the measurable transmission error between the input and output during one revolution of the output shaft.

## Technical data

You can download further technical data relating to the entire product portfolio from our website.



## Tilting rigidity

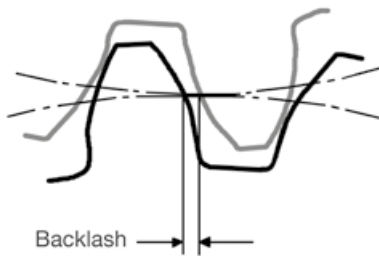
The tilting rigidity  $C_{2K}$  [Nm/arcmin] of the gearbox consists of the bending stiffness of the output or pinion shaft and the stiffness of the output bearing. It is defined as the quotient of tilting moment  $M_{2K}$  [Nm] and tilting angle  $\phi$  [arcmin]  
 $(C_{2K} = M_{2K} / \phi)$ .

## Tilting torque ( $M_{2K}$ )

The tilting torque  $M_{2K}$  is a result of the → **axial forces** and → **lateral forces** applied and their respective points of application in relation to the inner radial bearing on the output side.

## Torsional backlash ( $j_t$ )

Torsional backlash  $j_t$  [arcmin] is defined as the max. torsional angle of the output shaft at a defined test torque and a blocked input.



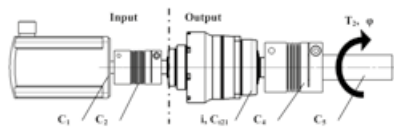
Torsional backlash is measured with the input shaft locked.

The output is then loaded with a defined test torque in order to overcome the internal gearbox friction. The main factor affecting torsional backlash is the face clearance between the gear teeth. The low torsional backlash of WITTENSTEIN alpha gearboxes is due to their high manufacturing accuracy and the specific combination of gear wheels.

## Torsional rigidity ( $C_{t21}$ )

Torsional rigidity [Nm/arcmin]  $C_{t21}$  is defined as the quotient of applied torque and resulting torsion angle ( $C_{t21} = \Delta T / \Delta \phi$ ). It shows the torque required to turn the output shaft by one angular minute. The torsional rigidity can be determined from the → **hysteresis curve**.

Torsional rigidity  $C$ , angle of torsion  $\phi$



Reduce all torsional rigidity values at the output:

$$C_{(n),out} = C_{(n),in} \cdot i^2$$

with  $i$  = Gearbox ratio [ - ]

$C_{(n)}$  = Individual rigidity values [Nm/arcmin]

Series connection of torsional rigidity values

$$1/C_{tot} = 1/C_{1,out} + 1/C_{2,out} + \dots + 1/C_{(n)}$$

Angle of torsion  $\phi$  [arcmin]

$$\phi = T_2 \cdot 1/C_{tot}$$

with  $T_2$  = output torque [Nm]

## Torque ( $M$ )

The torque is the actual driving force of a rotary motion. The force and lever arm combine to produce the torque that acts around the axis of rotation.  $M = F \cdot l$

## Torque ( $T_{2\alpha}$ )

$T_{2\alpha}$  represents the maximum torque transmitted by the gearbox. This value may decrease depending on the application-specific conditions and the precise evaluation of the movement profile.

# Glossary – Formulae

## Formulae

|                                               |                                                  |                                                                                                         |
|-----------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Torque [Nm]</b>                            | $T = J \cdot \alpha$                             | $J$ = Mass moment of inertia [kgm <sup>2</sup> ]<br>$\alpha$ = Angular acceleration [1/s <sup>2</sup> ] |
| <b>Torque [Nm]</b>                            | $T = F \cdot l$                                  | $F$ = Force [N]<br>$l$ = Lever, length [m]                                                              |
| <b>Acceleration force [N]</b>                 | $F_b = m \cdot a$                                | $m$ = Mass [kg]<br>$a$ = Linear acceleration [m/s <sup>2</sup> ]                                        |
| <b>Frictional force [N]</b>                   | $F_{\text{Reib}} = m \cdot g \cdot \mu$          | $g$ = Acceleration due to gravity 9.81 m/s <sup>2</sup><br>$\mu$ = Coefficient of friction              |
| <b>Angular speed [1/s]</b>                    | $\omega = 2 \cdot \pi \cdot n / 60$              | $n$ = Speed [U/min]<br>$\pi$ = PI = 3.14...                                                             |
| <b>Linear speed [m/s]</b>                     | $v = \omega \cdot r$                             | $r$ = Radius [m]                                                                                        |
| <b>Linear speed [m/s] (spindle)</b>           | $v_{\text{sp}} = \omega \cdot h / (2 \cdot \pi)$ | $h$ = Screw pitch [m]                                                                                   |
| <b>Linear acceleration [m/s<sup>2</sup>]</b>  | $a = v / t_b$                                    | $t_b$ = Acceleration time [s]                                                                           |
| <b>Angular acceleration [1/s<sup>2</sup>]</b> | $\alpha = \omega / t_b$                          |                                                                                                         |
| <b>Pinion path [mm]</b>                       | $s = m_n \cdot z \cdot \pi / \cos \beta$         | $m_n$ = Normal module [mm]<br>$z$ = Number of teeth [-]<br>$\beta$ = Helix angle [°]                    |

## Conversion table

|                           |                                                |
|---------------------------|------------------------------------------------|
| <b>1 mm</b>               | = 0.039 in                                     |
| <b>1 Nm</b>               | = 8.85 in.lb                                   |
| <b>1 kgcm<sup>2</sup></b> | = 8.85 x 10 <sup>-4</sup> in.lb.s <sup>2</sup> |
| <b>1 N</b>                | = 0.225 lb <sub>f</sub>                        |
| <b>1 kg</b>               | = 2.21 lb <sub>m</sub>                         |

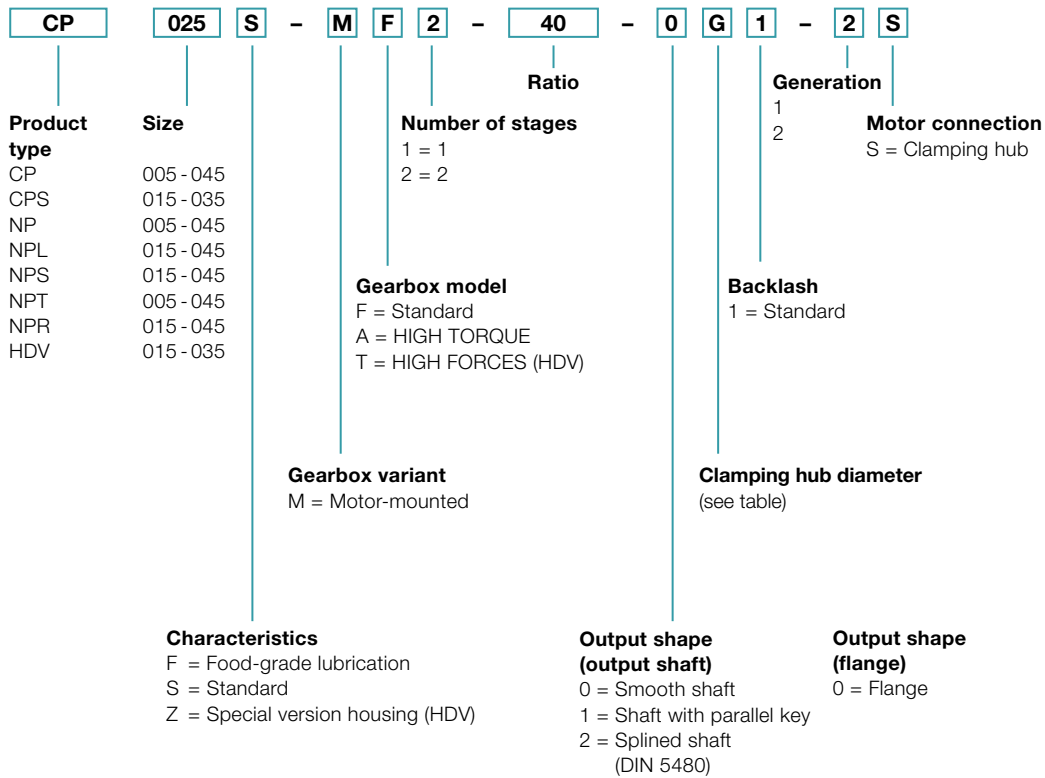
## Symbol

| Symbol   | Unit             | Designation                      |
|----------|------------------|----------------------------------|
| $C$      | Nm/arcmin        | Stiffness                        |
| $ED$     | %, min           | Duty cycle                       |
| $F$      | N                | Force                            |
| $f_s$    | –                | Load factor                      |
| $f_e$    | –                | Factor for duty cycle            |
| $i$      | –                | Ratio                            |
| $j$      | arcmin           | Backlash                         |
| $J$      | kgm <sup>2</sup> | Mass moment of inertia           |
| $K1$     | Nm               | Factor for bearing calculation   |
| $L$      | h                | Service life                     |
| $L_{PA}$ | dB(A)            | Operating noise                  |
| $m$      | kg               | Mass                             |
| $M$      | Nm               | Torque                           |
| $n$      | rpm              | Speed                            |
| $p$      | –                | Exponent for bearing calculation |
| $\eta$   | %                | Efficiency                       |
| $t$      | s                | Time                             |
| $T$      | Nm               | Torque                           |
| $v$      | m/min            | Linear speed                     |
| $z$      | 1/h              | Number of cycles                 |

## Index

| Index          | Designation        |
|----------------|--------------------|
| Capital letter | Permissible values |
| Small letter   | Actual values      |
| 1              | Input              |
| 2              | Output             |
| A/a            | Axial              |
| B/b            | Acceleration       |
| c              | Constant           |
| d              | Deceleration       |
| e              | Pause              |
| h              | Hours              |
| K/k            | Tilting            |
| m              | Mean               |
| Max/max        | Maximum            |
| Mot            | Motor              |
| N              | Nominal            |
| Not/not        | Emergency stop     |
| 0              | No load            |
| Q/q            | Lateral            |
| t              | Torsional          |
| T              | Tangential         |

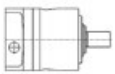
# Ordering code – planetary gearboxes



## Mounting positions and clamping hub diameters

Clamping hub diameter  
(see technical data sheet for possible diameters)

B5  
Horizontal



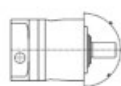
V1  
Output vertical downwards



V3  
Output vertical upwards



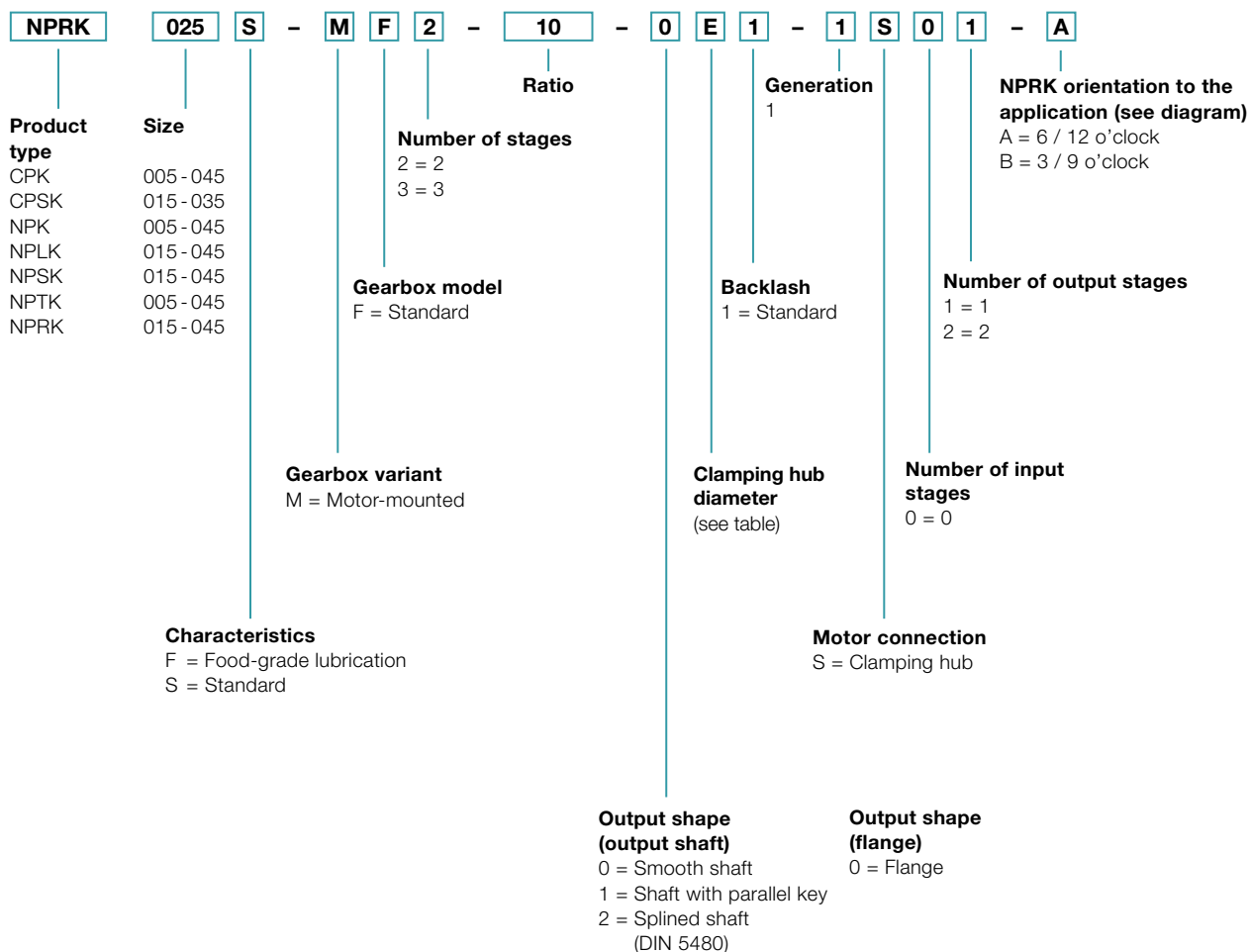
S  
Can swivel  $\pm 90^\circ$  from horizontal position



| Code letter | mm | Code letter | mm |
|-------------|----|-------------|----|
| Z           | 8  | E           | 19 |
| A           | 9  | G           | 24 |
| B           | 11 | H           | 28 |
| C           | 14 | I           | 32 |
| D           | 16 | K           | 38 |

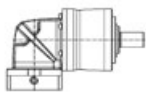
For information purposes only – not required when placing orders!  
Please contact WITTENSTEIN alpha for deviating mounting positions.

# Ordering code – bevel gearboxes

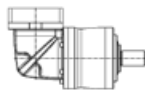


## Mounting positions and clamping hub diameters

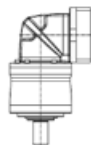
B5 / V3  
Output horizontal /  
motor shaft vertical upwards



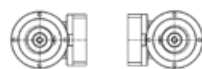
B5 / V1  
Output horizontal /  
motor shaft vertical downwards



V1 / B5  
Output vertical downwards /  
motor shaft horizontal



V3 / B5  
Output vertical upwards /  
motor shaft horizontal

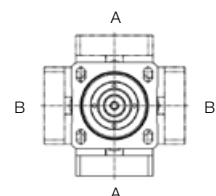


B5 / B5  
Output horizontal /  
motor shaft horizontal

Clamping hub diameter  
(see technical data sheet for possible diameters)

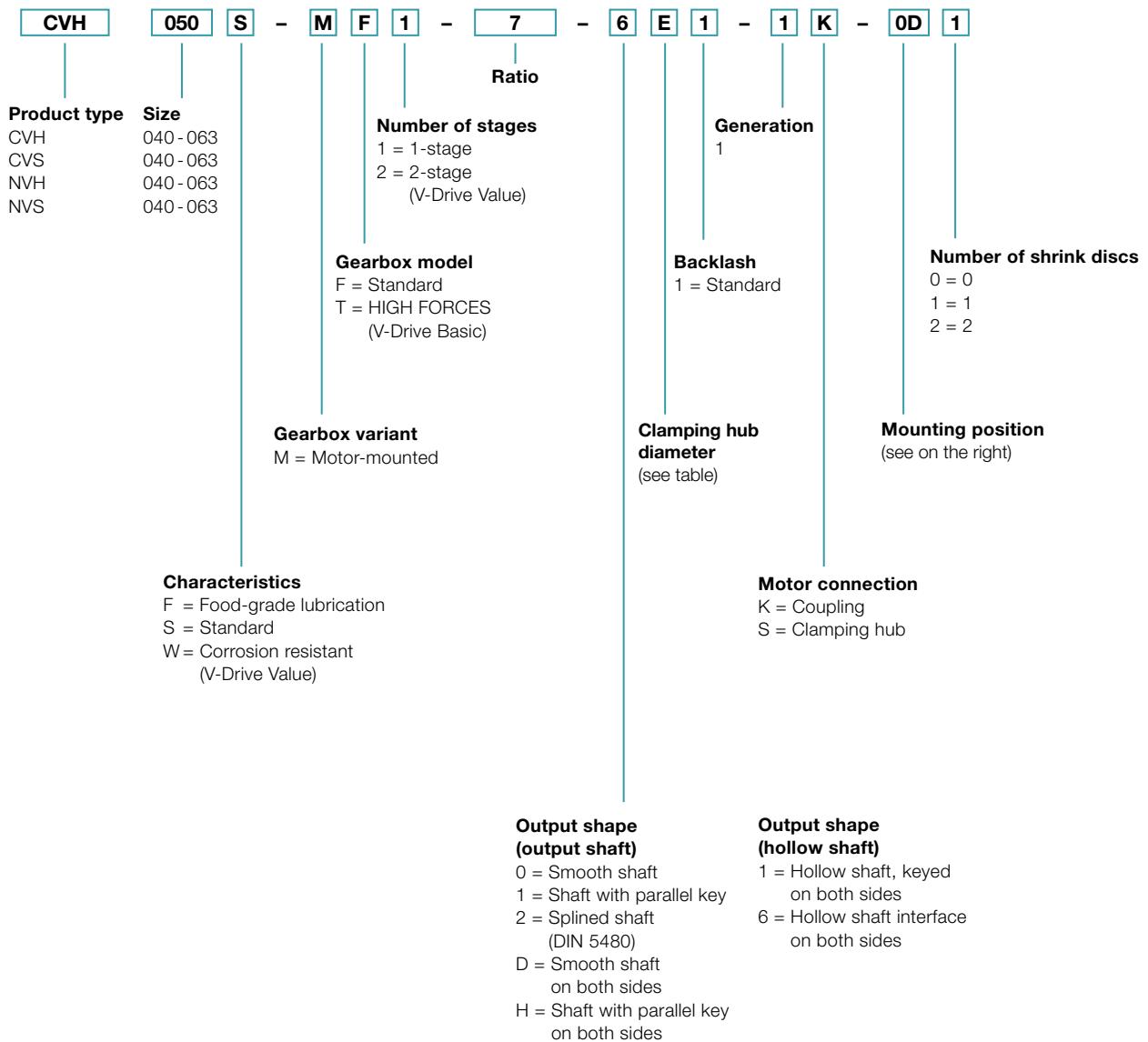
| Code letter | mm |
|-------------|----|
| B           | 11 |
| C           | 14 |
| E           | 19 |
| H           | 28 |
| K           | 38 |

Orientation to the application



For information purposes only – not required when placing orders!  
Please contact WITTENSTEIN alpha for deviating mounting positions.

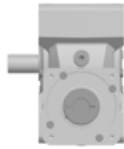
# Ordering code – worm gearboxes



# Mounting positions and clamping hub diameters

Mounting position (only relevant for oil volume)

Output side A:  
View of the motor connection,  
output left  
Only valid for CVS, NVS.



AC



AF



AD



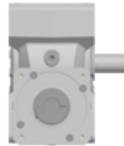
AG



AE



Output side B:  
View of the motor connection,  
output right  
Only valid for CVS, NVS.



BC



BF



BD



BG



BE



**With output shaft or hollow shaft on both sides, A or B in the mounting position is replaced by a 0 (zero).**

## Clamping hub diameter

(see technical data sheet for possible diameters)

| Code letter | mm |
|-------------|----|
| C           | 14 |
| E           | 19 |
| G           | 24 |
| H           | 28 |

Intermediate sizes possible using bushings  
with a minimum wall thickness of 1 mm.



alpha

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Subject to technical changes. alpha Basic Line & alpha Value Line

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