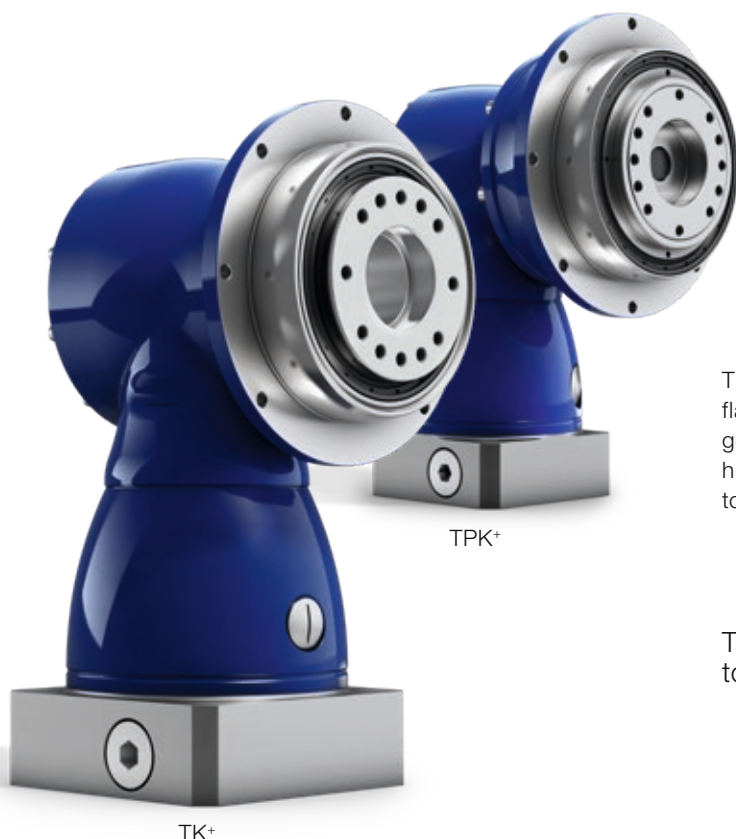
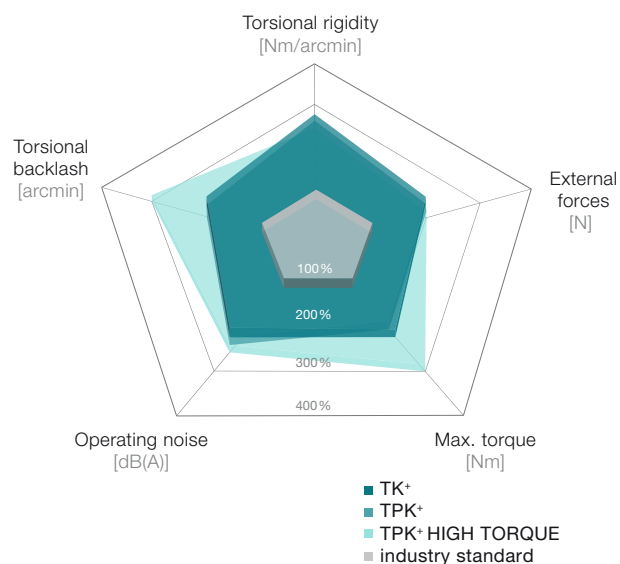


TK⁺ / TPK⁺ / TPK⁺ HIGH TORQUE – Space-saving right-angle precision with output flange



The versatile hypoid gearbox with TP⁺ compatible output flange and hollow shaft. TPK⁺ / TPK⁺ HIGH TORQUE gearboxes with planetary stage are especially suitable for high-precision applications requiring higher power and torsional rigidity.

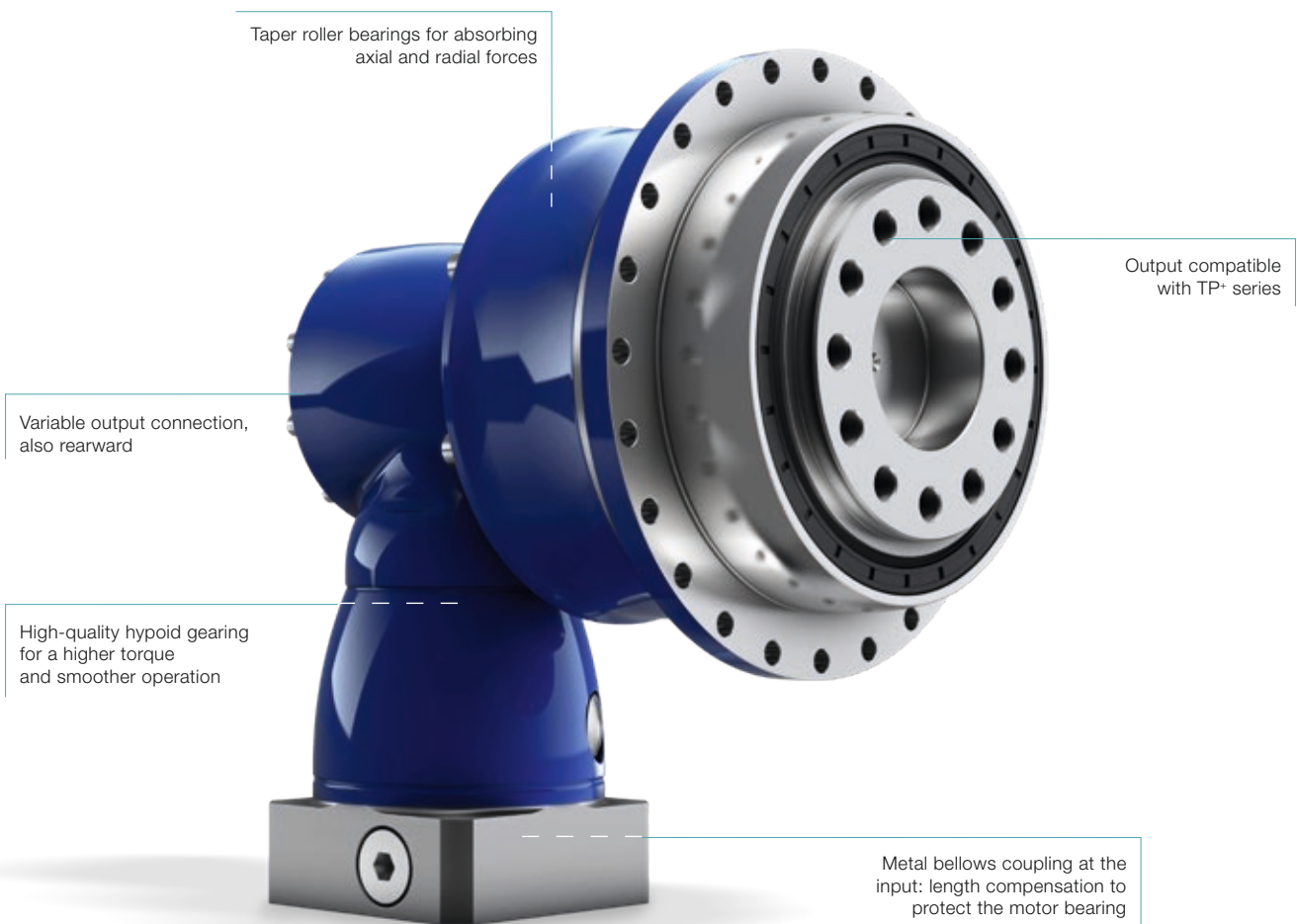
The TK⁺ / TPK⁺ / TK⁺ HIGH TORQUE compared to the industry standard



TK⁺ in corrosion-resistant design



TPK⁺ with rack and pinion



TPK+ HIGH TORQUE



TK+ with metal bellows coupling



TPK+ 2000 / 4000 available on request

TK⁺ 004 MF 1-/2-stage

				1-stage					2-stage										
Ratio			<i>i</i>		3	4	5	7	10	12	16	20	25	28	35	40	50	70	100
Max. torque ^{a) b)}			<i>T</i> _{2a}	<i>Nm</i>	36	36	36	25	20	36	36	36	36	36	36	36	36	25	20
				<i>in.lb</i>	319	319	319	221	177	319	319	319	319	319	319	319	319	319	221
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)			<i>T</i> _{2B}	<i>Nm</i>	30	30	30	25	20	30	30	30	30	30	30	30	30	25	20
				<i>in.lb</i>	266	266	266	221	177	266	266	266	266	266	266	266	266	266	221
Nominal torque (at <i>n</i> _n)			<i>T</i> _{2N}	<i>Nm</i>	22	22	22	20	15	22	22	22	22	22	22	22	22	20	15
				<i>in.lb</i>	195	195	195	177	133	195	195	195	195	195	195	195	195	195	177
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)			<i>T</i> _{2Not}	<i>Nm</i>	40	50	50	45	40	50	50	50	50	50	50	50	50	45	40
				<i>in.lb</i>	354	443	443	398	354	443	443	443	443	443	443	443	443	443	398
Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)}			<i>n</i> _{1N}	<i>n</i> _{1T}	2200	2400	2700	2700	2700	4400	4400	4400	4400	4400	4400	4400	4800	5500	5500
Max. input speed			<i>n</i> _{1Max}	<i>rpm</i>	7500	7500	7500	7500	7500	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> ₀₁₂	<i>Nm</i>	1.4	1.3	1.2	1.4	1.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
				<i>in.lb</i>	12	12	11	12	12	2	2	2	2	2	2	2	1	1	1
Max. backlash			<i>j</i> _t	<i>arcmin</i>	Standard ≤ 5														
Torsional rigidity ^{b)}			<i>C</i> _{t21}	<i>Nm/arcmin</i>	2.6	2.8	3	2.6	2.3	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3	2.6	2.3
				<i>in.lb/arcmin</i>	23	25	27	23	20	25	25	25	25	25	25	25	25	27	23
Max. axial force ^{c)}			<i>F</i> _{2AMax}	<i>N</i>	2400														
				<i>lb_f</i>	540														
Max. tilting moment			<i>M</i> _{2KMax}	<i>Nm</i>	251														
				<i>in.lb</i>	2222														
Efficiency at full load			<i>η</i>	%	96					94									
Service life			<i>L</i> _h	<i>h</i>	> 20000														
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	2.9					3.2									
				<i>lb_m</i>	6					7									
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> _{PA}	<i>dB(A)</i>	≤ 64														
Max. permitted housing temperature				°C	+90														
				<i>F</i>	194														
Ambient temperature				°C	0 to +40														
				<i>F</i>	32 to 104														
Lubrication					Lubricated for life														
Direction of rotation					In- and output opposite direction														
Protection class					IP 65														
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BCT - 00015AAX - 031.500														
Bore diameter of coupling on the application side				<i>mm</i>	X = 012.000 - 028.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	B	11	<i>J</i> _i	<i>kgcm</i> ²	-	-	-	-	-	0.09	0.09	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06
				<i>10⁻³ in.lb.s</i> ²	-	-	-	-	-	0.08	0.08	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05
	C	14	<i>J</i> _i	<i>kgcm</i> ²	0.57	0.46	0.41	0.37	0.35	0.21	0.2	0.19	0.19	0.18	0.18	0.17	0.17	0.17	0.17
				<i>10⁻³ in.lb.s</i> ²	0.5	0.41	0.36	0.33	0.31	0.19	0.18	0.17	0.17	0.16	0.16	0.15	0.15	0.15	0.15
	E	19	<i>J</i> _i	<i>kgcm</i> ²	0.92	0.82	0.76	0.72	0.7	-	-	-	-	-	-	-	-	-	-
				<i>10⁻³ in.lb.s</i> ²	0.81	0.73	0.67	0.64	0.62	-	-	-	-	-	-	-	-	-	-

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

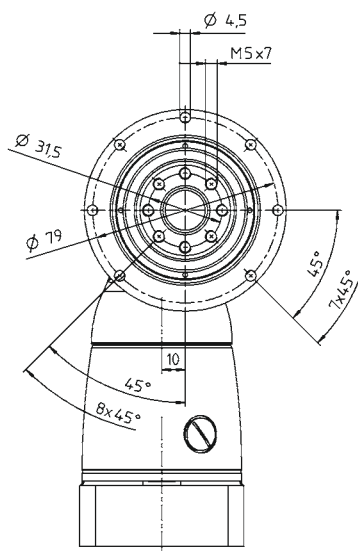
^{b)} Valid for standard clamping hub diameter

^{c)} Refers to center of the output shaft or flange

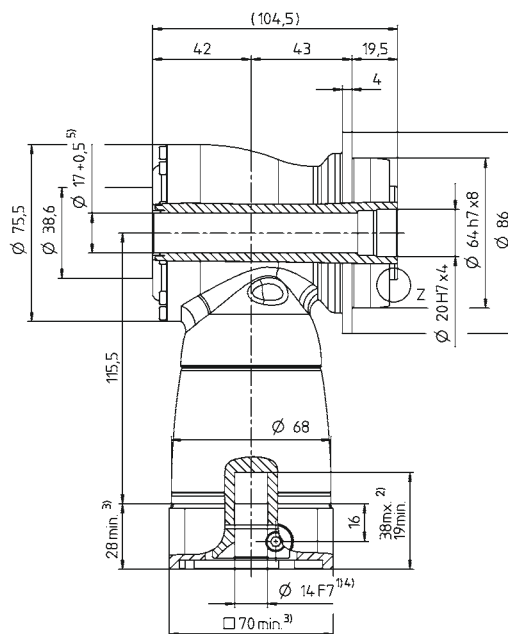
^{d)} Please reduce input speed at higher ambient temperatures

1-stage

up to 14/19⁴⁾
(C⁶⁾/E) clamping
hub diameter

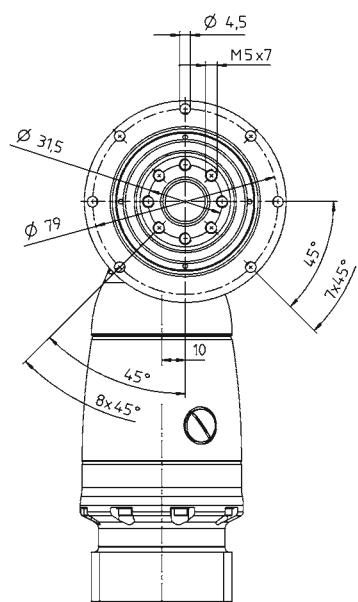


← A

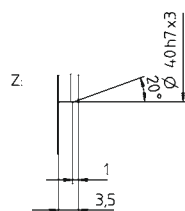
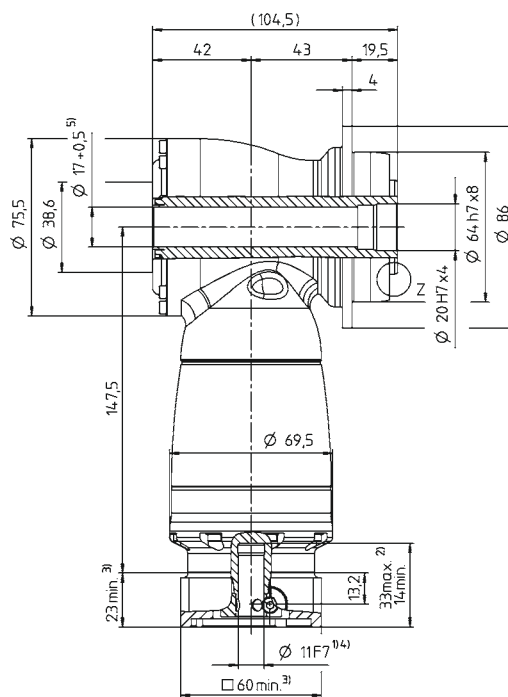


2-stage

up to 11/14⁴⁾
(B⁶⁾/C) clamping
hub diameter



← A



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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Led through element max. Ø 16.8 mm

⁶⁾ Standard clamping hub diameter

TK⁺ 010 MF 1-/2-stage

				1-stage					2-stage										
Ratio			<i>i</i>		3	4	5	7	10	12	16	20	25	28	35	40	50	70	100
Max. torque ^{a) b)}			<i>T</i> _{2a}	<i>Nm</i>	84	84	84	60	50	84	84	84	84	84	84	84	84	60	50
				<i>in.lb</i>	743	743	743	531	443	743	743	743	743	743	743	743	743	743	531
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)			<i>T</i> _{2B}	<i>Nm</i>	70	70	70	60	50	70	70	70	70	70	70	70	70	60	50
				<i>in.lb</i>	620	620	620	531	443	620	620	620	620	620	620	620	620	620	531
Nominal torque (at <i>n</i> _n)			<i>T</i> _{2N}	<i>Nm</i>	50	50	50	45	40	50	50	50	50	50	50	50	50	45	40
				<i>in.lb</i>	443	443	443	398	354	443	443	443	443	443	443	443	443	443	398
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)			<i>T</i> _{2Not}	<i>Nm</i>	95	115	115	110	100	115	115	115	115	115	115	115	115	110	100
				<i>in.lb</i>	841	1018	1018	974	885	1018	1018	1018	1018	1018	1018	1018	1018	1018	974
Permitted average input speed (at <i>T</i> _{2n} and 20 °C ambient temperature) ^{d)}			<i>n</i> _{1N}	<i>n</i> _{1T}	2100	2200	2500	2500	2500	3500	3500	3500	3500	3500	3500	3500	3800	4500	4500
Max. input speed			<i>n</i> _{1Max}	<i>rpm</i>	7500	7500	7500	7500	7500	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> ₀₁₂	<i>Nm</i>	2.4	2	1.8	2.4	2.2	0.4	0.4	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1
				<i>in.lb</i>	21	18	16	21	19	4	4	3	3	3	3	3	1	1	1
Max. backlash			<i>j</i> _t	<i>arcmin</i>	Standard ≤ 4														
Torsional rigidity ^{b)}			<i>C</i> _{t21}	<i>Nm/arcmin</i>	6	7	8	8	8	7	7	7	7	7	7	7	8	8	8
				<i>in.lb/arcmin</i>	53	62	71	71	71	62	62	62	62	62	62	62	62	71	71
Max. axial force ^{c)}			<i>F</i> _{2AMax}	<i>N</i>	3400														
				<i>lb_f</i>	765														
Max. tilting moment			<i>M</i> _{2KMax}	<i>Nm</i>	437														
				<i>in.lb</i>	3868														
Efficiency at full load			<i>η</i>	%	96					94									
Service life			<i>L</i> _h	<i>h</i>	> 20000														
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	5.3					6.1									
				<i>lb_m</i>	12					13									
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> _{PA}	<i>dB(A)</i>	≤ 66														
Max. permitted housing temperature				°C	+90														
				<i>F</i>	194														
Ambient temperature				°C	0 to +40														
				<i>F</i>	32 to 104														
Lubrication					Lubricated for life														
Direction of rotation					In- and output opposite direction														
Protection class					IP 65														
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BCT - 00060AAX - 050.000														
Bore diameter of coupling on the application side				<i>mm</i>	X = 014.000 - 035.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	<i>J</i> _i	<i>kgcm²</i>	-	-	-	-	-	0.31	0.28	0.24	0.23	0.21	0.2	0.19	0.18	0.18	0.18
				<i>10⁻³ in.lb.s²</i>	-	-	-	-	-	0.27	0.25	0.21	0.2	0.19	0.18	0.17	0.16	0.16	0.16
	E	19	<i>J</i> _i	<i>kgcm²</i>	1.81	1.39	1.18	1.02	0.93	0.75	0.72	0.68	0.68	0.63	0.63	0.63	0.63	0.63	0.63
				<i>10⁻³ in.lb.s²</i>	1.6	1.23	1.04	0.9	0.82	0.66	0.64	0.6	0.6	0.56	0.56	0.56	0.56	0.56	0.56
	H	28	<i>J</i> _i	<i>kgcm²</i>	3.22	2.8	2.6	2.43	2.34	-	-	-	-	-	-	-	-	-	-
				<i>10⁻³ in.lb.s²</i>	2.85	2.48	2.3	2.15	2.07	-	-	-	-	-	-	-	-	-	-

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

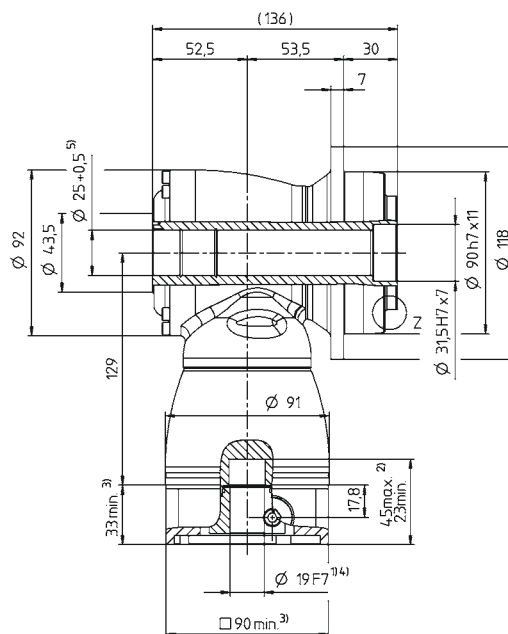
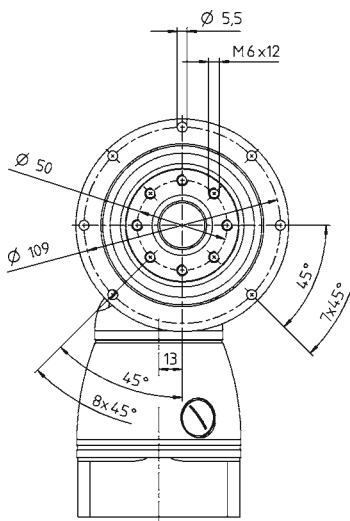
^{a)} At max. 10 % M_{2KMax}

^{b)} Valid for standard clamping hub diameter

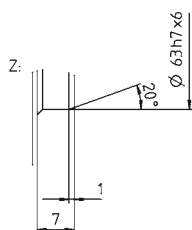
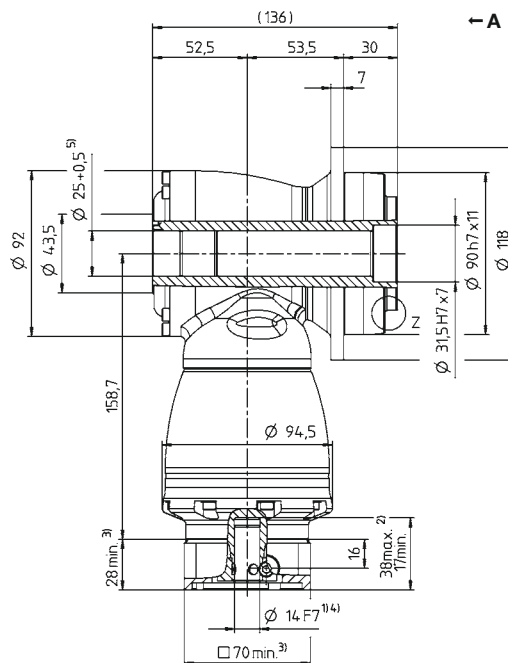
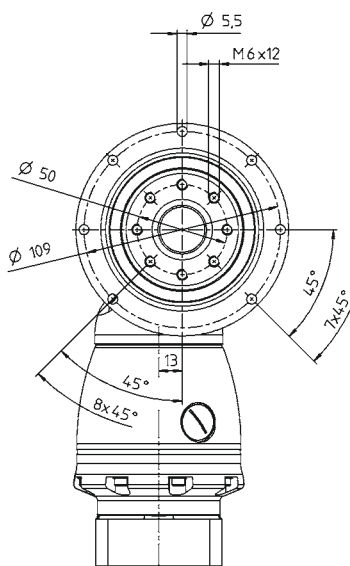
^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

up to 19/28 ⁴⁾
(E⁶/H) clamping
hub diameter



up to 14/19 ⁴⁾
(C⁶)/E) clamping
hub diameter



6) Standard clamping hub diameter

TK⁺ 025 MF 1-/2-stage

					1-stage					2-stage										
Ratio				<i>i</i>		3	4	5	7	10	12	16	20	25	28	35	40	50	70	100
Max. torque ^{a) b)}				<i>T</i> _{2a}	<i>Nm</i>	204	204	204	145	125	204	204	204	204	204	204	204	204	145	125
					<i>in.lb</i>	1806	1806	1806	1283	1106	1806	1806	1806	1806	1806	1806	1806	1806	1806	1806
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)				<i>T</i> _{2B}	<i>Nm</i>	170	170	170	145	125	170	170	170	170	170	170	170	170	145	125
					<i>in.lb</i>	1505	1505	1505	1283	1106	1505	1505	1505	1505	1505	1505	1505	1505	1505	1505
Nominal torque (at <i>n</i> _n)				<i>T</i> _{2N}	<i>Nm</i>	100	100	100	90	80	100	100	100	100	100	100	100	100	90	80
					<i>in.lb</i>	885	885	885	797	708	885	885	885	885	885	885	885	885	885	885
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)				<i>T</i> _{2Not}	<i>Nm</i>	220	260	260	255	250	260	260	260	260	260	260	260	260	255	250
					<i>in.lb</i>	1947	2301	2301	2257	2213	2301	2301	2301	2301	2301	2301	2301	2301	2301	2301
Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)}				<i>n</i> _{1N}	<i>n</i> _{1T}	2000	2100	2400	2200	2200	3100	3100	3100	3100	3100	3100	3100	3500	4200	4200
Max. input speed				<i>n</i> _{1Max}	<i>rpm</i>	5500	5500	5500	5500	5500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature)				<i>T</i> ₀₁₂	<i>Nm</i>	4.6	3.6	2.8	4.2	3.4	0.7	0.7	0.6	0.5	0.5	0.4	0.2	0.2	0.2	0.2
					<i>in.lb</i>	41	32	25	37	30	6	6	5	4	4	4	2	2	2	2
Max. backlash				<i>j</i> _t	<i>arcmin</i>	Standard ≤ 4														
Torsional rigidity ^{b)}				<i>C</i> ₁₂₁	<i>Nm/arcmin</i>	12	13	16	16	16	13	13	13	13	13	13	13	16	16	16
					<i>in.lb/arcmin</i>	106	115	142	142	142	115	115	115	115	115	115	115	115	115	142
Max. axial force ^{c)}				<i>F</i> _{2AMax}	<i>N</i>	5700														
					<i>lb_f</i>	1283														
Max. tilting moment				<i>M</i> _{2KMax}	<i>Nm</i>	833														
					<i>in.lb</i>	7373														
Efficiency at full load				<i>η</i>	%	96					94									
Service life				<i>L</i> _h	<i>h</i>	> 20000														
Weight (incl. standard adapter plate)				<i>m</i>	<i>kg</i>	8.9					10.6									
					<i>lb_m</i>	20					23									
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)				<i>L</i> _{PA}	<i>dB(A)</i>	≤ 66														
Max. permitted housing temperature					°C	+90														
					<i>F</i>	194														
Ambient temperature					°C	0 to +40														
					<i>F</i>	32 to 104														
Lubrication						Lubricated for life														
Direction of rotation						In- and output opposite direction														
Protection class						IP 65														
Metal bellows coupling (recommended product type – validate sizing with cymex®)						BCT - 00150AAX - 063.000														
Bore diameter of coupling on the application side					<i>mm</i>	X = 019.000 - 042.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	<i>J</i> _i	<i>kgcm²</i>	-	-	-	-	-	1.08	1.01	0.88	0.85	0.76	0.75	0.7	0.69	0.68	0.68	
				<i>10⁻³ in.lb.s²</i>	-	-	-	-	-	0.96	0.89	0.78	0.75	0.67	0.66	0.62	0.61	0.6	0.6	
	G	24	<i>J</i> _i	<i>kgcm²</i>	-	-	-	-	-	2.65	2.57	2.44	2.42	2.32	2.31	2.26	2.25	2.25	2.25	
				<i>10⁻³ in.lb.s²</i>	-	-	-	-	-	2.35	2.27	2.16	2.14	2.05	2.04	2	1.99	1.99	1.99	
	H	28	<i>J</i> _i	<i>kgcm²</i>	5.5	4.3	3.6	3.1	2.9	-	-	-	-	-	-	-	-	-	-	
				<i>10⁻³ in.lb.s²</i>	4.87	3.81	3.19	2.74	2.57	-	-	-	-	-	-	-	-	-	-	
	K	38	<i>J</i> _i	<i>kgcm²</i>	12.7	11.5	10.9	10.4	10.1	-	-	-	-	-	-	-	-	-	-	
				<i>10⁻³ in.lb.s²</i>	11.24	10.18	9.65	9.2	8.94	-	-	-	-	-	-	-	-	-	-	

Please use our sizing software cymex® for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

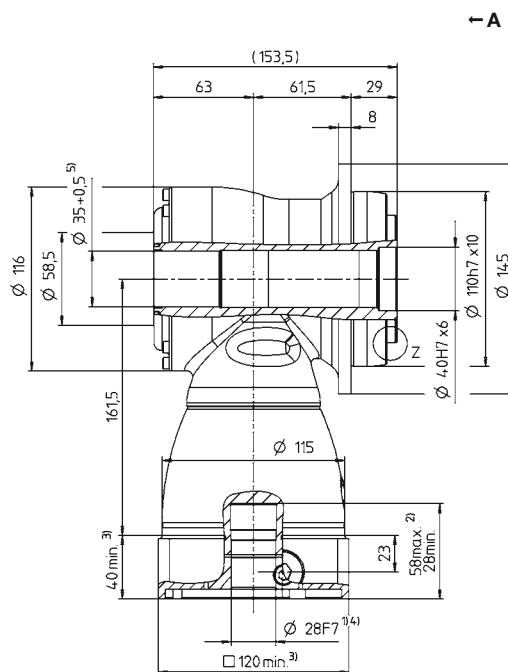
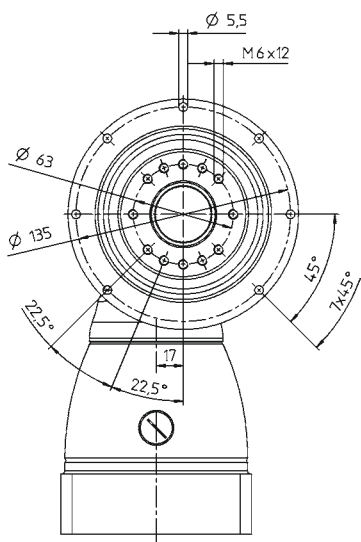
^{b)} Valid for standard clamping hub diameter

^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

1-stage

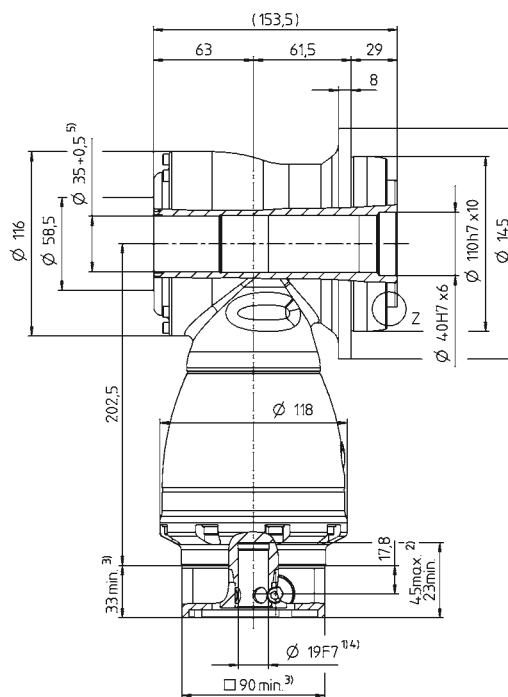
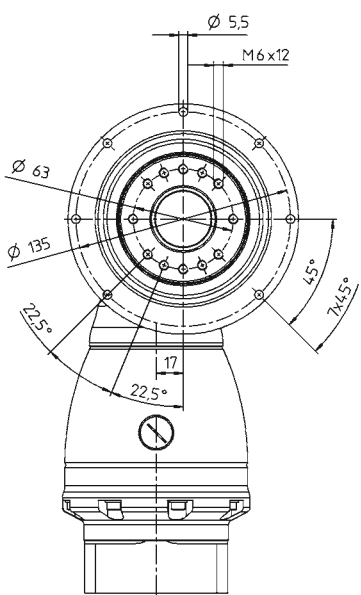
up to 28/38 ⁴⁾
(H⁶⁾/K) clamping
hub diameter



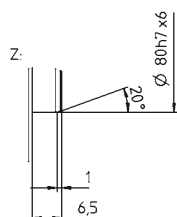
← A

2-stage

up to 19/24 ⁴⁾
(E⁶⁾/G) clamping
hub diameter



← A



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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Led through element max. Ø 34.8 mm

⁶⁾ Standard clamping hub diameter

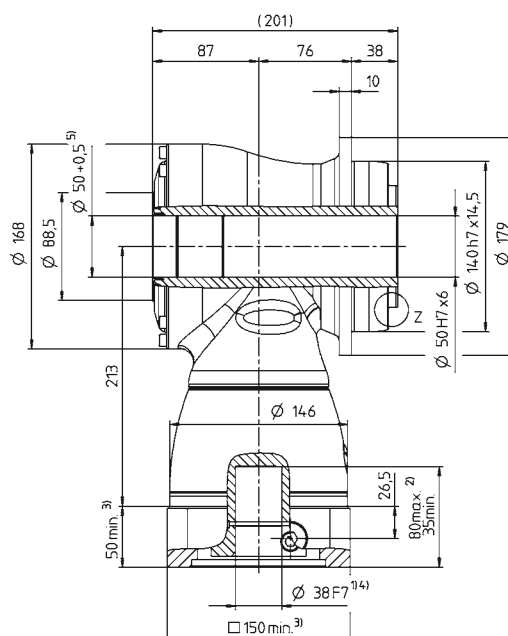
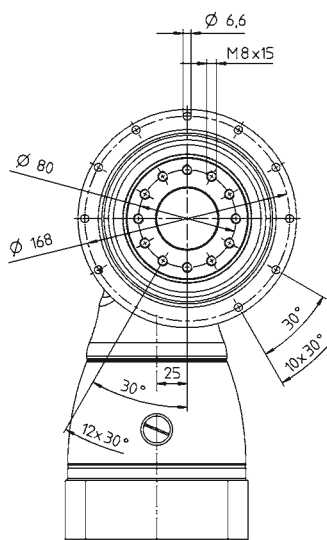
TK⁺ 050 MF 1-/2-stage

				1-stage					2-stage												
Ratio			<i>i</i>		3	4	5	7	10	12	16	20	25	28	35	40	50	70	100		
Max. torque ^{a) b)}			<i>T</i> _{2a}	<i>Nm</i>	360	360	360	250	210	360	360	360	360	360	360	360	360	250	210		
				<i>in.lb</i>	3186	3186	3186	2213	1859	3186	3186	3186	3186	3186	3186	3186	3186	2213	1859		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)			<i>T</i> _{2B}	<i>Nm</i>	300	300	300	250	210	300	300	300	300	300	300	300	300	250	210		
				<i>in.lb</i>	2655	2655	2655	2213	1859	2655	2655	2655	2655	2655	2655	2655	2655	2213	1859		
Nominal torque (at <i>n_n</i>)			<i>T</i> _{2N}	<i>Nm</i>	190	190	190	175	160	190	190	190	190	190	190	190	190	175	160		
				<i>in.lb</i>	1682	1682	1682	1549	1416	1682	1682	1682	1682	1682	1682	1682	1682	1549	1416		
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)			<i>T</i> _{2Not}	<i>Nm</i>	400	500	500	450	400	500	500	500	500	500	500	500	500	450	400		
				<i>in.lb</i>	3540	4425	4425	3983	3540	4425	4425	4425	4425	4425	4425	4425	4425	3983	3540		
Permitted average input speed (at <i>T</i> _{2a} and 20 °C ambient temperature) ^{d)}			<i>n</i> _{1N}	<i>n</i> _{1T}	1700	1800	2000	1800	1800	2900	2900	2900	2900	2900	2900	2900	3200	3200	3900		
Max. input speed			<i>n</i> _{1Max}	<i>rpm</i>	5000	5000	5000	5000	5000	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500		
Mean no load running torque ^{b)} (at <i>n_i</i> = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> ₀₁₂	<i>Nm</i>	8.4	6.2	5.4	9	6.6	1.7	1.1	0.8	0.6	0.6	0.5	0.5	0.4	0.4	0.4		
				<i>in.lb</i>	74	55	48	80	58	15	10	7	5	5	4	4	4	4	4	4	
Max. backlash			<i>j</i> _t	<i>arcmin</i>	Standard ≤ 4																
Torsional rigidity ^{b)}			<i>C</i> _{t21}	<i>Nm/arcmin</i>	36	40	46	44	42	40	40	40	40	40	40	40	46	44	42		
				<i>in.lb/arcmin</i>	319	354	407	389	372	354	354	354	354	354	354	354	354	407	389	372	
Max. axial force ^{c)}			<i>F</i> _{2AMax}	<i>N</i>	9900																
				<i>lb_f</i>	2228																
Max. tilting moment			<i>M</i> _{2KMax}	<i>Nm</i>	1692																
				<i>in.lb</i>	14976																
Efficiency at full load			<i>η</i>	%	96					94											
Service life			<i>L</i> _h	<i>h</i>	> 20000																
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	22					26											
				<i>lb_m</i>	49					57											
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])			<i>L</i> _{PA}	<i>dB(A)</i>	≤ 68																
Max. permitted housing temperature				°C	+90																
				<i>F</i>	194																
Ambient temperature				°C	0 to +40																
				<i>F</i>	32 to 104																
Lubrication					Lubricated for life																
Direction of rotation					In- and output opposite direction																
Protection class					IP 65																
Metal bellows coupling (recommended product type – validate sizing with cymex [®])					BCT - 00300AAX - 080.000																
				<i>mm</i>	X = 024.000 - 060.000																
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]			G	24	<i>J</i> _i	<i>kgcm</i> ²	-	-	-	-	-	4.43	3.97	3.36	3.22	2.82	2.75	2.5	2.47	2.44	2.42
						<i>10⁻³ in.lb.s</i> ²	-	-	-	-	-	3.92	3.51	2.97	2.85	2.5	2.43	2.21	2.19	2.16	2.14
			K	38	<i>J</i> _i	<i>kgcm</i> ²	28.4	21	17.6	14.7	13.1	11.3	10.9	10.3	10.1	9.74	9.66	9.41	9.38	9.35	9.33
						<i>10⁻³ in.lb.s</i> ²	25.13	18.59	15.58	13.01	11.59	10	9.65	9.12	8.94	8.62	8.55	8.33	8.3	8.27	8.2

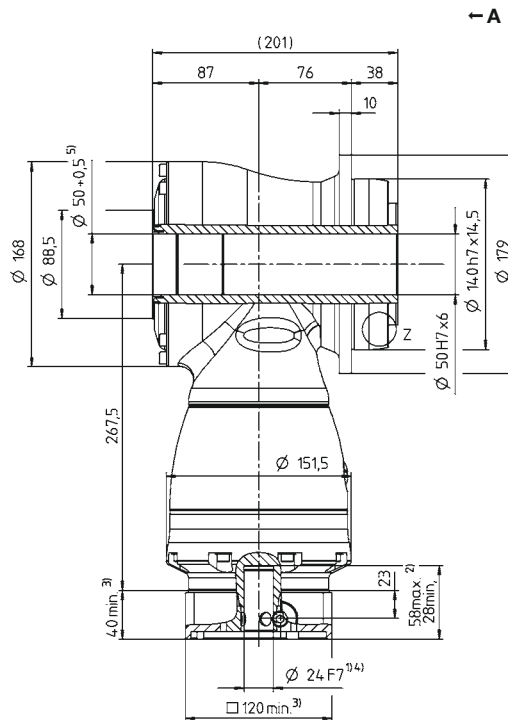
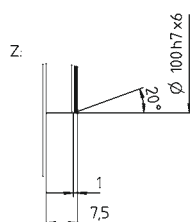
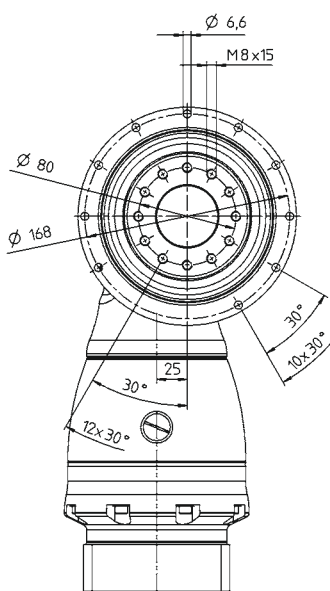
Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}
^{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

up to 38⁴⁾ (K)⁶⁾
clamping hub
diameter



up to 24/38 ⁴⁾
(G⁶/K) clamping
hub diameter



6) Standard clamping hub diameter

TK⁺ 110 MF 1-/2-stage

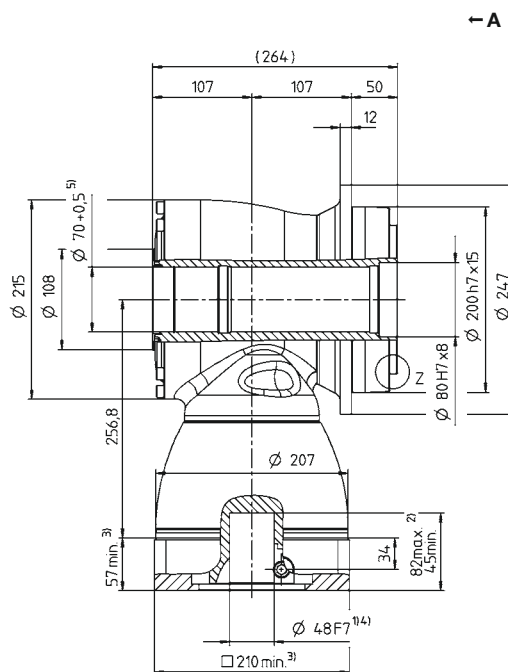
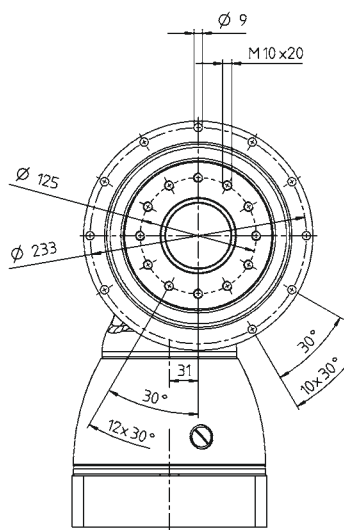
				1-stage						2-stage									
Ratio				3	4	5	7	10	12	16	20	25	28	35	40	50	70	100	
Max. torque ^{a) b)}	T_{2a}	Nm		768	768	768	550	470	768	768	768	768	768	768	768	768	550	470	
		$in.lb$		6797	6797	6797	4868	4160	6797	6797	6797	6797	6797	6797	6797	6797	4868	4160	
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm		640	640	640	550	470	640	640	640	640	640	640	640	640	550	470	
		$in.lb$		5665	5665	5665	4868	4160	5665	5665	5665	5665	5665	5665	5665	5665	4868	4160	
Nominal torque (at n_{IN})	T_{2N}	Nm		400	400	400	380	360	400	400	400	400	400	400	400	400	380	360	
		$in.lb$		3540	3540	3540	3363	3186	3540	3540	3540	3540	3540	3540	3540	3540	3363	3186	
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm		900	1050	1050	970	900	1050	1050	1050	1050	1050	1050	1050	1050	970	900	
		$in.lb$		7966	9293	9293	8585	7966	9293	9293	9293	9293	9293	9293	9293	9293	8585	7966	
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		1400	1600	1800	1600	1600	2700	2700	2700	2700	2700	2700	2700	2900	3200	3400	
Max. input speed	n_{1Max}	rpm		4500	4500	4500	4500	4500	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	
Mean no load running torque ^{b)} (at n_l = 3000 rpm and 20 °C gearbox temperature)	T_{012}	Nm		17.5	14.5	12	18	15	3.6	2.8	2.2	1.9	1.6	1.4	1.1	1.1	1.1	1.1	
		$in.lb$		155	128	106	159	133	32	25	19	17	14	12	10	10	10	10	
Max. backlash	j_t	$arcmin$		Standard ≤ 4															
Torsional rigidity ^{b)}	C_{i21}	$Nm/arcmin$		76	87	99	97	96	87	87	87	87	87	87	87	99	97	96	
		$in.lb/arcmin$		673	770	876	859	850	770	770	770	770	770	770	770	770	876	859	850
Max. axial force ^{c)}	F_{2AMax}	N		14200															
		lb_f		3195															
Max. tilting moment	M_{2KMax}	Nm		3213															
		$in.lb$		28438															
Efficiency at full load	η	%		96					94										
Service life	L_h	h		> 20000															
Weight (incl. standard adapter plate)	m	kg		48					54										
		lb_m		106					119										
Operating noise (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 opposite direction															
Protection class				IP 65															
Metal bellows coupling (recommended product type – validate sizing with cymex®)				BCT - 01500AAX - 125.000															
Bore diameter of coupling on the application side			mm	X = 050.000 - 080.000															
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	K	38	J_1	$kgcm^2$	-	-	-	-	-	16.8	14.8	12.9	12.3	11.2	10.9	10.3	10.1	10	9.93
				$10^{-3} in.lb.s^2$	-	-	-	-	-	14.87	13.1	11.42	10.89	9.91	9.65	9.12	8.94	8.85	8.79
	M	48	J_1	$kgcm^2$	96.5	64.6	50.5	38.2	31.8	31.5	29.5	27.6	27	25.9	25.6	25	24.8	24.7	24.6
				$10^{-3} in.lb.s^2$	85.4	57.17	44.69	33.81	28.14	27.88	26.11	24.43	23.9	22.92	22.66	22.13	21.95	21.86	21.77

Please use our sizing software cymex® for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- a) At max. 10 % M_{2KMax}
- 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

1-stage

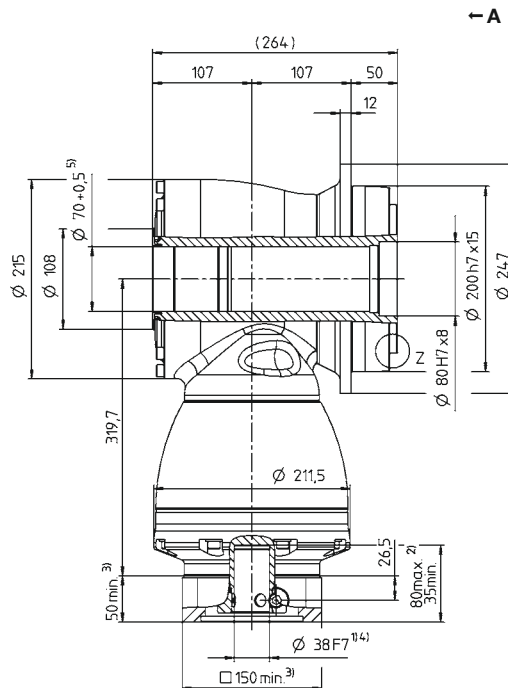
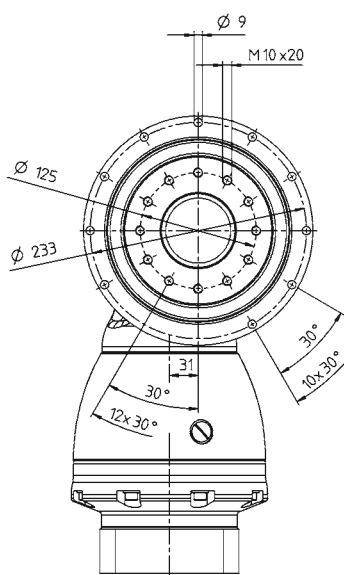
up to 48⁴⁾ (M)⁶⁾
clamping hub diameter



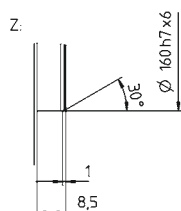
← A

2-stage

up to 38/48⁴⁾
(K⁶⁾/M) clamping
hub diameter



← A



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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Led through element max. Ø 69.8 mm

⁶⁾ Standard clamping hub diameter

TPK+ 010 MF 2-stage

				2-stage											
Ratio			<i>i</i>		12	16	20	25	28	35	40	49	50	70	100
Max. torque ^{a) b)}			<i>T</i> _{2a}	<i>Nm</i>	144	144	180	180	210	210	80	175	100	140	168
				<i>in.lb</i>	1275	1275	1593	1593	1859	1859	708	1549	885	1239	1487
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)			<i>T</i> _{2B}	<i>Nm</i>	120	120	150	150	172	172	80	172	100	140	126
				<i>in.lb</i>	1062	1062	1328	1328	1522	1522	708	1522	885	1239	1115
Nominal torque (at <i>n</i> _{IN})			<i>T</i> _{2N}	<i>Nm</i>	75	75	75	75	75	75	60	75	75	75	60
				<i>in.lb</i>	664	664	664	664	664	664	531	664	664	664	531
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)			<i>T</i> _{2Not}	<i>Nm</i>	160	200	250	250	251	251	160	251	200	251	251
				<i>in.lb</i>	1416	1770	2213	2213	2222	2222	1416	2222	1770	2222	2222
Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)}			<i>n</i> _{1N}	<i>n</i> _{1T}	2000	2400	2400	2700	2400	2500	2500	2500	2500	2500	2500
Max. input speed			<i>n</i> _{1Max}	<i>rpm</i>	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500
Mean no load running torque ^{b)} (at <i>n</i> ₁ = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> ₀₁₂	<i>Nm</i>	1.5	1.3	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3
				<i>in.lb</i>	13	12	11	11	11	12	12	12	12	12	12
Max. backlash			<i>j</i> _t	<i>arcmin</i>	Standard ≤ 5 / Reduced ≤ 3										
Torsional rigidity ^{b)}			<i>C</i> _{t21}	<i>Nm/arcmin</i>	16	16	20	21	23	24	15	23	19	22	27
				<i>in.lb/arcmin</i>	142	142	177	186	204	212	133	204	168	195	239
Tilting rigidity			<i>C</i> _{2K}	<i>Nm/arcmin</i>	225										
				<i>in.lb/arcmin</i>	1991										
Max. axial force ^{c)}			<i>F</i> _{2AMax}	<i>N</i>	2795										
				<i>lb_f</i>	629										
Max. tilting moment			<i>M</i> _{2KMax}	<i>Nm</i>	235										
				<i>in.lb</i>	2080										
Efficiency at full load			<i>η</i>	%	94										
Service life			<i>L</i> _h	<i>h</i>	> 20000										
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	5.2										
				<i>lb_m</i>	11										
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> _{PA}	<i>dB(A)</i>	≤ 66										
Max. permitted housing temperature				°C	+90										
				<i>F</i>	194										
Ambient temperature				°C	0 to +40										
				<i>F</i>	32 to 104										
Lubrication					Lubricated for life										
Direction of rotation					In- and output opposite direction										
Protection class					IP 65										
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BCT - 00060AAX - 050.000										
Bore diameter of coupling on the application side				<i>mm</i>	X = 014.000 - 035.000										
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	<i>J</i> ₁	<i>kgcm²</i>	0.55	0.46	0.44	0.39	0.43	0.36	0.34	0.37	0.34	0.34	0.34
				<i>10⁻³ in.lb.s²</i>	0.49	0.41	0.39	0.35	0.38	0.32	0.3	0.33	0.3	0.3	0.3
	E	19	<i>J</i> ₁	<i>kgcm²</i>	0.9	0.81	0.79	0.75	0.78	0.71	0.7	0.72	0.7	0.69	0.69
<i>10⁻³ in.lb.s²</i>				0.8	0.72	0.7	0.66	0.69	0.63	0.62	0.64	0.62	0.61	0.61	

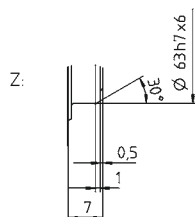
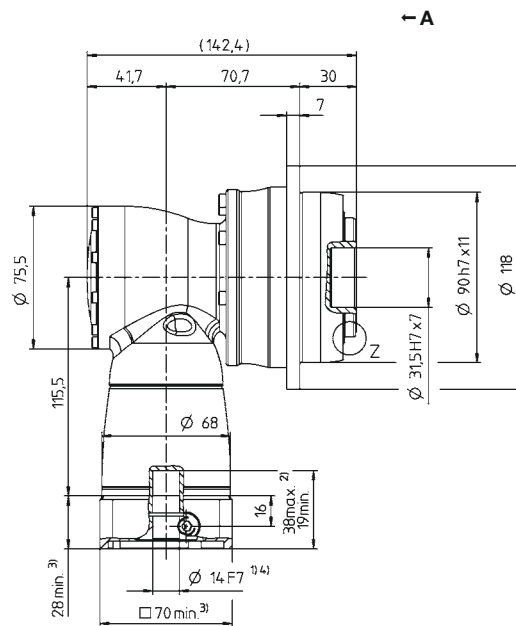
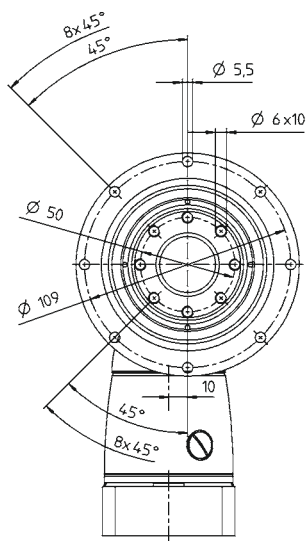
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Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % M_{2KMax}
^{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

View A

Motor shaft diameter [mm]

2-stage

up to 14/19⁴⁾
(C⁵⁾ / E) clamping
hub diameter


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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

Hypoid gearboxes

TPK⁺

MF

TPK+ 010 MF 3-stage

				3-stage														
Ratio			<i>i</i>		64	84	100	125	140	175	200	250	280	350	400	500	700	1000
Max. torque ^{a) b)}			<i>T</i> _{2a}	<i>Nm</i>	144	144	180	180	180	180	180	180	210	210	96	120	168	168
				<i>in.lb</i>	1275	1275	1593	1593	1593	1593	1593	1593	1859	1859	850	1062	1487	1487
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)			<i>T</i> _{2B}	<i>Nm</i>	120	120	150	150	150	150	150	150	172	172	80	100	140	126
				<i>in.lb</i>	1062	1062	1328	1328	1328	1328	1328	1328	1522	1522	708	885	1239	1115
Nominal torque (at <i>n</i> _n)			<i>T</i> _{2N}	<i>Nm</i>	85	85	90	90	90	90	90	90	75	90	60	75	90	60
				<i>in.lb</i>	752	752	797	797	797	797	797	797	664	797	531	664	797	531
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)			<i>T</i> _{2Not}	<i>Nm</i>	200	160	250	250	250	250	250	250	251	251	160	200	251	251
				<i>in.lb</i>	1770	1416	2213	2213	2213	2213	2213	2213	2213	2222	2222	1416	1770	2222
Permitted average input speed (at <i>T</i> _{2n} and 20 °C ambient temperature) ^{d)}			<i>n</i> _{1N}	<i>n</i> _{1T}	4400	4400	4400	4400	4400	4400	4400	4800	4400	4800	5500	5500	5500	5500
Max. input speed			<i>n</i> _{1Max}	<i>rpm</i>	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> ₀₁₂	<i>Nm</i>	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
				<i>in.lb</i>	3	3	3	3	3	3	2	2	2	2	2	2	2	2
Max. backlash			<i>j</i> _t	<i>arcmin</i>	Standard ≤ 5 / Reduced ≤ 3													
Torsional rigidity ^{b)}			<i>C</i> _{t21}	<i>Nm/arcmin</i>	16	16	20	21	20	21	20	21	23	24	15	19	22	27
				<i>in.lb/arcmin</i>	142	142	177	186	177	186	177	186	204	212	133	168	195	239
Tilting rigidity			<i>C</i> _{2K}	<i>Nm/arcmin</i>	225													
				<i>in.lb/arcmin</i>	1991													
Max. axial force ^{c)}			<i>F</i> _{2AMax}	<i>N</i>	2795													
				<i>lb_f</i>	629													
Max. tilting moment			<i>M</i> _{2KMax}	<i>Nm</i>	235													
				<i>in.lb</i>	2080													
Efficiency at full load			<i>η</i>	%	92													
Service life			<i>L</i> _h	<i>h</i>	> 20000													
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	5.5													
				<i>lb_m</i>	12													
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> _{PA}	<i>dB(A)</i>	≤ 66													
Max. permitted housing temperature				°C	+90													
				<i>F</i>	194													
Ambient temperature				°C	0 to +40													
				<i>F</i>	32 to 104													
Lubrication					Lubricated for life													
Direction of rotation					In- and output opposite direction													
Protection class					IP 65													
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BCT - 00060AAX - 050.000													
Bore diameter of coupling on the application side				<i>mm</i>	X = 014.000 - 035.000													
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	B	11	<i>J</i> _i	<i>kgcm²</i>	0.09	0.07	0.08	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
				<i>10⁻³ in.lb.s²</i>	0.08	0.06	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	C	14	<i>J</i> _i	<i>kgcm²</i>	0.2	0.18	0.19	0.19	0.18	0.18	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
<i>10⁻³ in.lb.s²</i>				0.18	0.16	0.17	0.17	0.16	0.16	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	

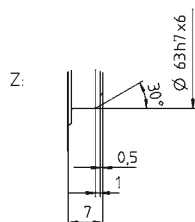
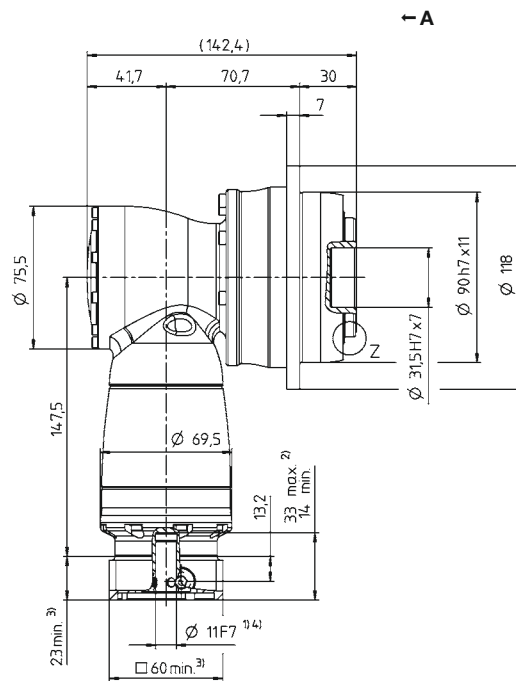
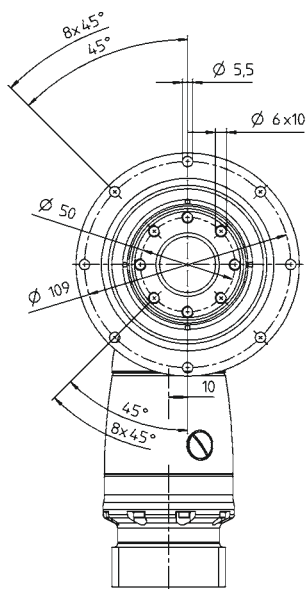
Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % M_{2KMax}
^{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

View A

Motor shaft diameter [mm]

3-stage

up to 11/14⁴⁾
(B⁵⁾/C) clamping
hub diameter


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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

Hypoid gearboxes

TPK⁺

MF

TPK+ 025 MF 2-stage

				2-stage											
Ratio			<i>i</i>		12	16	20	25	28	35	40	49	50	70	100
Max. torque ^{a) b)}			<i>T</i> _{2a}	<i>Nm</i>	336	336	380	380	352	352	200	352	250	350	352
				<i>in.lb</i>	2974	2974	3363	3363	3115	3115	1770	3115	2213	3098	3115
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)			<i>T</i> _{2B}	<i>Nm</i>	280	280	350	350	352	352	200	352	250	350	318
				<i>in.lb</i>	2478	2478	3098	3098	3115	3115	1770	3115	2213	3098	2815
Nominal torque (at <i>n</i> _N)			<i>T</i> _{2N}	<i>Nm</i>	170	170	170	170	170	170	160	170	170	170	120
				<i>in.lb</i>	1505	1505	1505	1505	1505	1505	1416	1505	1505	1505	1062
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)			<i>T</i> _{2Not}	<i>Nm</i>	380	460	575	575	625	625	400	625	500	625	625
				<i>in.lb</i>	3363	4071	5089	5089	5532	5532	3540	5532	4425	5532	5532
Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)}			<i>n</i> _{1N}	<i>n</i> _{1T}	2000	2400	2400	2700	2400	2500	2500	2500	2500	2500	2500
Max. input speed			<i>n</i> _{1Max}	<i>rpm</i>	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500
Mean no load running torque ^{b)} (at <i>n</i> ₁ = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> ₀₁₂	<i>Nm</i>	2.5	2.1	2	1.8	2	2.2	2	2.2	2	2	2
				<i>in.lb</i>	22	19	18	16	18	19	18	19	18	18	18
Max. backlash			<i>j</i> _t	<i>arcmin</i>	Standard ≤ 4 / Reduced ≤ 2										
Torsional rigidity ^{b)}			<i>C</i> _{t21}	<i>Nm/arcmin</i>	40	42	53	55	59	60	44	60	55	60	56
				<i>in.lb/arcmin</i>	354	372	469	487	522	531	389	531	487	531	496
Tilting rigidity			<i>C</i> _{2K}	<i>Nm/arcmin</i>	550										
				<i>in.lb/arcmin</i>	4868										
Max. axial force ^{c)}			<i>F</i> _{2AMax}	<i>N</i>	4800										
				<i>lb_f</i>	1080										
Max. tilting moment			<i>M</i> _{2KMax}	<i>Nm</i>	413										
				<i>in.lb</i>	3655										
Efficiency at full load			<i>η</i>	%	94										
Service life			<i>L</i> _h	<i>h</i>	> 20000										
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	9										
				<i>lb_m</i>	20										
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> _{PA}	<i>dB(A)</i>	≤ 68										
Max. permitted housing temperature				°C	+90										
				<i>F</i>	194										
Ambient temperature				°C	0 to +40										
				<i>F</i>	32 to 104										
Lubrication					Lubricated for life										
Direction of rotation					In- and output opposite direction										
Protection class					IP 65										
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BCT - 00150AAX - 063.000										
				<i>mm</i>	X = 019.000 - 042.000										
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	<i>J</i> ₁	<i>kgcm²</i>	1.43	1.18	1.16	1.04	1.14	0.94	0.89	0.95	0.89	0.89	0.89
				<i>10⁻³ in.lb.s²</i>	1.27	1.04	1.03	0.92	1.01	0.83	0.79	0.84	0.79	0.79	0.79
	H	28	<i>J</i> ₁	<i>kgcm²</i>	2.85	2.59	2.57	2.45	2.56	2.4	2.31	2.37	2.3	2.3	2.3
<i>10⁻³ in.lb.s²</i>				2.52	2.29	2.27	2.17	2.27	2.12	2.04	2.1	2.04	2.04	2.04	

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

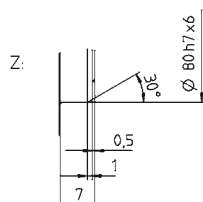
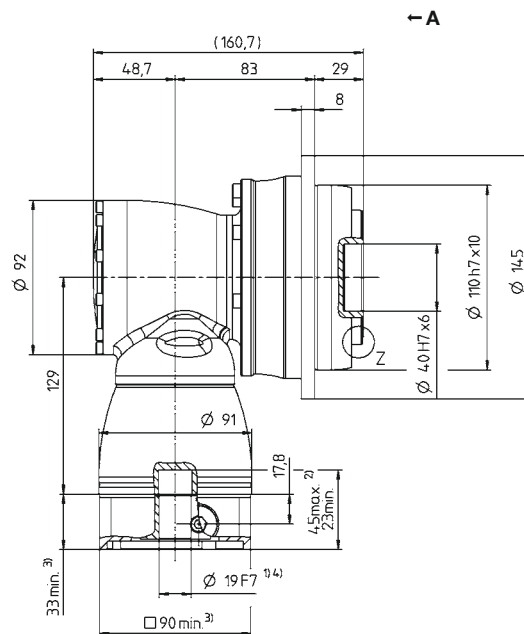
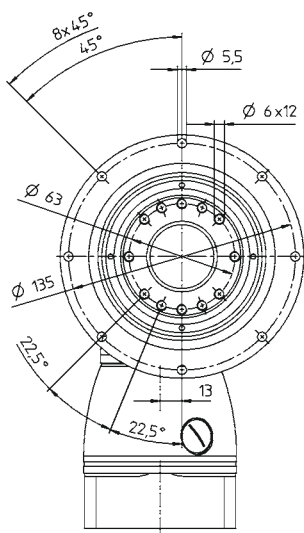
^{b)} Valid for standard clamping hub diameter

^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

Motor shaft diameter [mm]

2-stage

up to 19/28⁴⁾
(E⁵⁾/H) clamping
hub diameter


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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

TPK+ 025 MF 3-stage

				3-stage														
Ratio			<i>i</i>		64	84	100	125	140	175	200	250	280	350	400	500	700	1000
Max. torque ^{a) b)}			<i>T</i> _{2a}	<i>Nm</i>	336	336	380	380	380	380	380	380	352	352	240	300	352	352
				<i>in.lb</i>	2974	2974	3363	3363	3363	3363	3363	3115	3115	2124	2655	3115	3115	
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)			<i>T</i> _{2B}	<i>Nm</i>	280	280	350	350	350	350	350	352	352	200	250	350	318	
				<i>in.lb</i>	2478	2478	3098	3098	3098	3098	3098	3115	3115	1770	2213	3098	2815	
Nominal torque (at <i>n</i> _{IN})			<i>T</i> _{2N}	<i>Nm</i>	200	170	200	200	200	200	200	210	200	160	200	200	120	
				<i>in.lb</i>	1770	1505	1770	1770	1770	1770	1770	1770	1859	1770	1416	1770	1770	1062
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)			<i>T</i> _{2Not}	<i>Nm</i>	460	380	575	575	575	575	575	625	625	400	500	625	625	
				<i>in.lb</i>	4071	3363	5089	5089	5089	5089	5089	5089	5532	5532	3540	4425	5532	5532
Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)}			<i>n</i> _{1N}	<i>n</i> _{1T}	3500	3500	3500	3500	3500	3500	3500	3800	3500	3800	4500	4500	4500	4500
Max. input speed			<i>n</i> _{1Max}	<i>rpm</i>	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> ₀₁₂	<i>Nm</i>	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
				<i>in.lb</i>	4	3	3	3	3	3	2	2	2	2	2	2	2	2
Max. backlash			<i>j</i> _t	<i>arcmin</i>	Standard ≤ 4 / Reduced ≤ 2													
Torsional rigidity ^{b)}			<i>C</i> _{t21}	<i>Nm/arcmin</i>	42	40	53	55	53	55	53	55	59	60	44	55	60	56
				<i>in.lb/arcmin</i>	372	354	469	487	469	487	469	487	522	531	389	487	531	496
Tilting rigidity			<i>C</i> _{2K}	<i>Nm/arcmin</i>	550													
				<i>in.lb/arcmin</i>	4868													
Max. axial force ^{c)}			<i>F</i> _{2AMax}	<i>N</i>	4800													
				<i>lb_f</i>	1080													
Max. tilting moment			<i>M</i> _{2KMax}	<i>Nm</i>	413													
				<i>in.lb</i>	3655													
Efficiency at full load			<i>η</i>	%	92													
Service life			<i>L</i> _h	<i>h</i>	> 20000													
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	9.8													
				<i>lb_m</i>	22													
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> _{PA}	<i>dB(A)</i>	≤ 68													
Max. permitted housing temperature				°C	+90													
				<i>F</i>	194													
Ambient temperature				°C	0 to +40													
				<i>F</i>	32 to 104													
Lubrication					Lubricated for life													
Direction of rotation					In- and output opposite direction													
Protection class					IP 65													
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BCT - 00150AAX - 063.000													
				<i>mm</i>	X = 019.000 - 042.000													
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]		C	14	<i>J</i> _i	<i>kgcm²</i>	0.28	0.23	0.24	0.23	0.21	0.2	0.19	0.18	0.19	0.18	0.18	0.18	0.18
					<i>10⁻³ in.lb.s²</i>	0.25	0.2	0.21	0.2	0.19	0.18	0.17	0.16	0.17	0.16	0.16	0.16	0.16
		E	19	<i>J</i> _i	<i>kgcm²</i>	0.72	0.63	0.68	0.68	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
<i>10⁻³ in.lb.s²</i>	0.64				0.56	0.6	0.6	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

^{b)} Valid for standard clamping hub diameter

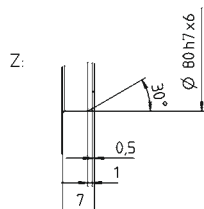
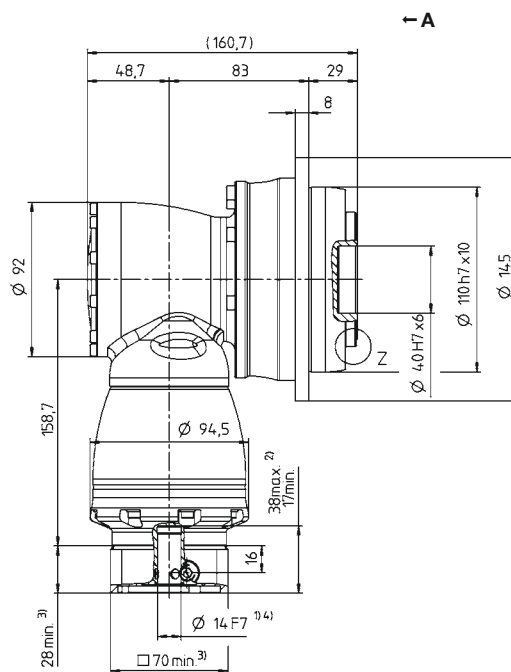
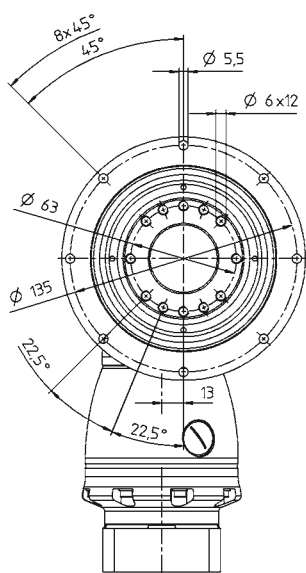
^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

View A

Motor shaft diameter [mm]

3-stage

up to 14/19⁴⁾
(C⁵⁾/E) clamping
hub diameter


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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

Hypoid gearboxes

TPK⁺

MF

TPK+ 050 MF 2-stage

				2-stage											
Ratio			<i>i</i>		12	16	20	25	28	35	40	49	50	70	100
Max. torque ^{a) b)}			<i>T</i> _{2a}	<i>Nm</i>	816	816	992	992	868	868	500	868	625	868	720
				<i>in.lb</i>	7222	7222	8780	8780	7682	7682	4425	7682	5532	7682	6373
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)			<i>T</i> _{2B}	<i>Nm</i>	680	680	840	840	840	840	500	840	625	840	648
				<i>in.lb</i>	6019	6019	7435	7435	7435	7435	4425	7435	5532	7435	5735
Nominal torque (at <i>n</i> _N)			<i>T</i> _{2N}	<i>Nm</i>	370	370	370	370	370	370	320	370	370	370	240
				<i>in.lb</i>	3275	3275	3275	3275	3275	3275	2832	3275	3275	3275	2124
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)			<i>T</i> _{2Not}	<i>Nm</i>	880	1040	1250	1250	1250	1250	1000	1250	1250	1250	1250
				<i>in.lb</i>	7789	9205	11064	11064	11064	11064	8851	11064	11064	11064	11064
Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)}			<i>n</i> _{1N}	<i>n</i> _{1T}	1900	2300	2300	2600	2300	2300	2300	2300	2300	2300	2300
Max. input speed			<i>n</i> _{1Max}	<i>rpm</i>	5500	5500	5500	5500	5500	5500	5500	5500	5500	5500	5500
Mean no load running torque ^{b)} (at <i>n</i> ₁ = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> ₀₁₂	<i>Nm</i>	4	3.7	3.6	2.8	3.5	3.9	3.1	3.9	3.1	3.1	3.1
				<i>in.lb</i>	35	33	32	25	31	35	27	35	27	27	27
Max. backlash			<i>j</i> _t	<i>arcmin</i>	Standard ≤ 4 / Reduced ≤ 2										
Torsional rigidity ^{b)}			<i>C</i> _{t21}	<i>Nm/arcmin</i>	87	91	111	119	123	127	96	127	115	125	112
				<i>in.lb/arcmin</i>	770	805	982	1053	1089	1124	850	1124	1018	1106	991
Tilting rigidity			<i>C</i> _{2K}	<i>Nm/arcmin</i>	560										
				<i>in.lb/arcmin</i>	4956										
Max. axial force ^{c)}			<i>F</i> _{2AMax}	<i>N</i>	6130										
				<i>lb_f</i>	1379										
Max. tilting moment			<i>M</i> _{2KMax}	<i>Nm</i>	1295										
				<i>in.lb</i>	11462										
Efficiency at full load			<i>η</i>	%	94										
Service life			<i>L</i> _h	<i>h</i>	> 20000										
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	17										
				<i>lb_m</i>	38										
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> _{PA}	<i>dB(A)</i>	≤ 68										
Max. permitted housing temperature				°C	+90										
				<i>F</i>	194										
Ambient temperature				°C	0 to +40										
				<i>F</i>	32 to 104										
Lubrication					Lubricated for life										
Direction of rotation					In- and output opposite direction										
Protection class					IP 65										
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BCT - 00300AAX - 080.000										
Bore diameter of coupling on the application side				<i>mm</i>	X = 024.000 - 060.000										
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	H	28	<i>J</i> ₁	<i>kgcm²</i>	4.56	3.76	3.71	3.28	3.66	3	2.79	3.1	2.78	2.77	2.77
				<i>10⁻³ in.lb.s²</i>	4.04	3.33	3.28	2.9	3.24	2.66	2.47	2.74	2.46	2.45	2.45
	K	38	<i>J</i> ₁	<i>kgcm²</i>	11.7	10.9	10.9	10.4	10.8	10.3	9.95	10.4	9.94	9.94	9.94
<i>10⁻³ in.lb.s²</i>				10.35	9.65	9.65	9.2	9.56	9.12	8.81	9.2	8.8	8.8	8.8	

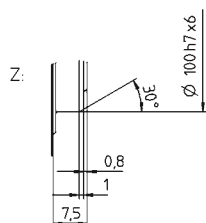
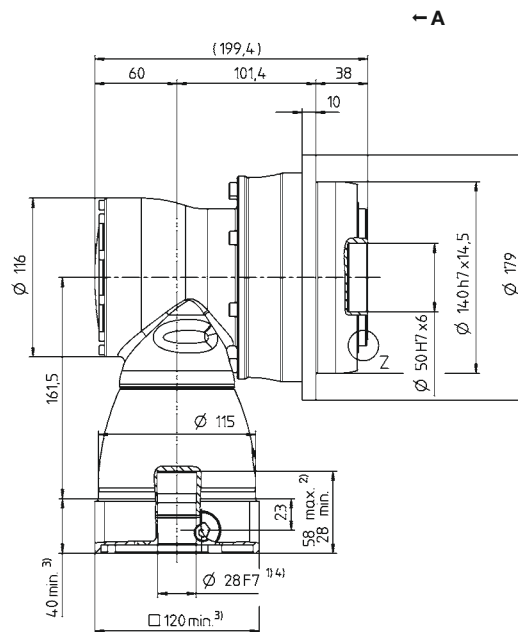
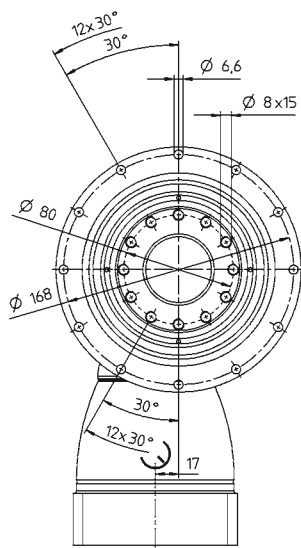
Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % M_{2KMax}
^{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

View A

Motor shaft diameter [mm]

2-stage

up to 28/38⁴⁾
(H⁵⁾/K) clamping
hub diameter


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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

Hypoid gearboxes

TPK+

MF

TPK+ 050 MF 3-stage

				3-stage														
Ratio			<i>i</i>		64	84	100	125	140	175	200	250	280	350	400	500	700	1000
Max. torque ^{a) b)}			<i>T</i> _{2a}	<i>Nm</i>	816	816	992	992	992	992	992	992	868	868	600	750	868	720
				<i>in.lb</i>	7222	7222	8780	8780	8780	8780	8780	8780	7682	7682	5310	6638	7682	6373
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)			<i>T</i> _{2B}	<i>Nm</i>	680	680	840	840	840	840	840	840	840	840	500	625	840	648
				<i>in.lb</i>	6019	6019	7435	7435	7435	7435	7435	7435	7435	7435	4425	5532	7435	5735
Nominal torque (at <i>n</i> _N)			<i>T</i> _{2N}	<i>Nm</i>	400	400	400	400	400	400	400	400	400	400	320	370	400	240
				<i>in.lb</i>	3540	3540	3540	3540	3540	3540	3540	3540	3540	3540	2832	3275	3540	2124
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)			<i>T</i> _{2Not}	<i>Nm</i>	1040	880	1250	1250	1250	1250	1250	1250	1250	1250	1000	1250	1250	1250
				<i>in.lb</i>	9205	7789	11064	11064	11064	11064	11064	11064	11064	11064	8851	11064	11064	11064
Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)}			<i>n</i> _{1N}	<i>n</i> _{1T}	3100	3100	3100	3100	3100	3100	3100	3500	3100	3500	4200	4200	4200	4200
Max. input speed			<i>n</i> _{1Max}	<i>rpm</i>	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
Mean no load running torque ^{b)} (at <i>n</i> ₁ = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> ₀₁₂	<i>Nm</i>	0.7	0.4	0.6	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
				<i>in.lb</i>	6	4	5	4	4	4	3	3	3	3	3	3	3	3
Max. backlash			<i>j</i> _t	<i>arcmin</i>	Standard ≤ 4 / Reduced ≤ 2													
Torsional rigidity ^{b)}			<i>C</i> _{t21}	<i>Nm/arcmin</i>	91	87	111	119	111	119	111	119	123	127	95	115	125	112
				<i>in.lb/arcmin</i>	805	770	982	1053	982	1053	982	1053	1089	1124	841	1018	1106	991
Tilting rigidity			<i>C</i> _{2K}	<i>Nm/arcmin</i>	560													
				<i>in.lb/arcmin</i>	4956													
Max. axial force ^{c)}			<i>F</i> _{2AMax}	<i>N</i>	6130													
				<i>lb_f</i>	1379													
Max. tilting moment			<i>M</i> _{2KMax}	<i>Nm</i>	1295													
				<i>in.lb</i>	11462													
Efficiency at full load			<i>η</i>	%	92													
Service life			<i>L</i> _h	<i>h</i>	> 20000													
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	18.7													
				<i>lb_m</i>	41													
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> _{PA}	<i>dB(A)</i>	≤ 68													
Max. permitted housing temperature				°C	+90													
				<i>F</i>	194													
Ambient temperature				°C	0 to +40													
				<i>F</i>	32 to 104													
Lubrication					Lubricated for life													
Direction of rotation					In- and output opposite direction													
Protection class					IP 65													
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BCT - 00300AAX - 080.000													
				<i>mm</i>	X = 024.000 - 060.000													
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	<i>J</i> ₁	<i>kgcm²</i>	1.01	0.76	0.88	0.85	0.76	0.75	0.7	0.69	0.7	0.69	0.69	0.69	0.69	0.69
				<i>10⁻³ in.lb.s²</i>	0.89	0.67	0.78	0.75	0.67	0.66	0.62	0.61	0.62	0.61	0.61	0.61	0.61	0.61
	G	24	<i>J</i> ₁	<i>kgcm²</i>	2.57	2.32	2.44	2.42	2.32	2.31	2.26	2.25	2.26	2.25	2.25	2.25	2.25	2.25
<i>10⁻³ in.lb.s²</i>				2.27	2.05	2.16	2.14	2.05	2.04	2	1.99	2	1.99	1.99	1.99	1.99	1.99	

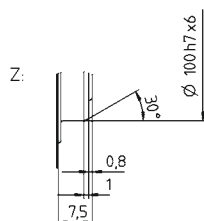
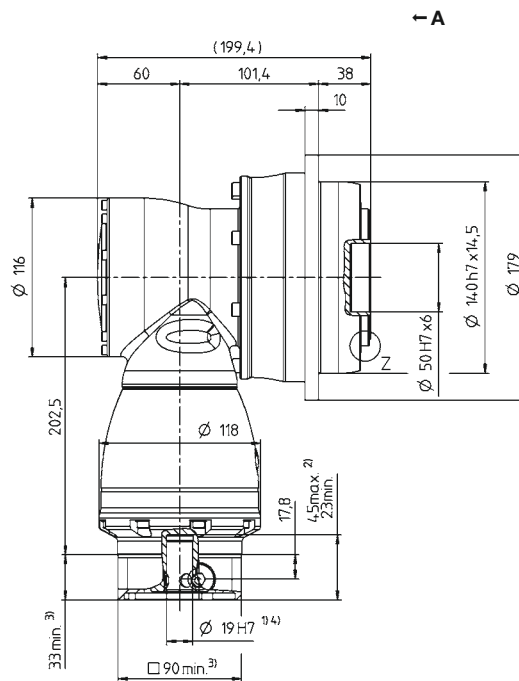
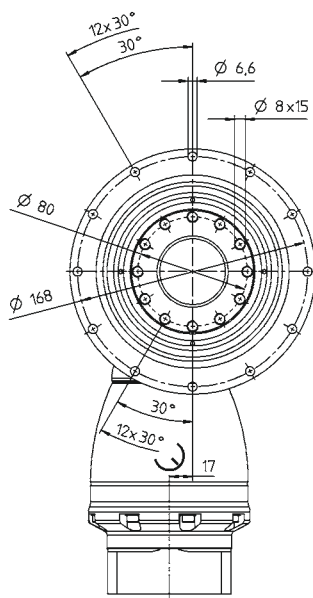
Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % M_{2KMax}
^{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

View A

Motor shaft diameter [mm]

3-stage

up to 19/24⁴⁾
(E⁵⁾/G) clamping
hub diameter


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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

Hypoid gearboxes

TPK⁺

MF

TPK⁺ 110 MF 2-stage

				2-stage										
Ratio	<i>i</i>			12	16	20	25	28	35	40	49	50	70	100
Max. torque ^{a) b)}	<i>T</i> _{2a}	<i>Nm</i>		1440	1440	1800	1800	2520	2520	840	1750	1050	1470	2100
		<i>in.lb</i>		12745	12745	15931	15931	22304	22304	7435	15489	9293	13011	18587
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	<i>T</i> _{2B}	<i>Nm</i>		1200	1200	1500	1500	1920	1920	840	1750	1050	1470	1680
		<i>in.lb</i>		10621	10621	13276	13276	16994	16994	7435	15489	9293	13011	14869
Nominal torque (at <i>n</i> _{IN})	<i>T</i> _{2N}	<i>Nm</i>		700	700	750	750	750	750	640	750	750	750	750
		<i>in.lb</i>		6196	6196	6638	6638	6638	6638	5665	6638	6638	6638	6638
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	<i>T</i> _{2Not}	<i>Nm</i>		1600	2000	2500	2500	3075	3075	1600	3075	2000	2800	3075
		<i>in.lb</i>		14161	17702	22127	22127	27216	27216	14161	27216	17702	24782	27216
Permitted average input speed (at <i>T</i> _{2a} and 20 °C ambient temperature) ^{d)}	<i>n</i> _{1N}	<i>n</i> _{1T}		1600	1900	1900	2100	1900	2100	2100	2100	2100	2100	2100
Max. input speed	<i>n</i> _{1Max}	<i>rpm</i>		5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
Mean no load running torque ^{b)} (at <i>n</i> ₁ = 3000 rpm and 20 °C gearbox temperature)	<i>T</i> ₀₁₂	<i>Nm</i>		9	6.5	6.5	5.5	6	8	6	8	6	6	6
		<i>in.lb</i>		80	58	58	49	53	71	53	71	53	53	53
Max. backlash	<i>j</i> _t	<i>arcmin</i>		Standard ≤ 4 / Reduced ≤ 2										
Torsional rigidity ^{b)}	<i>C</i> _{t21}	<i>Nm/arcmin</i>		253	269	336	346	400	407	274	410	341	404	389
		<i>in.lb/arcmin</i>		2239	2381	2974	3062	3540	3602	2425	3629	3018	3576	3443
Tilting rigidity	<i>C</i> _{2K}	<i>Nm/arcmin</i>		1452										
		<i>in.lb/arcmin</i>		12851										
Max. axial force ^{c)}	<i>F</i> _{2AMax}	<i>N</i>		10050										
		<i>lb_f</i>		2261										
Max. tilting moment	<i>M</i> _{2KMax}	<i>Nm</i>		3064										
		<i>in.lb</i>		27119										
Efficiency at full load	<i>η</i>	%		94										
Service life	<i>L</i> _h	<i>h</i>		> 20000										
Weight (incl. standard adapter plate)	<i>m</i>	<i>kg</i>		41										
		<i>lb_m</i>		91										
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	<i>L</i> _{PA}	<i>dB(A)</i>		≤ 70										
Max. permitted housing temperature		°C		+90										
		<i>F</i>		194										
Ambient temperature		°C		0 to +40										
		<i>F</i>		32 to 104										
Lubrication				Lubricated for life										
Direction of rotation				In- and output opposite direction										
Protection class				IP 65										
Metal bellows coupling (recommended product type – validate sizing with cymex®)				BCT - 01500AAX - 125.000										
Bore diameter of coupling on the application side		<i>mm</i>		X = 050.000 - 080.000										
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	K 38	<i>J</i> _i	<i>kgcm²</i>	24.3	19	18.7	16.1	18.5	15.7	12.8	17.5	12.7	12.7	12.7
			<i>10⁻³ in.lb.s²</i>	21.51	16.82	16.55	14.25	16.37	13.89	11.33	15.49	11.24	11.24	11.24

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

^{b)} Valid for standard clamping hub diameter

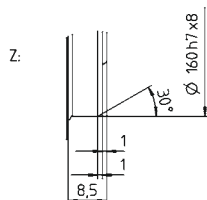
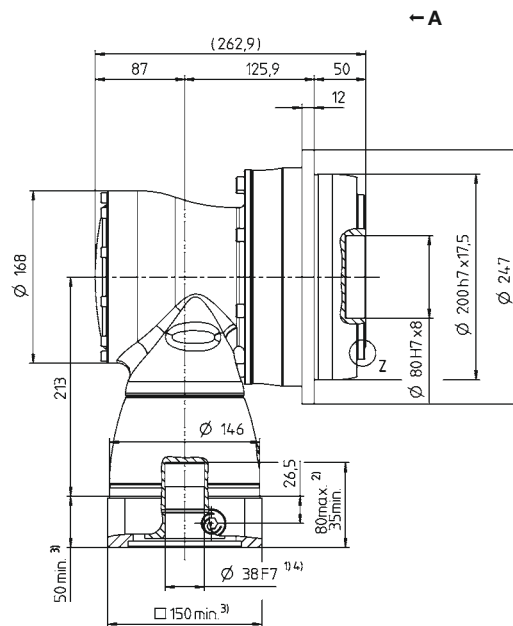
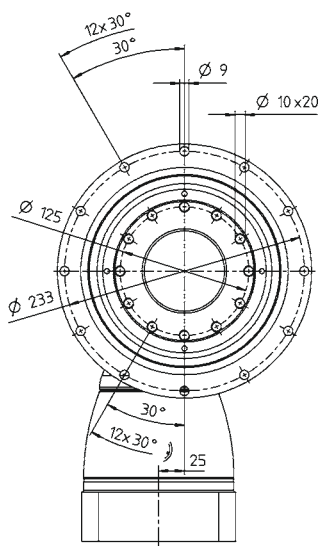
^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

View A

Motor shaft diameter [mm]

2-stage

up to 38 ⁴⁾ (K) ⁵⁾
clamping hub
diameter


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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

TPK⁺ 110 MF 3-stage

			3-stage													
Ratio	<i>i</i>		64	84	100	125	140	175	200	250	280	350	400	500	700	1000
Max. torque ^{a) b)}	T_{2a}	Nm	1440	1440	1800	1800	1800	1800	1800	1800	2520	2520	1008	1260	1764	2240
		in.lb	12745	12745	15931	15931	15931	15931	15931	15931	22304	22304	8922	11152	15613	19826
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	1200	1200	1500	1500	1500	1500	1500	1500	1920	1920	840	1050	1470	1680
		in.lb	10621	10621	13276	13276	13276	13276	13276	13276	16994	16994	7435	9293	13011	14869
Nominal torque (at n_n)	T_{2N}	Nm	700	700	950	950	950	950	950	950	1120	1250	640	750	1120	800
		in.lb	6196	6196	8408	8408	8408	8408	8408	8408	9913	11064	5665	6638	9913	7081
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	2000	1600	2500	2500	2500	2500	2500	2500	3075	3075	1600	2000	2800	3075
		in.lb	17702	14161	22127	22127	22127	22127	22127	22127	27216	27216	14161	17702	24782	27216
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}	2900	2900	2900	2900	2900	2900	2900	3200	2900	3200	3900	3900	3900	3900
Max. input speed	n_{1Max}	rpm	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
Mean no load running torque ^{b)} (at $n_i = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	1	0.5	0.8	0.6	0.6	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4
		in.lb	9	4	7	5	5	4	4	4	4	4	4	4	4	4
Max. backlash	j_t	arcmin	Standard ≤ 4 / Reduced ≤ 2													
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	269	252	336	346	336	346	336	346	400	407	274	341	404	389
		in.lb/arcmin	2381	2230	2974	3062	2974	3062	2974	3062	3540	3602	2425	3018	3576	3443
Tilting rigidity	C_{2K}	Nm/arcmin	1452													
		in.lb/arcmin	12851													
Max. axial force ^{c)}	F_{2AMax}	N	10050													
		lb _f	2261													
Max. tilting moment	M_{2KMax}	Nm	3064													
		in.lb	27119													
Efficiency at full load	η	%	92													
Service life	L_h	h	> 20000													
Weight (incl. standard adapter plate)	m	kg	45.4													
		lb _m	100													
Operating noise (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 opposite direction													
Protection class			IP 65													
Metal bellows coupling (recommended product type – validate sizing with cymex [®])			BCT - 01500AAX - 125.000													
Bore diameter of coupling on the application side		mm	X = 050.000 - 080.000													
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	G	24	J_1	kgcm ²	3.97	2.82	3.36	3.22	2.82	2.75	2.5	2.47	2.5	2.44	2.42	2.42
				10 ⁻³ in.lb.s ²	3.51	2.5	2.97	2.85	2.5	2.43	2.21	2.19	2.21	2.16	2.14	2.14
	K	38	J_1	kgcm ²	10.9	9.74	10.3	10.1	9.74	9.66	9.41	9.38	9.41	9.38	9.33	9.33
				10 ⁻³ in.lb.s ²	9.65	8.62	9.12	8.94	8.62	8.55	8.33	8.3	8.33	8.3	8.26	8.26

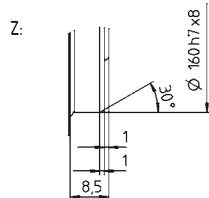
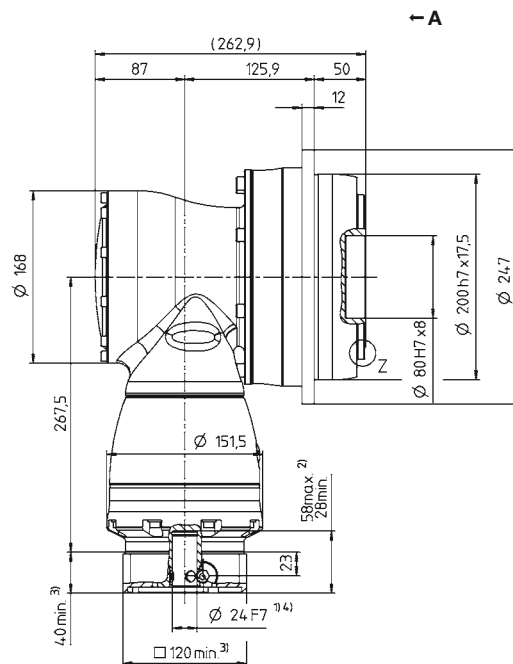
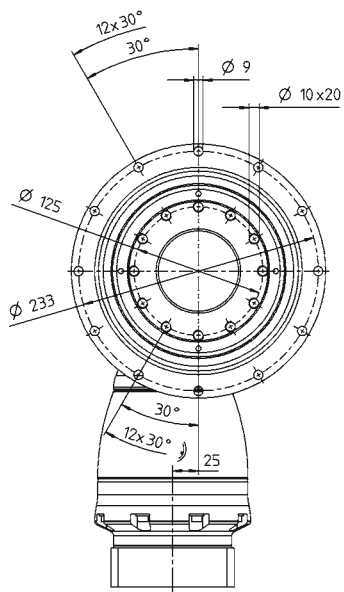
Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % M_{2KMax}
- ^{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

View A

Motor shaft diameter [mm]

3-stage

up to 24/38⁴⁾
(G⁵⁾/K) clamping
hub diameter


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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

Hypoid gearboxes

TPK+

MF

TPK+ 300 MF 2-stage

			2-stage							
Ratio	<i>i</i>		15	20	25	35	49	50	70	100
Max. torque ^{a) b)}	T_{2a}	Nm	3840	3840	3840	5250	3840	2350	3290	2800
		in.lb	33987	33987	33987	46467	33987	20799	29119	24782
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	3200	3200	3200	3960	3850	2350	3290	2280
		in.lb	28323	28323	28323	35049	34076	20799	29119	20180
Nominal torque (at n_n)	T_{2N}	Nm	2000	2000	2000	1800	1800	1800	1800	1600
		in.lb	17702	17702	17702	15931	15931	15931	15931	14161
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	4500	5250	5250	7350	6790	4500	6300	8750
		in.lb	39829	46467	46467	65053	60097	39829	55760	77445
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}	1500	1700	1900	1900	1700	1700	1700	1700
Max. input speed	n_{1Max}	rpm	4500	4500	4500	4500	4500	4500	4500	4500
Mean no load running torque ^{b)} (at $n_i = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	18.5	15	13	12	12	15	14	13
		in.lb	164	133	115	106	106	133	124	115
Max. backlash	j_t	arcmin	Standard ≤ 4 / Reduced ≤ 2							
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	615	640	664	730	728	658	727	642
		in.lb/arcmin	5443	5665	5877	6461	6443	5824	6435	5682
Tilting rigidity	C_{2K}	Nm/arcmin	5560							
		in.lb/arcmin	49210							
Max. axial force ^{c)}	F_{2AMax}	N	33000							
		lb _f	7425							
Max. tilting moment	M_{2KMax}	Nm	5900							
		in.lb	52220							
Efficiency at full load	η	%	94							
Service life	L_h	h	> 20000							
Weight (incl. standard adapter plate)	m	kg	83							
		lb _m	183							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	dB(A)	≤ 71							
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 opposite direction							
Protection class			IP 65							
Metal bellows coupling (recommended product type – validate sizing with cymex [®])			-							
Bore diameter of coupling on the application side		mm	-							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	M 48	J_1	kgcm ²	74	52	43	43	35	30	30
			10 ⁻³ in.lb.s ²	65.49	46.02	38.06	38.06	30.98	26.55	26.55

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

^{b)} Valid for standard clamping hub diameter

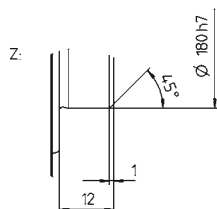
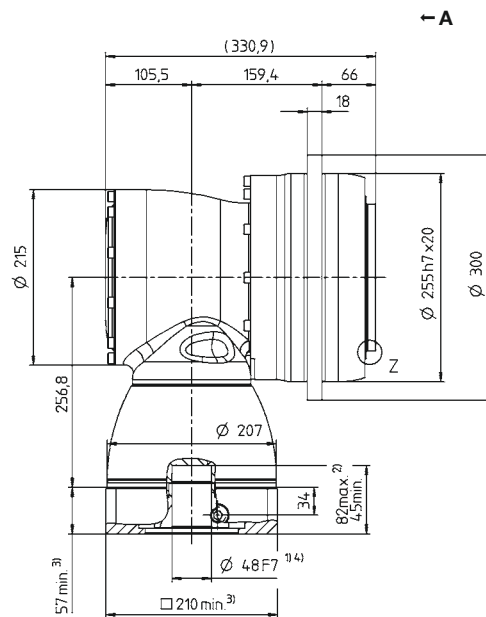
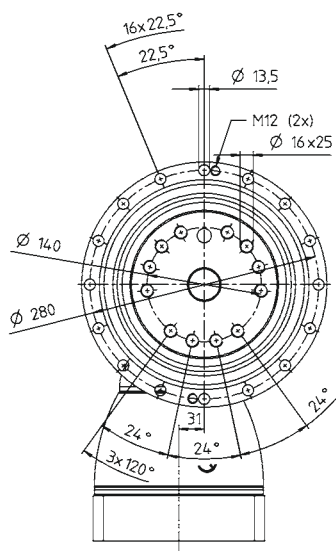
^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

View A

Motor shaft diameter [mm]

2-stage

up to 48 ⁴⁾ (M) ⁵⁾
clamping hub
diameter


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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

TPK+

MF

Hypoid gearboxes

TPK+ 300 MF 3-stage

				3-stage											
Ratio	<i>i</i>			63	100	125	140	175	200	250	280	350	500	700	1000
Max. torque ^{a) b)}	T_{2a}	Nm		5250	3840	3840	3840	3840	3840	3840	5250	5250	2820	3948	2800
		in.lb		46467	33987	33987	33987	33987	33987	33987	46467	46467	24959	34943	24782
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm		3960	3200	3200	3200	3200	3200	3200	3960	3960	2350	3290	2280
		in.lb		35049	28323	28323	28323	28323	28323	28323	35049	35049	20799	29119	20180
Nominal torque (at n_n)	T_{2N}	Nm		1800	2000	2000	2000	2000	2000	2000	1800	1800	1800	1800	1600
		in.lb		15931	17702	17702	17702	17702	17702	17702	15931	15931	15931	15931	14161
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm		6300	5250	5250	5250	5250	5250	5250	7350	7350	4500	6300	8750
		in.lb		55760	46467	46467	46467	46467	46467	46467	65053	65053	39829	55760	77445
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		2700	2700	2700	2700	2700	2700	2900	2700	2900	3400	3400	3400
Max. input speed	n_{1Max}	rpm		4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
Mean no load running torque ^{b)} (at $n_i = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm		5.4	3	2.5	2.1	1.9	1.5	1.4	1.3	1.2	1.1	1.1	1
		in.lb		48	27	22	19	17	13	12	12	11	10	10	9
Max. backlash	j_t	arcmin		Standard ≤ 4 / Reduced ≤ 2											
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin		699	640	664	640	664	640	664	715	730	658	727	642
		in.lb/arcmin		6187	5665	5877	5665	5877	5665	5877	6328	6461	5824	6435	5682
Tilting rigidity	C_{2K}	Nm/arcmin		5560											
		in.lb/arcmin		49210											
Max. axial force ^{c)}	F_{2AMax}	N		33000											
		lb _f		7425											
Max. tilting moment	M_{2KMax}	Nm		5900											
		in.lb		52220											
Efficiency at full load	η	%		92											
Service life	L_h	h		> 20000											
Weight (incl. standard adapter plate)	m	kg		87											
		lb _m		192											
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	dB(A)		≤ 71											
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 opposite direction											
Protection class				IP 65											
Metal bellows coupling (recommended product type – validate sizing with cymex [®])				-											
Bore diameter of coupling on the application side		mm		-											
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	K	38	J_1	kgcm ²	17.8	14.1	12.1	11	10.8	10.2	10.1	10.1	10	9.9	9.9
				10 ⁻³ in.lb.s ²	15.75	12.48	10.71	9.74	9.56	9.03	8.94	8.94	8.85	8.76	8.76
	M	48	J_1	kgcm ²	32.5	28.8	26.8	25.7	25.5	24.9	24.8	24.9	24.8	24.6	24.6
				10 ⁻³ in.lb.s ²	28.76	25.49	23.72	22.74	22.57	22.04	21.95	22.04	21.95	21.77	21.77

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

^{b)} Valid for standard clamping hub diameter

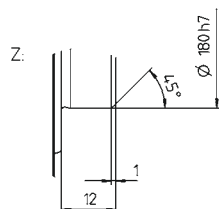
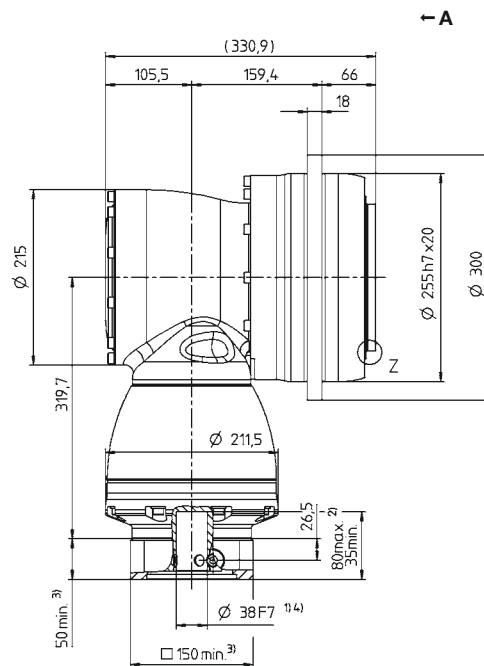
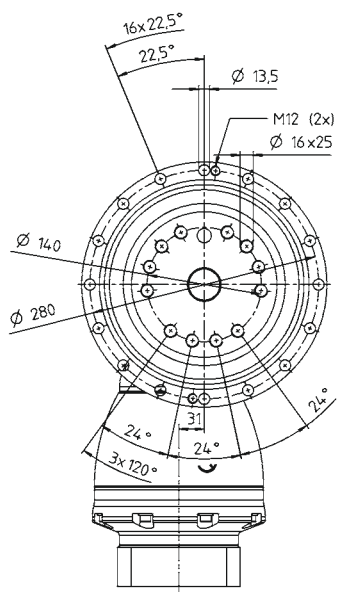
^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

View A

Motor shaft diameter [mm]

3-stage

up to 38/48⁴⁾
(K⁵⁾/M) clamping
hub diameter


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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

Hypoid gearboxes

TPK+

MF

TPK+ 500 MF 3-stage

				3-stage									
Ratio	<i>i</i>			100	125	140	175	200	250	350	500	700	1000
Max. torque ^{a) b)}	T_{2a}	Nm		5446	6808	5200	6250	4200	5250	6808	4975	5500	4800
		in.lb		48201	60256	46024	55318	37173	46467	60256	44033	48679	42484
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm		5446	6808	5000	6250	4200	5250	6808	4975	5500	4800
		in.lb		48201	60256	44254	55318	37173	46467	60256	44033	48679	42484
Nominal torque (at n_n)	T_{2N}	Nm		3350	3800	3350	3800	3350	3800	3800	2900	2800	2900
		in.lb		29650	33633	29650	33633	29650	33633	33633	25667	24782	25667
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm		10000	12500	9000	11250	8000	10000	14000	15000	15000	15000
		in.lb		88508	110635	79657	99572	70806	88508	123911	132762	132762	132762
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		2100	2100	1900	1900	1900	1900	1900	1900	1900	1900
Max. input speed	n_{1Max}	rpm		5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm		5.5	5.5	8.5	8.5	6	6	6	6	6	6
		in.lb		49	49	75	75	53	53	53	53	53	53
Max. backlash	j_t	arcmin		Standard ≤ 3.3 / Reduced ≤ 2.3									
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin		1250	1350	1250	1350	1250	1350	1350	1280	1240	1050
		in.lb/arcmin		11064	11949	11064	11949	11064	11949	11949	11329	10975	9293
Tilting rigidity	C_{2K}	Nm/arcmin		9480									
		in.lb/arcmin		83906									
Max. axial force ^{c)}	F_{2AMax}	N		50000									
		lb _f		11250									
Max. tilting moment	M_{2KMax}	Nm		8800									
		in.lb		77887									
Efficiency at full load	η	%		92									
Service life	L_h	h		> 20000									
Weight (incl. standard adapter plate)	m	kg		96									
		lb _m		212									
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	dB(A)		≤ 71									
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 opposite direction									
Protection class				IP 65									
Metal bellows coupling (recommended product type – validate sizing with cymex [®])				-									
Bore diameter of coupling on the application side		mm		-									
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	K 38	J_1	kgcm ²	16.7	16.7	15.5	16.5	16.4	16.4	16.4	16.4	16.4	16.4
			10 ⁻³ in.lb.s ²	14.78	14.78	13.72	14.6	14.51	14.51	14.51	14.51	14.51	14.51

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

^{b)} Valid for standard clamping hub diameter

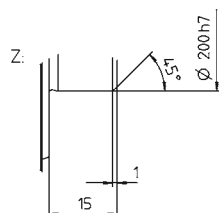
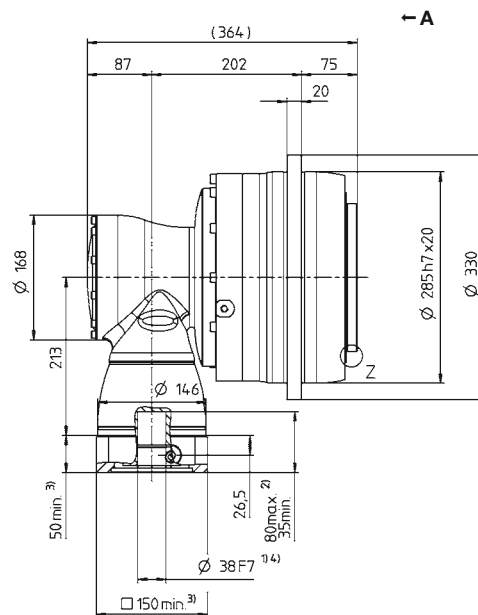
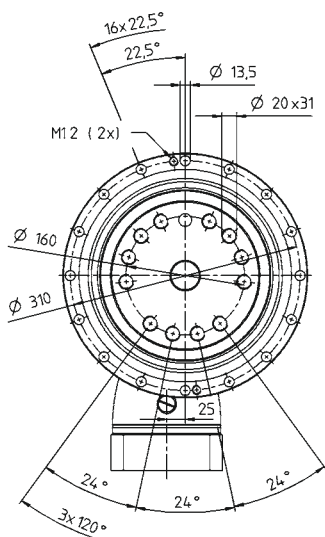
^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

View A

Motor shaft diameter [mm]

3-stage

up to 38 ⁴⁾ (K) ⁵⁾
clamping hub
diameter


Hypoid gearboxes

TPK⁺

MF

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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

TPK+ 500 MF 4-stage i=180-1000

				4-stage												
Ratio			<i>i</i>		180	240	300	375	420	500	560	600	700	800	875	1000
Max. torque ^{a) b)}			<i>T</i> _{2a}	<i>Nm</i>	5446	5446	5446	6808	5446	5446	5446	5446	5446	5446	5446	5446
				<i>in.lb</i>	48201	48201	48201	60256	48201	48201	48201	48201	48201	48201	48201	48201
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)			<i>T</i> _{2B}	<i>Nm</i>	5446	5446	5446	6808	5446	5446	5446	5446	5446	5446	6808	5446
				<i>in.lb</i>	48201	48201	48201	60256	48201	48201	48201	48201	48201	48201	48201	60256
Nominal torque (at <i>n</i> _N)			<i>T</i> _{2N}	<i>Nm</i>	3350	335	3350	3800	3350	3350	3350	3350	3350	3350	3800	3350
				<i>in.lb</i>	29650	2965	29650	33633	29650	29650	29650	29650	29650	29650	29650	33633
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)			<i>T</i> _{2Not}	<i>Nm</i>	8000	8000	8000	10000	8000	10000	10000	8000	10000	10000	1250	10000
				<i>in.lb</i>	70806	70806	70806	88508	70806	88508	88508	70806	88508	88508	11064	88508
Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{c)}			<i>n</i> _{1N}	<i>n</i> _{1T}	2700	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	3200
Max. input speed			<i>n</i> _{1Max}	<i>rpm</i>	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> ₀₁₂	<i>Nm</i>	3.4	2.5	1.6	1.4	1.1	1	1	0.8	0.8	0.7	0.7	0.6
				<i>in.lb</i>	30	22	14	12	10	9	9	7	7	6	6	5
Max. backlash			<i>j</i> _t	<i>arcmin</i>	Standard ≤ 3.3 / Reduced ≤ 2.3											
Torsional rigidity ^{b)}			<i>C</i> _{t21}	<i>Nm/arcmin</i>	1250	1250	1250	1300	1250	1350	1250	1250	1262	1250	1350	1250
				<i>in.lb/arcmin</i>	11064	11064	11064	11506	11064	11949	11064	11064	11170	11064	11949	11064
Tilting rigidity			<i>C</i> _{2K}	<i>Nm/arcmin</i>	9480											
				<i>in.lb/arcmin</i>	83906											
Max. axial force ^{c)}			<i>F</i> _{2AMax}	<i>N</i>	50000											
				<i>lb_f</i>	11250											
Max. tilting moment			<i>M</i> _{2KMax}	<i>Nm</i>	8800											
				<i>in.lb</i>	77887											
Efficiency at full load			<i>η</i>	%	90											
Service life			<i>L</i> _h	<i>h</i>	> 20000											
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	99											
				<i>lb_m</i>	219											
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> _{PA}	<i>dB(A)</i>	≤ 71											
Max. permitted housing temperature				°C	+90											
				<i>F</i>	194											
Ambient temperature				°C	0 to +40											
				<i>F</i>	32 to 104											
Lubrication					Lubricated for life											
Direction of rotation					In- and output opposite direction											
Protection class					IP 65											
Metal bellows coupling (recommended product type – validate sizing with cymex®)					-											
Bore diameter of coupling on the application side				<i>mm</i>	-											
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	G	24	<i>J</i> _i	<i>kgcm²</i>	5.93	4.29	3.33	3.32	2.81	3.19	2.8	2.5	2.74	2.49	2.74	2.46
				<i>10⁻³ in.lb.s²</i>	5.25	3.8	2.95	2.94	2.49	2.82	2.48	2.21	2.42	2.2	2.42	2.18
	K	38	<i>J</i> _i	<i>kgcm²</i>	12.84	11.18	10.24	10.23	9.72	10.1	9.71	9.41	9.65	9.4	9.65	9.37
				<i>10⁻³ in.lb.s²</i>	11.36	9.89	9.06	9.05	8.6	8.94	8.59	8.33	8.54	8.32	8.54	8.29

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

^{b)} Valid for standard clamping hub diameter

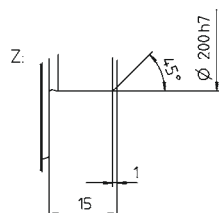
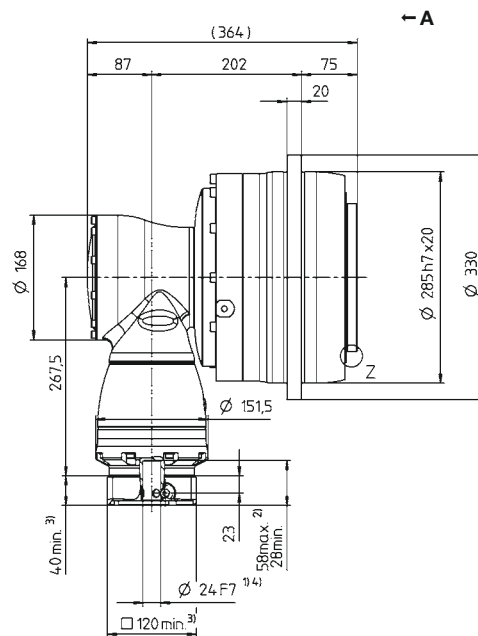
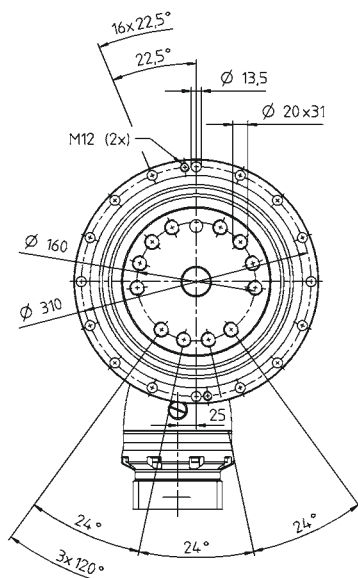
^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

View A

Motor shaft diameter [mm]

4-stage

up to 24/38⁴⁾
(G⁵⁾/K) clamping
hub diameter


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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

Hypoid gearboxes

TPK⁺

MF

TPK⁺ 500 MF 4-stage i=1125-10000

				4-stage									
Ratio			<i>i</i>		1225	1400	1750	2000	2800	3500	5000	7000	10000
Max. torque ^{a) b)}			<i>T</i> _{2a}	<i>Nm</i>	6808	6808	6808	5040	7056	6808	4975	5500	4800
				<i>in.lb</i>	60256	60256	60256	44608	62451	60256	44033	48679	42484
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)			<i>T</i> _{2B}	<i>Nm</i>	6808	6808	6808	4200	5500	6808	4975	5500	4800
				<i>in.lb</i>	60256	60256	60256	37173	48679	60256	44033	48679	42484
Nominal torque (at <i>n</i> _n)			<i>T</i> _{2N}	<i>Nm</i>	3800	3800	3800	3200	2800	3800	2900	2800	2900
				<i>in.lb</i>	33633	33633	33633	28323	24782	33633	25667	24782	25667
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)			<i>T</i> _{2Not}	<i>Nm</i>	15000	15000	15000	8000	11200	14000	15000	15000	15000
				<i>in.lb</i>	132762	132762	132762	70806	99129	123911	132762	132762	132762
Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)}			<i>n</i> _{1N}	<i>n</i> _{1T}	2900	2900	3200	3900	3900	3900	3900	3900	3900
Max. input speed			<i>n</i> _{1Max}	<i>rpm</i>	4500	4500	4500	4500	4500	4500	4500	4500	4500
Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> ₀₁₂	<i>Nm</i>	0.6	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4
				<i>in.lb</i>	5	5	4	4	4	4	4	4	4
Max. backlash			<i>j</i> _t	<i>arcmin</i>	Standard ≤ 3.3 / Reduced ≤ 2.3								
Torsional rigidity ^{b)}			<i>C</i> _{t21}	<i>Nm/arcmin</i>	1350	1350	1350	1250	1250	1350	1250	1250	1050
				<i>in.lb/arcmin</i>	11949	11949	11949	11064	11064	11949	11064	11064	11064
Tilting rigidity			<i>C</i> _{2K}	<i>Nm/arcmin</i>	9480								
				<i>in.lb/arcmin</i>	83906								
Max. axial force ^{c)}			<i>F</i> _{2AMax}	<i>N</i>	50000								
				<i>lb_f</i>	11250								
Max. tilting moment			<i>M</i> _{2KMax}	<i>Nm</i>	8800								
				<i>in.lb</i>	77887								
Efficiency at full load			<i>η</i>	%	90								
Service life			<i>L</i> _h	<i>h</i>	> 20000								
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	99								
				<i>lb_m</i>	219								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> _{PA}	<i>dB(A)</i>	≤ 71								
Max. permitted housing temperature				°C	+90								
				<i>F</i>	194								
Ambient temperature				°C	0 to +40								
				<i>F</i>	32 to 104								
Lubrication					Lubricated for life								
Direction of rotation					In- and output opposite direction								
Protection class					IP 65								
Metal bellows coupling (recommended product type – validate sizing with cymex®)					-								
Bore diameter of coupling on the application side				<i>mm</i>	-								
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	G	24	<i>J</i> _i	<i>kgcm²</i>	2.73	2.49	2.46	2.42	2.42	2.42	2.42	2.42	2.42
				<i>10⁻³ in.lb.s²</i>	2.42	2.2	2.18	2.14	2.14	2.14	2.14	2.14	2.14
	K	38	<i>J</i> _i	<i>kgcm²</i>	9.64	9.4	9.37	9.33	9.33	9.33	9.33	9.33	9.33
				<i>10⁻³ in.lb.s²</i>	8.53	8.32	8.29	8.26	8.26	8.26	8.26	8.26	8.26

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

^{b)} Valid for standard clamping hub diameter

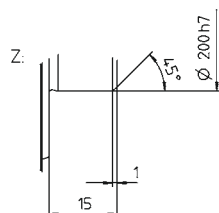
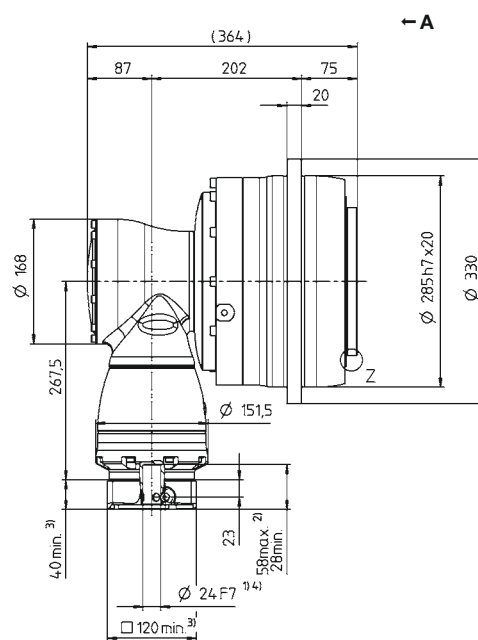
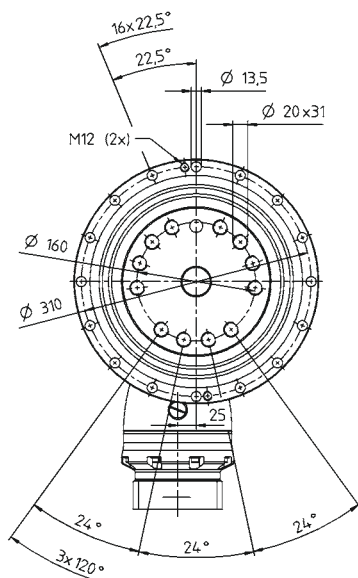
^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

View A

Motor shaft diameter [mm]

4-stage

up to 24/38⁴⁾
(G⁵⁾/K) clamping
hub diameter

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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

Hypoid gearboxes

TPK⁺

MF

TPK+ 025 MA 3-/4-stage

				3-stage							4-stage										
Ratio			<i>i</i>		66	88	110	137.5	154	220	385	330	462	577.5	770	1078	1540	2695	3850	5500	
Max. torque ^{a) b)}			<i>T</i> _{2a}	<i>Nm</i>	583	583	583	583	550	440	583	583	583	583	583	583	583	583	583	583	583
				<i>in.lb</i>	5160	5160	5160	5160	4868	3894	5160	5160	5160	5160	5160	5160	5160	5160	5160	5160	5160
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)			<i>T</i> _{2B}	<i>Nm</i>	530	530	530	530	530	440	530	530	530	530	530	530	530	530	530	530	530
				<i>in.lb</i>	4691	4691	4691	4691	4691	3894	4691	4691	4691	4691	4691	4691	4691	4691	4691	4691	4691
Nominal torque (at <i>n</i> _n)			<i>T</i> _{2N}	<i>Nm</i>	375	375	375	375	375	330	375	375	375	375	375	375	375	375	375	375	375
				<i>in.lb</i>	3319	3319	3319	3319	3319	2921	3319	3319	3319	3319	3319	3319	3319	3319	3319	3319	3319
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)			<i>T</i> _{2Not}	<i>Nm</i>	880	1100	1100	1200	990	880	1200	880	1200	1200	1200	1200	1200	1200	1200	1200	1200
				<i>in.lb</i>	7789	9736	9736	10621	8762	7789	10621	7789	10621	10621	10621	10621	10621	10621	10621	10621	10621
Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)}			<i>n</i> _{1N}	<i>n</i> _{1T}	2400	2600	2900	2900	2900	2900	2900	4300	4300	4300	4300	4300	4300	5400	5400	5400	
Max. input speed			<i>n</i> _{1Max}	<i>rpm</i>	7500	7500	7500	7500	7500	7500	7500	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> ₀₁₂	<i>Nm</i>	1.6	1.4	1.2	1.2	1.4	1.2	1.2	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	
				<i>in.lb</i>	14	12	11	11	12	11	11	3	3	2	2	2	1	1	1	1	
Max. backlash			<i>j</i> _t	<i>arcmin</i>	Standard ≤ 1.3																
Torsional rigidity ^{b)}			<i>C</i> ₁₂₁	<i>Nm/arcmin</i>	95	95	96	99	95	94	101	95	101	98	98	102	102	101	101	98	
				<i>in.lb/arcmin</i>	841	841	850	876	841	832	894	841	894	867	867	903	903	894	894	867	
Tilting rigidity			<i>C</i> _{2K}	<i>Nm/arcmin</i>	550																
				<i>in.lb/arcmin</i>	4868																
Max. axial force ^{c)}			<i>F</i> _{2AMax}	<i>N</i>	4800																
				<i>lb_f</i>	1080																
Max. tilting moment			<i>M</i> _{2KMax}	<i>Nm</i>	550																
				<i>in.lb</i>	4868																
Efficiency at full load			<i>η</i>	%	92							90									
Service life			<i>L</i> _h	<i>h</i>	> 20000																
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	8.4							8.7									
				<i>lb_m</i>	19							19									
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> _{PA}	<i>dB(A)</i>	≤ 66																
Max. permitted housing temperature				°C	+90																
				<i>F</i>	194																
Ambient temperature				°C	0 to +40																
				<i>F</i>	32 to 104																
Lubrication					Lubricated for life																
Direction of rotation					In- and output opposite direction																
Protection class					IP 65																
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BCT - 00300AAX - 063.000																
Bore diameter of coupling on the application side				<i>mm</i>	X = 030.000 - 056.000																
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	B	11	<i>J</i> _i	<i>kgcm²</i>	-	-	-	-	-	-	-	0.08	0.09	0.06	0.06	0.06	0.06	0.06	0.06	0.06	
				<i>10⁻³ in.lb.s²</i>	-	-	-	-	-	-	-	0.07	0.08	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
	C	14	<i>J</i> _i	<i>kgcm²</i>	0.56	0.46	0.41	0.4	0.37	0.35	0.34	0.19	0.2	0.18	0.18	0.18	0.17	0.17	0.17	0.17	
				<i>10⁻³ in.lb.s²</i>	0.5	0.41	0.36	0.35	0.33	0.31	0.3	0.17	0.18	0.16	0.16	0.16	0.15	0.15	0.15	0.15	
	E	19	<i>J</i> _i	<i>kgcm²</i>	0.91	0.81	0.76	0.76	0.72	0.7	0.7	-	-	-	-	-	-	-	-	-	
				<i>10⁻³ in.lb.s²</i>	0.81	0.72	0.67	0.67	0.64	0.62	0.62	-	-	-	-	-	-	-	-	-	

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

^{b)} Valid for standard clamping hub diameter

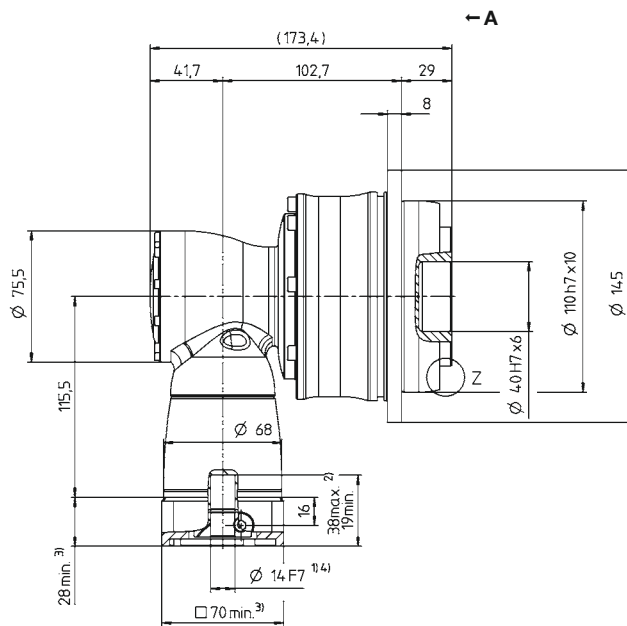
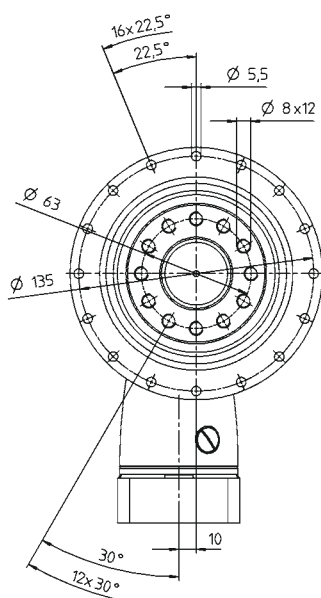
^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

View A

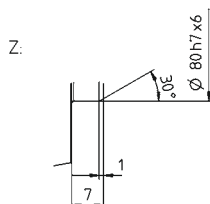
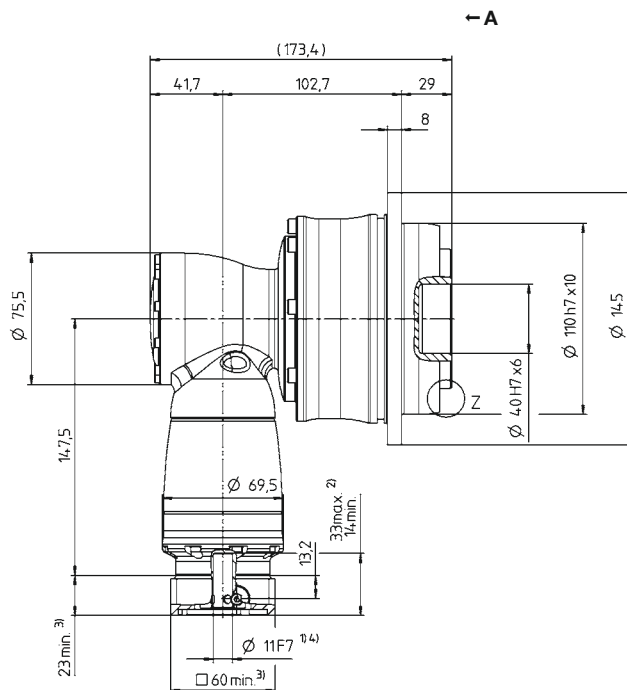
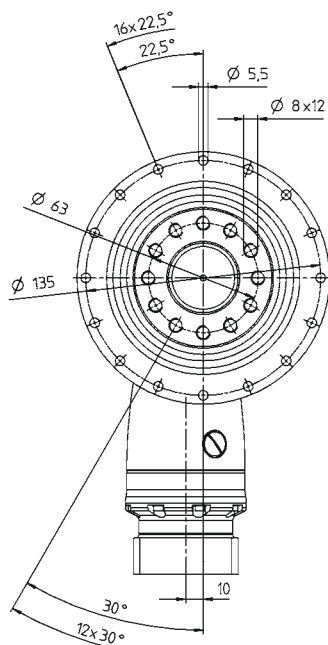
3-stage

up to 14/19⁴⁾
(C⁵⁾/E) clamping
hub diameter



4-stage

up to 11/14⁴⁾
(B⁵⁾/C) clamping
hub diameter



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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

TPK⁺ 050 MA 3-/4-stage

				3-stage								4-stage									
Ratio			<i>i</i>		66	88	110	137.5	154	220	385	330	462	577.5	770	1078	1540	2695	3850	5500	
Max. torque ^{a) b)}			<i>T</i> _{2a}	<i>Nm</i>	1402	1402	1402	1402	1320	1100	1402	1402	1402	1402	1402	1402	1402	1402	1402	1402	1402
				<i>in.lb</i>	12409	12409	12409	12409	11683	9736	12409	12409	12409	12409	12409	12409	12409	12409	12409	12409	12409
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)			<i>T</i> _{2B}	<i>Nm</i>	992	992	992	992	992	992	992	992	992	992	992	992	992	992	992	992	992
				<i>in.lb</i>	8780	8780	8780	8780	8780	8780	8780	8780	8780	8780	8780	8780	8780	8780	8780	8780	8780
Nominal torque (at <i>n</i> _{IN})			<i>T</i> _{2N}	<i>Nm</i>	675	675	675	675	675	675	675	675	675	675	675	675	675	675	675	675	675
				<i>in.lb</i>	5974	5974	5974	5974	5974	5974	5974	5974	5974	5974	5974	5974	5974	5974	5974	5974	5974
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)			<i>T</i> _{2Not}	<i>Nm</i>	2090	2375	2375	2375	2375	2375	2375	2090	2375	2375	2375	2375	2375	2375	2375	2375	2375
				<i>in.lb</i>	18498	21021	21021	21021	21021	21021	21021	18498	21021	21021	21021	21021	21021	21021	21021	21021	21021
Permitted average input speed (at <i>T</i> _{2N} and 20 °C ambient temperature) ^{d)}			<i>n</i> _{1N}	<i>n</i> _{1T}	2200	2400	2700	2700	2700	2700	2700	3400	3400	3400	3400	3400	3400	4400	4400	4400	
Max. input speed			<i>n</i> _{1Max}	<i>rpm</i>	7500	7500	7500	7500	7500	7500	7500	6000	6000	6000	6000	6000	6000	6000	6000	6000	
Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> ₀₁₂	<i>Nm</i>	2.9	2.4	2	2.1	2.4	2.1	2	0.4	0.5	0.3	0.3	0.3	0.2	0.1	0.1	0.1	
				<i>in.lb</i>	26	21	18	19	21	19	18	4	4	3	3	3	2	1	1	1	
Max. backlash			<i>j</i> _t	<i>arcmin</i>	Standard ≤ 1.3																
Torsional rigidity ^{b)}			<i>C</i> ₁₂₁	<i>Nm/arcmin</i>	202	203	205	210	205	205	215	202	214	208	209	214	214	215	215	217	
				<i>in.lb/arcmin</i>	1788	1797	1814	1859	1814	1814	1903	1788	1894	1841	1850	1894	1894	1903	1903	1921	
Tilting rigidity			<i>C</i> _{2K}	<i>Nm/arcmin</i>	560																
				<i>in.lb/arcmin</i>	4956																
Max. axial force ^{c)}			<i>F</i> _{2AMax}	<i>N</i>	6130																
				<i>lb_f</i>	1379																
Max. tilting moment			<i>M</i> _{2KMax}	<i>Nm</i>	1335																
				<i>in.lb</i>	11816																
Efficiency at full load			<i>η</i>	%	92								90								
Service life			<i>L</i> _h	<i>h</i>	> 20000																
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	16.9								17.5								
				<i>lb_m</i>	37								39								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> _{PA}	<i>dB(A)</i>	≤ 68																
Max. permitted housing temperature				°C	+90																
				<i>F</i>	194																
Ambient temperature				°C	0 to +40																
				<i>F</i>	32 to 104																
Lubrication					Lubricated for life																
Direction of rotation					In- and output opposite direction																
Protection class					IP 65																
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BCT - 00300AAX - 080.000																
Bore diameter of coupling on the application side				<i>mm</i>	X = 045.000 - 056.000																
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	<i>J</i> ₁	<i>kgcm²</i>	-	-	-	-	-	-	-	0.24	0.29	0.2	0.2	0.2	0.19	0.18	0.18	0.18	
				<i>10⁻³ in.lb.s²</i>	-	-	-	-	-	-	-	0.21	0.26	0.18	0.18	0.18	0.17	0.16	0.16	0.16	
	E	19	<i>J</i> ₁	<i>kgcm²</i>	1.65	1.3	1.13	1.11	0.99	0.91	0.9	0.68	0.73	0.63	0.63	0.63	0.63	0.63	0.63	0.63	
				<i>10⁻³ in.lb.s²</i>	1.46	1.15	1	0.98	0.88	0.81	0.8	0.6	0.65	0.56	0.56	0.56	0.56	0.56	0.56	0.56	
	H	28	<i>J</i> ₁	<i>kgcm²</i>	3.07	2.71	2.54	2.53	2.4	2.53	2.32	-	-	-	-	-	-	-	-	-	
				<i>10⁻³ in.lb.s²</i>	2.72	2.4	2.25	2.24	2.12	2.24	2.05	-	-	-	-	-	-	-	-	-	

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

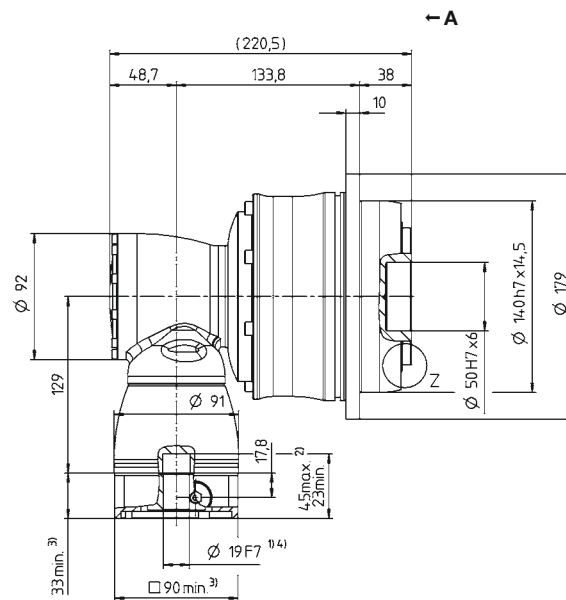
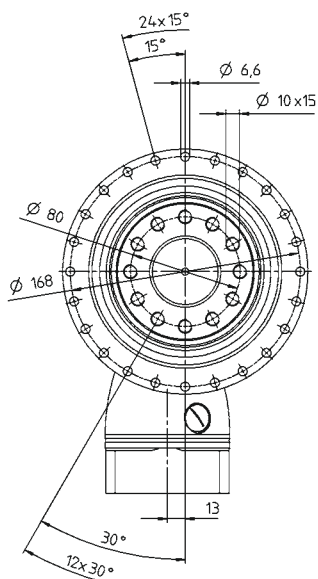
^{b)} Valid for standard clamping hub diameter

^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

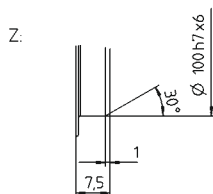
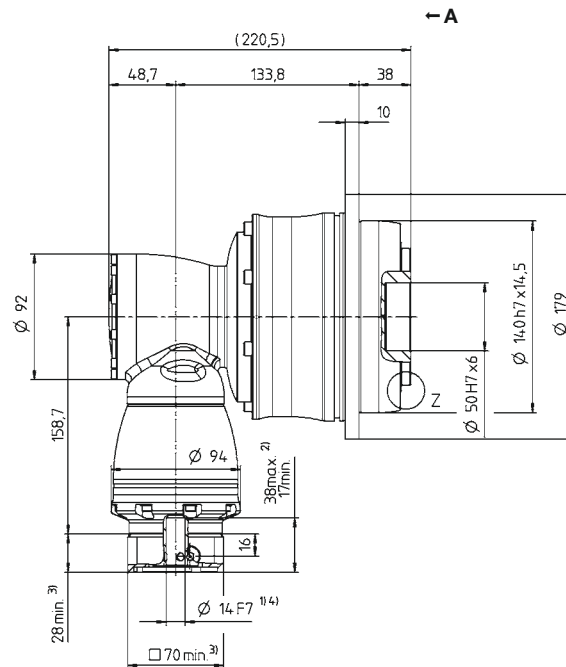
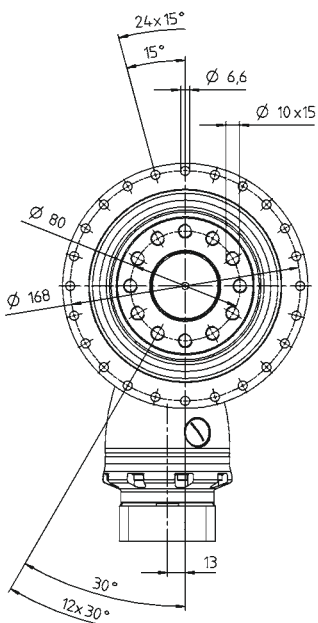
3-stage

up to 19/28⁴⁾
(E⁵⁾/H) clamping
hub diameter



4-stage

up to 14/19⁴⁾
(C⁵⁾/E) clamping
hub diameter



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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

TPK⁺ 110 MA 3-/4-stage

				3-stage								4-stage											
Ratio				i		66	88	110	137.5	154	220	385	330	462	577.5	770	1078	1540	2695	3850	5500		
Max. torque ^{a) b)}				T _{2a}	Nm	3822	3822	3822	3822	3190	2750	3822	3822	3822	3822	3822	3822	3822	3822	3822	3822	3200	
					in.lb	33828	33828	33828	33828	28234	24340	33828	33828	33828	33828	33828	33828	33828	33828	33828	33828	33828	28323
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)				T _{2B}	Nm	3100	3100	3100	3100	3100	2750	3100	3100	3100	3100	3100	3100	3100	3100	3100	2400		
					in.lb	27437	27437	27437	27437	27437	24340	27437	27437	27437	27437	27437	27437	27437	27437	27437	27437	27437	21242
Nominal torque (at n _{IN})				T _{2N}	Nm	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1400		
					in.lb	14604	14604	14604	14604	14604	14604	14604	14604	14604	14604	14604	14604	14604	14604	14604	14604	14604	12391
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)				T _{2Not}	Nm	4840	5720	5720	6500	5610	5500	6500	4840	6500	6050	6500	6500	6500	6500	6500	6500		
					in.lb	42838	50627	50627	57530	49653	48679	57530	42838	57530	53547	57530	57530	57530	57530	57530	57530	57530	57530
Permitted average input speed (at T _{2N} and 20 °C ambient temperature) ^{d)}				n _{1N}	n _{1T}	2100	2300	2600	2600	2400	2400	2400	3000	3000	3000	3000	3000	3000	4100	4100	4100		
Max. input speed				n _{1Max}	rpm	5500	5500	5500	5500	5500	5500	5500	4500	4500	4500	4500	4500	4500	4500	4500	4500		
Mean no load running torque ^{b)} (at n _i = 3000 rpm and 20 °C gearbox temperature)				T ₀₁₂	Nm	6	4.6	3.6	3.4	4.4	3.5	3.3	0.9	1	0.7	0.6	0.6	0.3	0.3	0.2	0.2		
					in.lb	53	41	32	30	39	31	29	8	9	6	5	5	3	3	2	2		
Max. backlash				j _t	arcmin	Standard ≤ 1.3																	
Torsional rigidity ^{b)}				C _{t21}	Nm/arcmin	634	642	654	675	654	648	687	634	682	662	667	685	685	689	687	658		
					in.lb/arcmin	5611	5682	5788	5974	5788	5735	6080	5611	6036	5859	5903	6063	6063	6098	6080	5824		
Tilting rigidity				C _{2K}	Nm/arcmin	1452																	
					in.lb/arcmin	12851																	
Max. axial force ^{c)}				F _{2AMax}	N	10050																	
					lb _f	2261																	
Max. tilting moment				M _{2KMax}	Nm	3280																	
					in.lb	29031																	
Efficiency at full load				η	%	92								90									
Service life				L _h	h	> 20000																	
Weight (incl. standard adapter plate)				m	kg	39.9								40.6									
					lb _m	88								90									
Operating noise (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 opposite direction																		
Protection class					IP 65																		
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BCT - 01500AAX - 125.000																		
Bore diameter of coupling on the application side					mm	X = 055.000 - 070.000																	
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]				E	19	J _i	kgcm ²	-	-	-	-	-	-	0.89	1.06	0.76	0.76	0.76	0.69	0.68	0.68	0.68	
							10 ⁻³ in.lb.s ²	-	-	-	-	-	-	-	0.79	0.94	0.67	0.67	0.67	0.61	0.6	0.6	0.6
				G	24	J _i	kgcm ²	-	-	-	-	-	-	-	2.46	2.63	2.33	2.32	2.26	2.25	2.25	2.25	
							10 ⁻³ in.lb.s ²	-	-	-	-	-	-	-	2.18	2.33	2.06	2.05	2.05	2	1.99	1.99	1.99
				H	28	J _i	kgcm ²	5.48	4.27	3.64	3.58	3.14	2.87	2.84	-	-	-	-	-	-	-	-	-
							10 ⁻³ in.lb.s ²	4.85	3.78	3.22	3.17	2.78	2.54	2.51	-	-	-	-	-	-	-	-	-
				K	38	J _i	kgcm ²	12.72	11.52	10.89	10.83	10.39	10.12	10.09	-	-	-	-	-	-	-	-	-
							10 ⁻³ in.lb.s ²	11.26	10.2	9.64	9.58	9.2	8.96	8.93	-	-	-	-	-	-	-	-	-

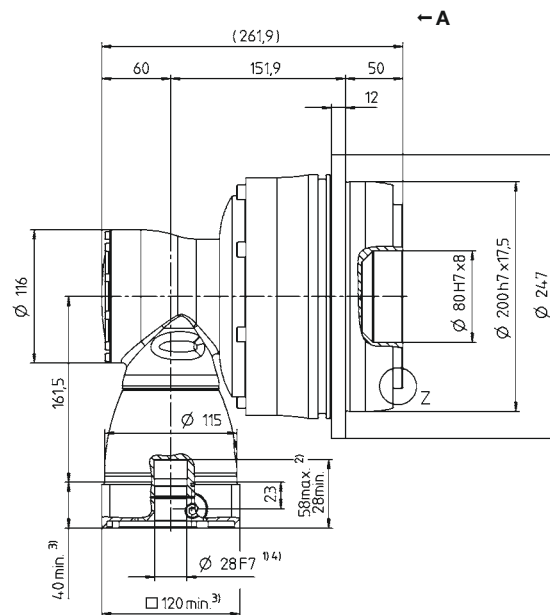
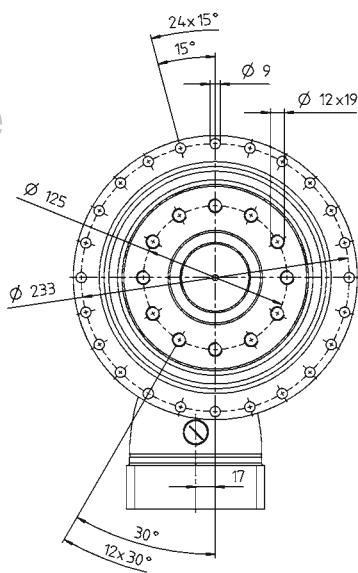
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Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}
^{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

View A

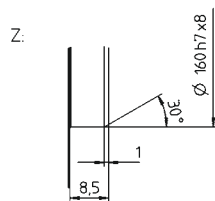
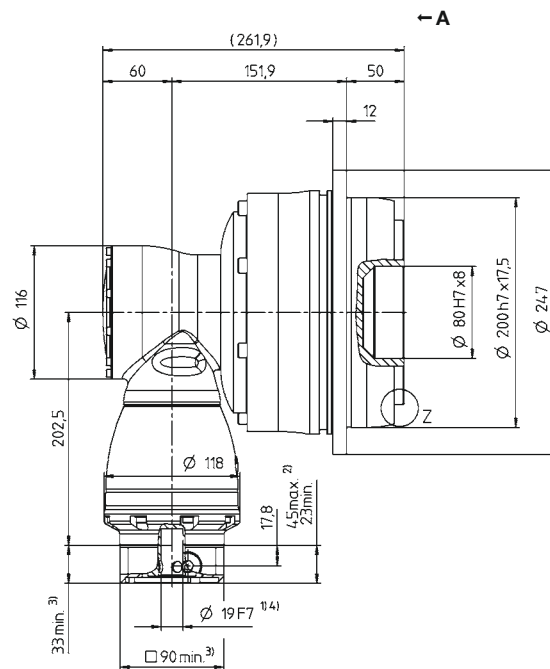
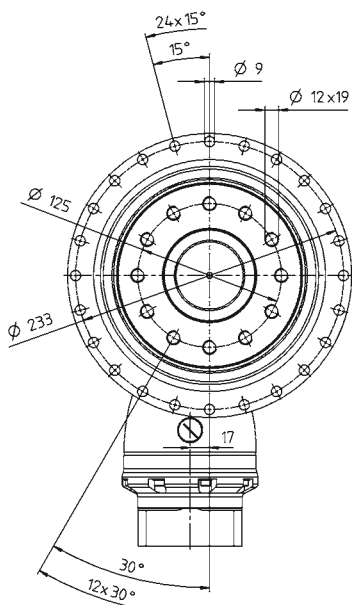
3-stage

up to 28/38⁴⁾
(H⁵⁾/K) clamping
hub diameter



4-stage

up to 19/24⁴⁾
(E⁵⁾/G) clamping
hub diameter



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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

TPK+ 300 MA 3- / 4-stage

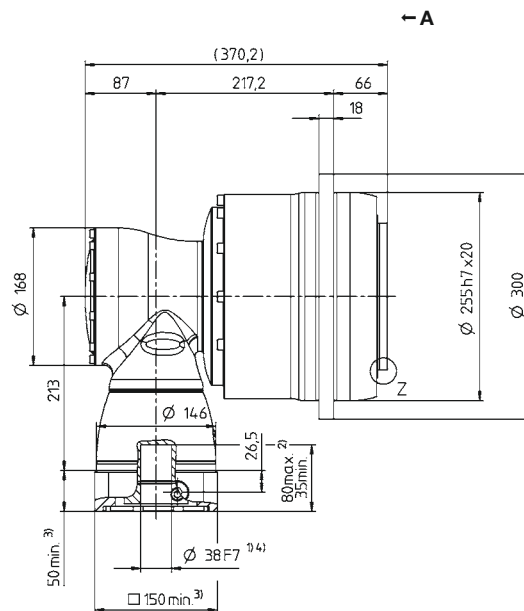
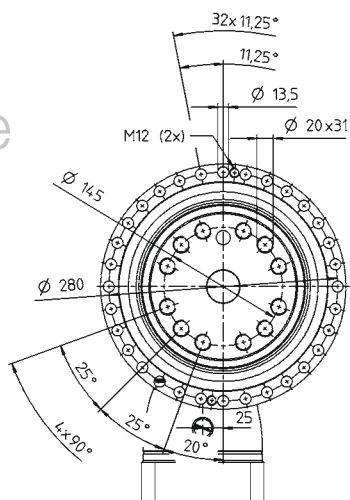
				3-stage								4-stage										
Ratio				i		66	88	110	137.5	154	220	385	330	462	577.5	770	1078	1540	2695	3850	5500	
Max. torque ^{a) b)}				T _{2a}	Nm	7535	7535	7535	7535	5500	4620	7535	7535	7535	7535	7535	7535	7535	7535	7535	5473	
					in.lb	66691	66691	66691	66691	48679	40891	66691	66691	66691	66691	66691	66691	66691	66691	66691	66691	66691
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)				T _{2B}	Nm	6600	6600	6600	6600	5500	4620	6600	6600	6600	6600	6600	6600	6600	6600	6600	4680	
					in.lb	58415	58415	58415	58415	48679	40891	58415	58415	58415	58415	58415	58415	58415	58415	58415	58415	58415
Nominal torque (at n _n)				T _{2N}	Nm	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	
					in.lb	30978	30978	30978	30978	30978	30978	30978	30978	30978	30978	30978	30978	30978	30978	30978	30978	30978
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)				T _{2Not}	Nm	8800	11000	11000	13750	9900	8800	15296	8800	15296	11000	13750	15296	15296	15296	15296	15333	
					in.lb	77887	97359	97359	121699	87623	77887	135382	77887	135382	97359	121699	135382	135382	135382	135382	135382	135709
Permitted average input speed (at T _{2n} and 20 °C ambient temperature) ^{d)}				n _{1N}	n _{1T}	1800	1900	2100	2100	1900	1900	1900	2800	2800	2800	2800	2800	2800	3100	3800	3800	
Max. input speed				n _{1Max}	rpm	5000	5000	5000	5000	5000	5000	5000	4500	4500	4500	4500	4500	4500	4500	4500	4500	
Mean no load running torque ^{b)} (at n _i = 3000 rpm and 20 °C gearbox temperature)				T ₀₁₂	Nm	11	8.2	6.9	6.5	9.2	6.7	6.4	1.5	2.2	1	0.9	0.8	0.6	0.4	0.4	0.4	
					in.lb	97	73	61	58	81	59	57	13	19	9	8	7	5	4	4	4	4
Max. backlash				j _t	arcmin	Standard ≤ 3.3 / Reduced ≤ 1.8																
Torsional rigidity ^{b)}				C _{t21}	Nm/arcmin	1099	1108	1114	960	1114	1111	979	1099	976	953	958	978	978	979	979	989	
					in.lb/arcmin	9727	9807	9860	8497	9860	9833	8665	9727	8638	8435	8479	8656	8656	8665	8665	8753	
Tilting rigidity				C _{2K}	Nm/arcmin	5560																
					in.lb/arcmin	49210																
Max. axial force ^{c)}				F _{2AMax}	N	33000																
					lb _f	7425																
Max. tilting moment				M _{2KMax}	Nm	6500																
					in.lb	57530																
Efficiency at full load				η	%	92								90								
Service life				L _h	h	> 20000																
Weight (incl. standard adapter plate)				m	kg	83								87								
					lb _m	183								192								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)				L _{PA}	dB(A)	≤ 71																
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 opposite direction																
Protection class						IP 65																
Metal bellows coupling (recommended product type – validate sizing with cymex®)						BCT - 04000AAX - 145.000																
Bore diameter of coupling on the application side					mm	X = 070.000 - 100.000																
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]				G	24	J _i	kgcm ²	-	-	-	-	-	-	3.32	4.24	2.8	2.79	2.79	2.49	2.43	2.42	2.42
							10 ⁻³ in.lb.s ²	-	-	-	-	-	-	2.94	3.75	2.48	2.47	2.47	2.2	2.15	2.14	2.14
				K	38	J _i	kgcm ²	26.04	19.71	16.71	16.58	14.26	12.89	12.83	10.23	11.15	9.71	9.7	9.7	9.4	9.34	9.33
10 ⁻³ in.lb.s ²	23.05	17.44	14.79				14.67	12.62	11.41	11.35	9.05	9.87	8.59	8.58	8.58	8.32	8.27	8.26	8.26			

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % M_{2KMax}
^{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

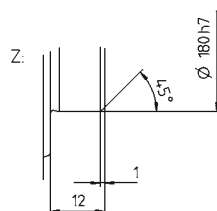
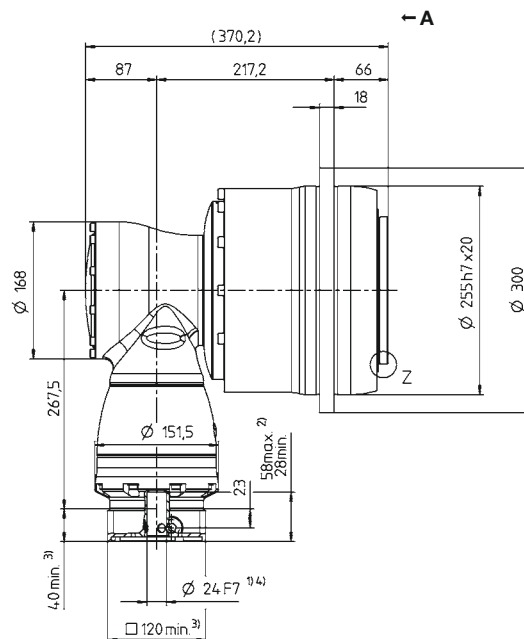
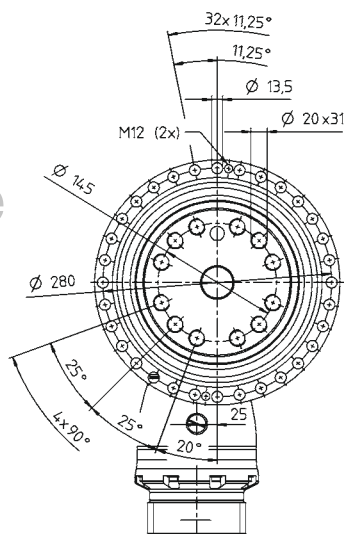
3-stage

up to 38⁴⁾ (K)⁵⁾
clamping hub diameter



4-stage

up to 24/38⁴⁾
(G⁵⁾/K) clamping hub diameter



Motor shaft diameter [mm]

Hypoid gearboxes

TPK⁺

MA

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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter

TPK⁺ 500 MA 3- / 4-stage

				3-stage								4-stage									
Ratio			<i>i</i>		66	88	110	137.5	154	220	385	330	462	577.5	770	1078	1540	2695	3850	5500	
Max. torque ^{a) b)}			<i>T</i> _{2a}	<i>Nm</i>	10450	10450	10450	10450	10450	10340	10450	10450	10450	10450	10450	10450	10450	10450	10450	10450	10450
				<i>in.lb</i>	92491	92491	92491	92491	92491	91517	92491	92491	92491	92491	92491	92491	92491	92491	92491	92491	92491
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)			<i>T</i> _{2B}	<i>Nm</i>	10450	10450	10450	10450	10450	10340	10450	10450	10450	10450	10450	10450	10450	10450	10450	10450	8640
				<i>in.lb</i>	92491	92491	92491	92491	92491	91517	92491	92491	92491	92491	92491	92491	92491	92491	92491	92491	92491
Nominal torque (at <i>n</i> _n)			<i>T</i> _{2N}	<i>Nm</i>	5400	5400	5400	5400	5400	5400	5400	5400	5400	5400	5400	5400	5400	5400	5400	5400	5400
				<i>in.lb</i>	47794	47794	47794	47794	47794	47794	47794	47794	47794	47794	47794	47794	47794	47794	47794	47794	47794
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)			<i>T</i> _{2Not}	<i>Nm</i>	19800	23100	23100	25000	21340	19800	25000	19800	25000	24750	25000	25000	25000	25000	25000	25000	25000
				<i>in.lb</i>	175246	204453	204453	221270	188876	175246	221270	175246	221270	219057	221270	221270	221270	221270	221270	221270	221270
Permitted average input speed (at <i>T</i> _{2n} and 20 °C ambient temperature) ^{d)}			<i>n</i> _{1N}	<i>n</i> _{1T}	1500	1700	1900	1900	1700	1700	1700	2600	2600	2600	2600	2600	2600	3100	3300	3300	
Max. input speed			<i>n</i> _{1Max}	<i>rpm</i>	4500	4500	4500	4500	4500	4500	4500	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
Mean no load running torque ^{b)} (at <i>n</i> _i = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> ₀₁₂	<i>Nm</i>	18.8	15.3	12.6	12.8	16.9	13.8	13.7	2.7	4	2	1.8	1.7	1.2	1.1	1	1	
				<i>in.lb</i>	166	135	112	113	150	122	121	24	35	18	16	15	11	10	9	9	
Max. backlash			<i>j</i> _t	<i>arcmin</i>	Standard ≤ 3.3 / Reduced ≤ 1.8																
Torsional rigidity ^{b)}			<i>C</i> _{t21}	<i>Nm/arcmin</i>	1879	1890	1901	1747	1899	1898	1772	1879	1766	1735	1742	1770	1770	1772	1772	1786	
				<i>in.lb/arcmin</i>	16631	16728	16825	15462	16808	16799	15684	16631	15631	15356	15418	15666	15666	15684	15684	15808	
Tilting rigidity			<i>C</i> _{2K}	<i>Nm/arcmin</i>	9480																
				<i>in.lb/arcmin</i>	83906																
Max. axial force ^{c)}			<i>F</i> _{2AMax}	<i>N</i>	50000																
				<i>lb_f</i>	11250																
Max. tilting moment			<i>M</i> _{2KMax}	<i>Nm</i>	9500																
				<i>in.lb</i>	84083																
Efficiency at full load			<i>η</i>	%	92								90								
Service life			<i>L</i> _h	<i>h</i>	> 20000																
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	120								124								
				<i>lb_m</i>	265								274								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> _{PA}	<i>dB(A)</i>	≤ 71																
Max. permitted housing temperature				°C	+90																
				<i>F</i>	194																
Ambient temperature				°C	0 to +40																
				<i>F</i>	32 to 104																
Lubrication					Lubricated for life																
Direction of rotation					In- and output opposite direction																
Protection class					IP 65																
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BCT - 10000AAX - 166.000																
				<i>mm</i>	X = 080.000 - 180.000																
Mass moment of inertia (relates to the drive)		K	38	<i>J</i> _i	<i>kgcm²</i>	-	-	-	-	-	-	12.43	15.36	10.93	10.92	10.91	10.13	9.95	9.91	9.91	
					<i>10⁻³ in.lb.s²</i>	-	-	-	-	-	-	11	13.59	9.67	9.66	9.66	8.97	8.81	8.77	8.77	
		M	48	<i>J</i> _i	<i>kgcm²</i>	75.54	52.83	42.94	42.67	34.37	29.87	29.73	27.14	30.07	25.64	25.63	25.62	24.84	24.66	24.62	24.62
<i>10⁻³ in.lb.s²</i>	66.85				46.75	38	37.76	30.42	26.43	26.31	24.02	26.61	22.69	22.68	22.67	21.98	21.82	21.79	21.79		

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Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

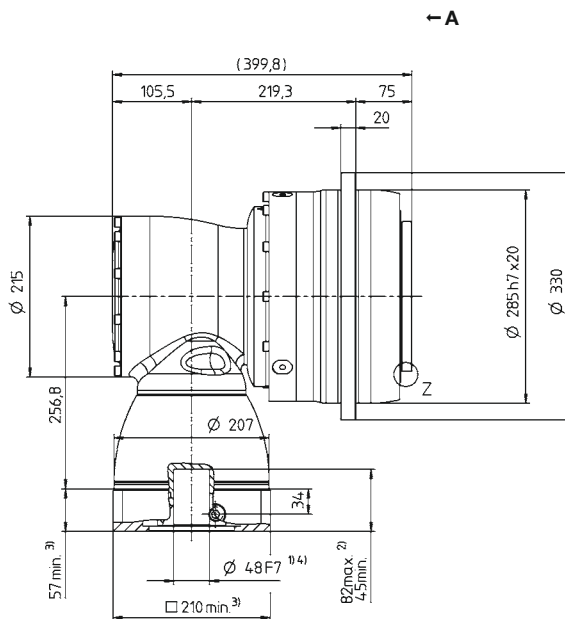
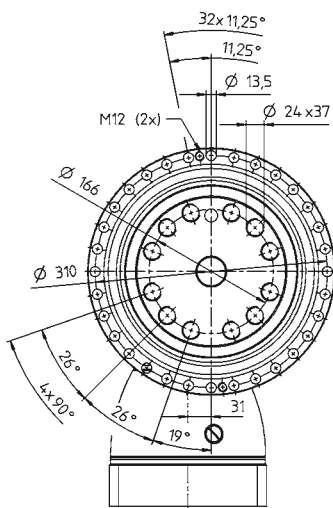
^{b)} Valid for standard clamping hub diameter

^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

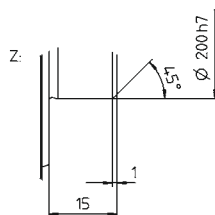
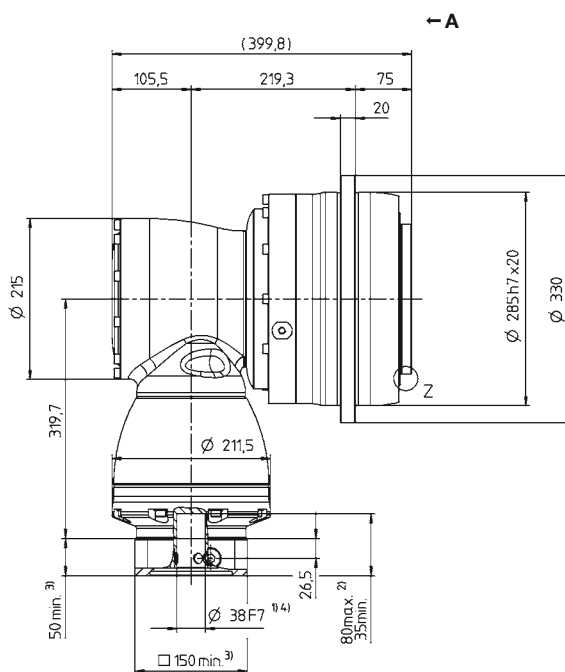
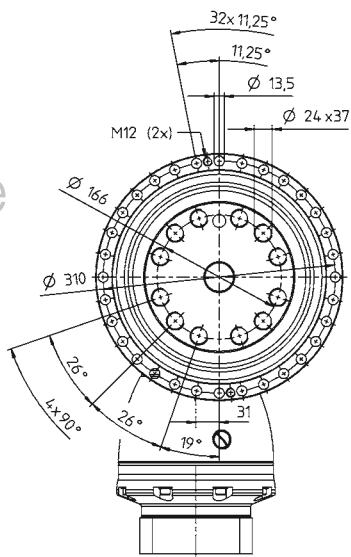
3-stage

up to 48⁴⁾ (M)⁵⁾
clamping hub diameter



4-stage

up to 38/48⁴⁾ (K⁵⁾ / M)
clamping hub diameter



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

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ 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

⁵⁾ Standard clamping hub diameter