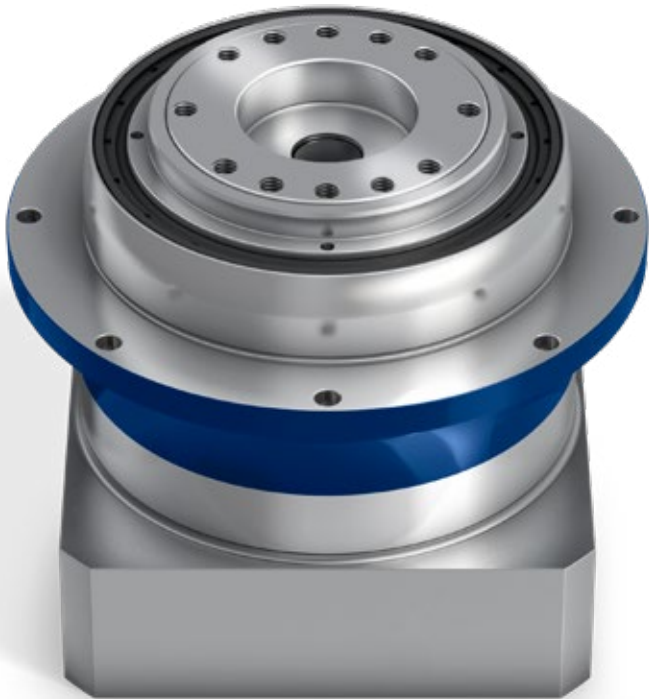


## TP+ / TP+ HIGH TORQUE – Compact precision



TP+

### Product highlights

**Max. torsional backlash** [arcmin]  $\leq 1 - 4$

**High torsional rigidity**

**Space-saving design**

**Available output types**

Flange, System output

**Flexible drive options**

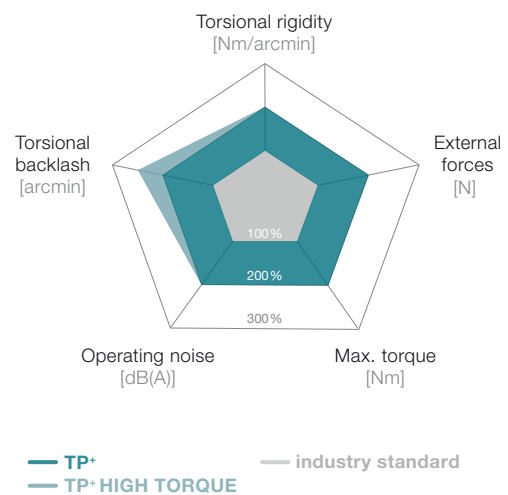
Clamping hub socket, optimized mass inertia, keyed clamping hub socket

**Other gearbox models**

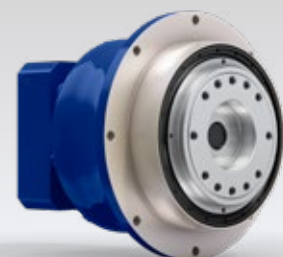
Corrosion resistant design, food-grade lubrication

Compact top performers with output flange. The standard version is ideally suited for high positioning accuracy and highly dynamic cyclic operation. The TP+ HIGH TORQUE is particularly appropriate for high-precision applications in which high torsional rigidity is required.

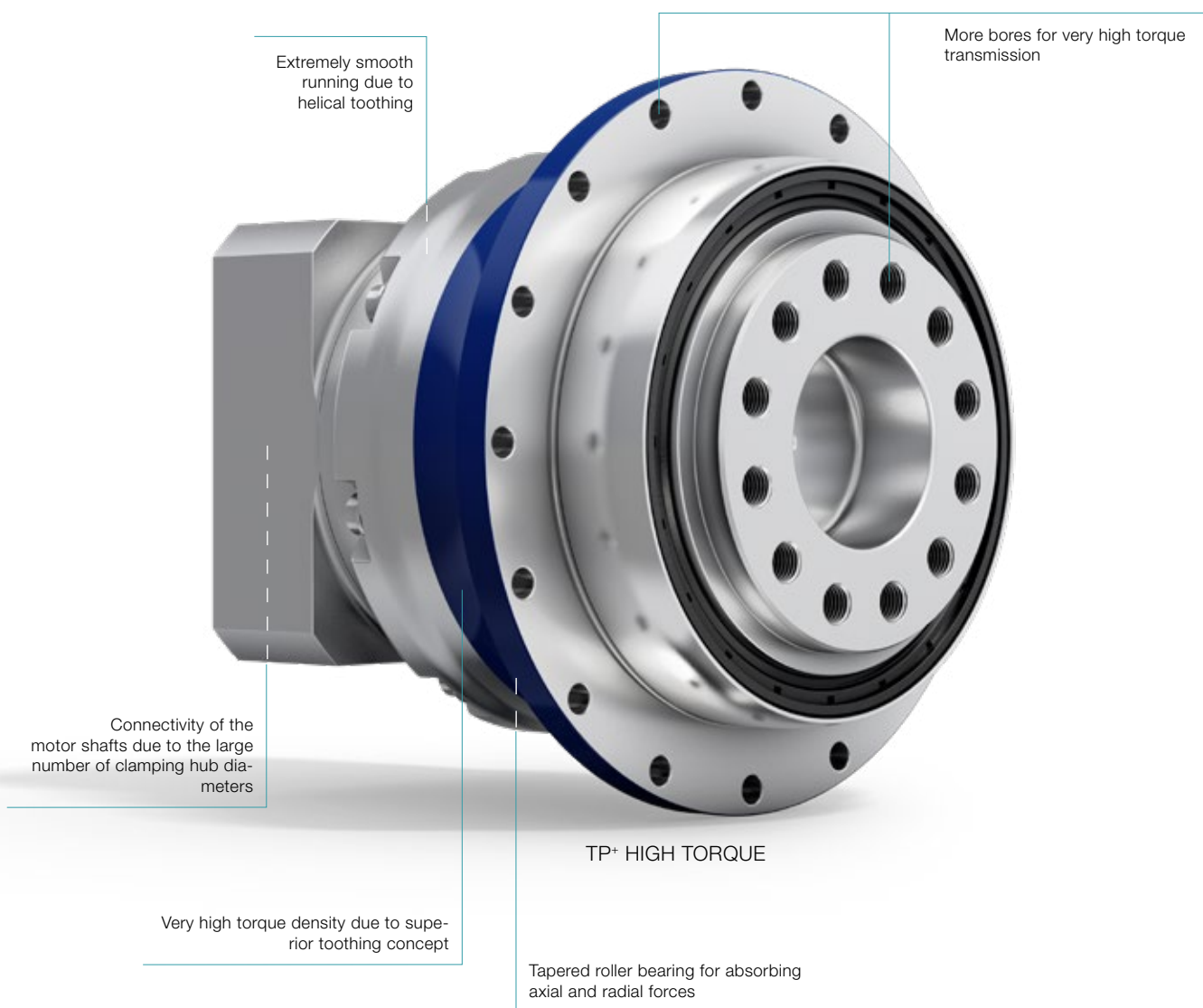
TP+ compared to the industry standard



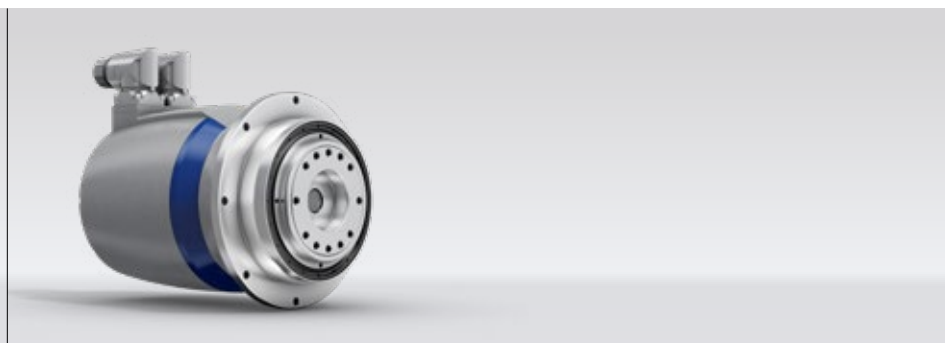
TP+ 2000



TP+ in corrosion resistant design



TP+ HIGH TORQUE with rack and pinion



premo® TP Line

# TP+ 004 MF 1-stage

				1-stage				
Ratio	<i>i</i>			4	5	7	8	10
Max. torque <sup>a) b)</sup>	$T_{2a}$	Nm		83	83	83	56	56
		in.lb		735	735	735	496	496
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)	$T_{2B}$	Nm		66	66	66	42	42
		in.lb		584	584	584	372	372
Nominal torque (at $n_n$ )	$T_{2N}$	Nm		27	27	26	26	27
		in.lb		239	236	226	230	237
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm		100	100	100	100	100
		in.lb		885	885	885	885	885
Permitted average input speed (at $T_{2N}$ and 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm		3300	3300	4000	4000	4000
Max. input speed	$n_{1Max}$	rpm		7500	7500	7500	7500	7500
Mean no load running torque <sup>b)</sup> (at $n_i = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm		0.56	0.48	0.37	0.37	0.31
		in.lb		5.0	4.2	3.3	3.3	2.7
Max. backlash	$j_t$	arcmin		Standard ≤ 4 / Reduced ≤ 2				
Torsional rigidity <sup>b)</sup>	$C_{t21}$	Nm/arcmin		12	12	11	8	8
		in.lb/arcmin		106	106	97	71	71
Tilting rigidity	$C_{2K}$	Nm/arcmin		85				
		in.lb/arcmin		752				
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N		2119				
		lb <sub>f</sub>		477				
Max. tilting moment	$M_{2KMax}$	Nm		110				
		in.lb		974				
Efficiency at full load	$\eta$	%		97				
Service life <sup>f)</sup>	$L_h$	h		> 20000				
Weight (incl. standard adapter plate)	$m$	kg		1.4				
		lb <sub>m</sub>		3.1				
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)		≤ 55				
Max. permitted housing temperature		°C		+90				
		F		194				
Ambient temperature		°C		–15 to +40				
		F		5 to 104				
Lubrication				Lubricated for life				
Direction of rotation				In- and output same direction				
Protection class				IP 65				
Metal bellows coupling (recommended product type – validate sizing with cymex <sup>®</sup> )				BCT-00015AAX-031.500				
Bore diameter of coupling on the application side		mm		X = 012.000 - 028.000				
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	B 11	$J_1$	kgcm <sup>2</sup>	0.17	0.14	0.11	0.11	0.09
			10 <sup>-3</sup> in.lb.s <sup>2</sup>	0.15	0.12	0.10	0.10	0.08
	C 14	$J_1$	kgcm <sup>2</sup>	0.25	0.21	0.18	0.18	0.17
			10 <sup>-3</sup> in.lb.s <sup>2</sup>	0.22	0.19	0.16	0.16	0.15
	E 19	$J_1$	kgcm <sup>2</sup>	0.57	0.54	0.51	0.51	0.49
			10 <sup>-3</sup> in.lb.s <sup>2</sup>	0.50	0.48	0.45	0.45	0.43

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

<sup>a)</sup> At max. 10 %  $M_{2KMax}$

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

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

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

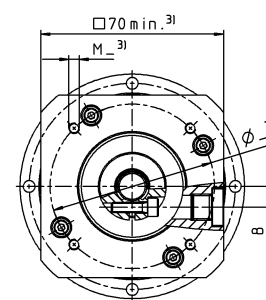
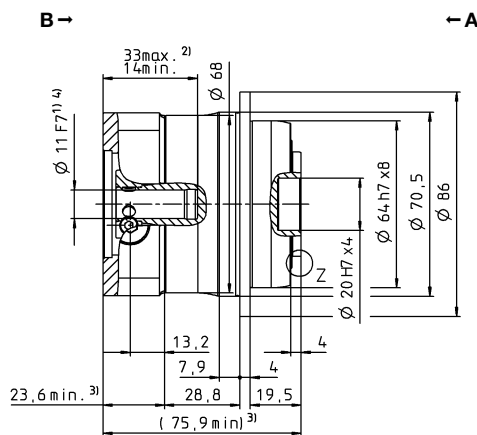
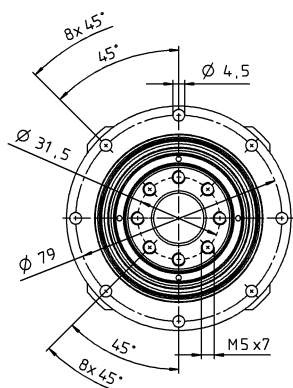
<sup>f)</sup> Please contact us to discuss  
application-specific service lifetimes

View A

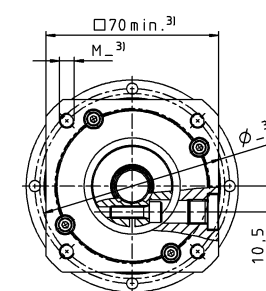
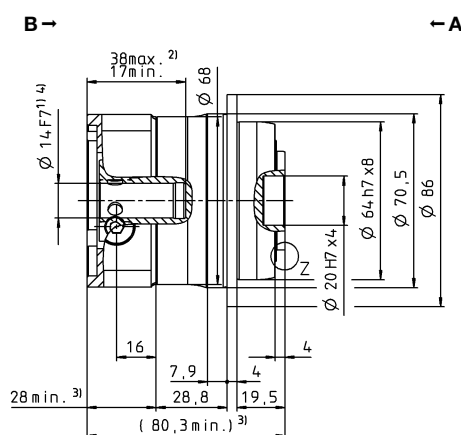
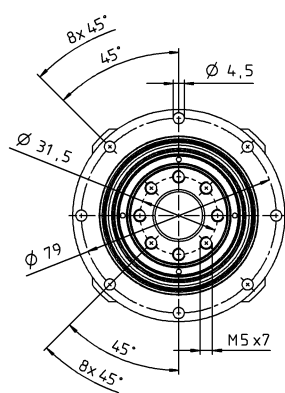
View B

# 1-stage

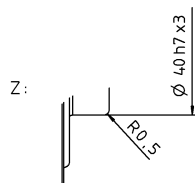
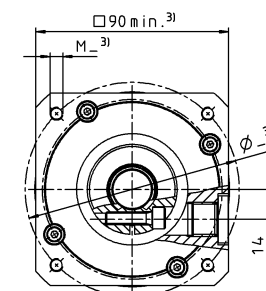
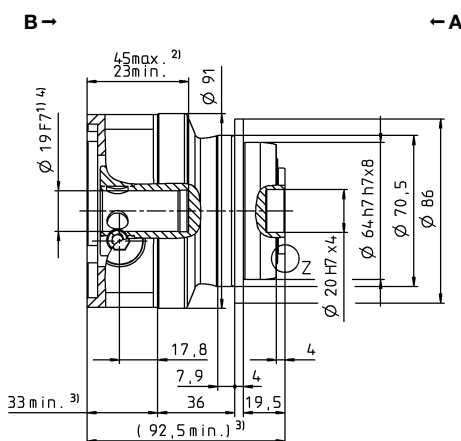
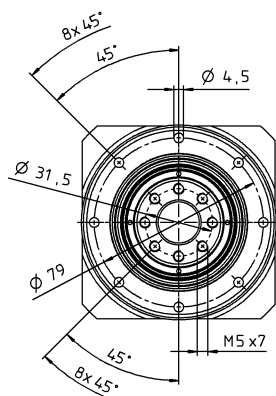
up to 11<sup>4)</sup> (B)  
clamping hub  
diameter



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



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



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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

# TP+ 004 MF 2-stage

				2-stage																	
Ratio			<i>i</i>		16	20	21	25	28	31	32	35	40	50	61	64	70	91	100		
Max. torque <sup>a) b)</sup>			<i>T</i> <sub>2a</sub>	Nm	57	57	60	72	57	50	57	72	57	72	49	48	56	43	48		
				in.lb	507	507	533	634	507	442	507	634	507	634	435	423	499	385	423		
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)			<i>T</i> <sub>2B</sub>	Nm	57	57	48	66	57	48	57	66	57	66	49	42	56	38	42		
				in.lb	507	507	425	584	504	425	507	584	507	584	434	372	496	336	372		
Nominal torque (at <i>n</i> <sub>n</sub> )			<i>T</i> <sub>2N</sub>	Nm	39	41	32	41	45	36	39	45	46	48	39	34	45	31	34		
				in.lb	342	365	286	361	403	320	343	399	406	421	341	297	399	272	297		
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)			<i>T</i> <sub>2Not</sub>	Nm	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		
				in.lb	885	885	885	885	885	885	885	885	885	885	885	885	885	885	885	885	
Permitted average input speed (at <i>T</i> <sub>2n</sub> and 20 °C ambient temperature) <sup>d)</sup>			<i>n</i> <sub>1N</sub>	rpm	4000	4000	4000	4000	4000	4000	4000	4000	4000	4800	5500	4800	5500	5500	5500		
Max. input speed			<i>n</i> <sub>1Max</sub>	rpm	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500		
Mean no load running torque <sup>b)</sup> (at <i>n</i> <sub>i</sub> = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> <sub>012</sub>	Nm	0.28	0.23	0.24	0.22	0.21	0.22	0.21	0.17	0.18	0.17	0.16	0.17	0.17	0.15	0.16		
				in.lb	2.5	2.0	2.1	1.9	1.9	1.9	1.9	1.5	1.6	1.5	1.4	1.5	1.5	1.3	1.4		
Max. backlash			<i>j</i> <sub>t</sub>	arcmin	Standard ≤ 4 / Reduced ≤ 2																
Torsional rigidity <sup>b)</sup>			<i>C</i> <sub>t21</sub>	Nm/arcmin	12	12	10	12	12	9	12	12	11	12	9	12	11	7	8		
				in.lb/arcmin	106	106	89	106	106	80	106	106	97	106	80	106	97	62	71		
Tilting rigidity			<i>C</i> <sub>2K</sub>	Nm/arcmin	85																
				in.lb/arcmin	752																
Max. axial force <sup>c)</sup>			<i>F</i> <sub>2AMax</sub>	N	2119																
				lb <sub>f</sub>	477																
Max. tilting moment			<i>M</i> <sub>2KMax</sub>	Nm	110																
				in.lb	974																
Efficiency at full load			<i>η</i>	%	94																
Service life <sup>f)</sup>			<i>L</i> <sub>h</sub>	h	> 20000																
Weight (incl. standard adapter plate)			<i>m</i>	kg	1.5																
				lb <sub>m</sub>	3.3																
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> <sub>PA</sub>	dB(A)	≤ 54																
Max. permitted housing temperature				°C	+90																
				F	194																
Ambient temperature				°C	-15 to +40																
				F	5 to 104																
Lubrication					Lubricated for life																
Direction of rotation					In- and output same 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				mm	X = 012.000 - 028.000																
Mass moment of inertia (relates to the drive)  Clamping hub diameter [mm]  Optimized mass inertia version available on request			B	11	<i>J</i> <sub>i</sub>	kgcm <sup>2</sup>	0.078	0.070	0.074	0.068	0.062	0.072	0.062	0.061	0.057	0.057	0.058	0.060	0.056	0.057	0.056
						10 <sup>-3</sup> in.lb.s <sup>2</sup>	0.069	0.062	0.065	0.060	0.055	0.064	0.055	0.054	0.050	0.050	0.051	0.053	0.050	0.050	0.050
			C	14	<i>J</i> <sub>i</sub>	kgcm <sup>2</sup>	0.17	0.17	0.17	0.16	0.16	0.17	0.16	0.16	0.15	0.15	0.15	0.16	0.15	0.15	0.15
						10 <sup>-3</sup> in.lb.s <sup>2</sup>	0.15	0.15	0.15	0.15	0.14	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.13	0.14	0.13

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

<sup>a)</sup> At max. 10 %  $M_{2KMax}$

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

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

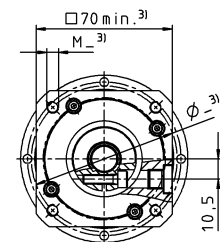
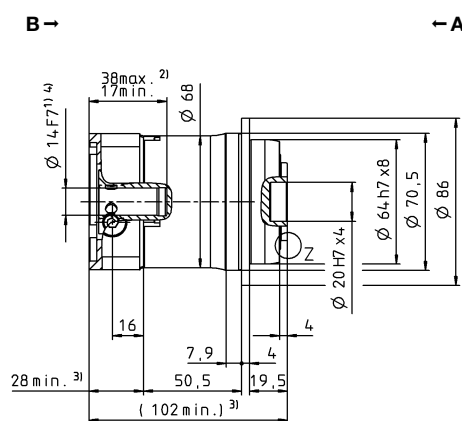
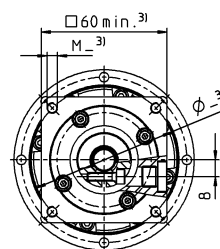
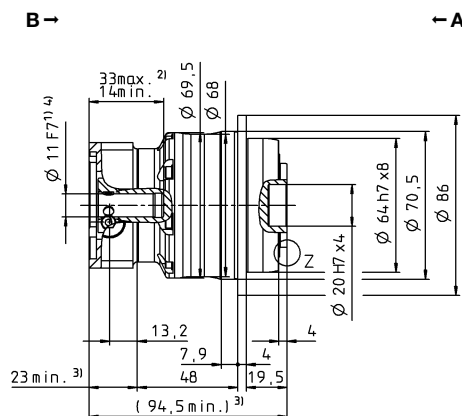
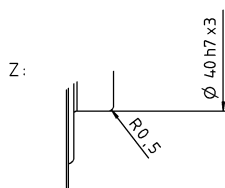
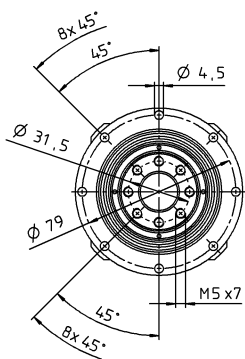
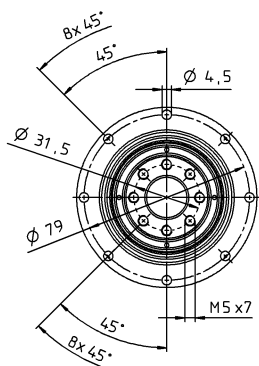
<sup>d)</sup> Please reduce input speed at higher ambient temperatures

<sup>f)</sup> Please contact us to discuss  
application-specific service lifetimes

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

Motor shaft diameter [mm]

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



Tip<sup>+</sup>

MF

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 wall thickness of 1 mm

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

# TP+ 010 MF 1-stage

				1-stage					
Ratio			<i>i</i>		4	5	7	8	10
Max. torque <sup>a) b)</sup>			<i>T</i> <sub>2a</sub>	<i>Nm</i>	185	210	210	168	168
				<i>in.lb</i>	1640	1859	1859	1487	1487
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)			<i>T</i> <sub>2B</sub>	<i>Nm</i>	172	172	172	126	126
				<i>in.lb</i>	1522	1522	1522	1115	1115
Nominal torque (at <i>n</i> <sub>N</sub> )			<i>T</i> <sub>2N</sub>	<i>Nm</i>	84	81	81	80	81
				<i>in.lb</i>	743	716	719	712	720
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)			<i>T</i> <sub>2Not</sub>	<i>Nm</i>	250	250	251	251	251
				<i>in.lb</i>	2213	2213	2222	2222	2222
Permitted average input speed (at <i>T</i> <sub>2N</sub> and 20 °C ambient temperature) <sup>d)</sup>			<i>n</i> <sub>1N</sub>	<i>rpm</i>	2600	2900	3100	3100	3100
Max. input speed			<i>n</i> <sub>1Max</sub>	<i>rpm</i>	7500	7500	7500	7500	7500
Mean no load running torque <sup>b)</sup> (at <i>n</i> <sub>i</sub> = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> <sub>012</sub>	<i>Nm</i>	1.3	1.1	0.84	0.84	0.64
				<i>in.lb</i>	12	9.5	7.4	7.4	5.7
Max. backlash			<i>j</i> <sub>t</sub>	<i>arcmin</i>	Standard ≤ 3 / Reduced ≤ 1				
Torsional rigidity <sup>b)</sup>			<i>C</i> <sub>121</sub>	<i>Nm/arcmin</i>	32	33	30	23	23
				<i>in.lb/arcmin</i>	283	292	266	204	204
Tilting rigidity			<i>C</i> <sub>2K</sub>	<i>Nm/arcmin</i>	225				
				<i>in.lb/arcmin</i>	1991				
Max. axial force <sup>c)</sup>			<i>F</i> <sub>2AMax</sub>	<i>N</i>	2795				
				<i>lb<sub>f</sub></i>	629				
Max. tilting moment			<i>M</i> <sub>2KMax</sub>	<i>Nm</i>	270				
				<i>in.lb</i>	2390				
Efficiency at full load			<i>η</i>	%	97				
Service life <sup>f)</sup>			<i>L</i> <sub>h</sub>	<i>h</i>	> 20000				
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	3.8				
				<i>lb<sub>m</sub></i>	8.4				
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )			<i>L</i> <sub>PA</sub>	<i>dB(A)</i>	≤ 57				
Max. permitted housing temperature				°C	+90				
				<i>F</i>	194				
Ambient temperature				°C	–15 to +40				
				<i>F</i>	5 to 104				
Lubrication					Lubricated for life				
Direction of rotation					In- and output same direction				
Protection class					IP 65				
Metal bellows coupling (recommended product type – validate sizing with cymex <sup>®</sup> )					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] Optimized mass inertia version available on request	C	14	<i>J</i> <sub>i</sub>	<i>kgcm</i> <sup>2</sup>	0.78	0.62	0.48	0.48	0.40
				<i>10<sup>-3</sup> in.lb.s</i> <sup>2</sup>	0.69	0.55	0.42	0.42	0.35
	E	19	<i>J</i> <sub>i</sub>	<i>kgcm</i> <sup>2</sup>	0.95	0.79	0.64	0.64	0.57
				<i>10<sup>-3</sup> in.lb.s</i> <sup>2</sup>	0.84	0.70	0.57	0.57	0.50
	G	24	<i>J</i> <sub>i</sub>	<i>kgcm</i> <sup>2</sup>	2.32	2.16	2.02	2.02	1.94
				<i>10<sup>-3</sup> in.lb.s</i> <sup>2</sup>	2.05	1.91	1.79	1.79	1.72

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

<sup>a)</sup> At max. 10 %  $M_{2KMax}$

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

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

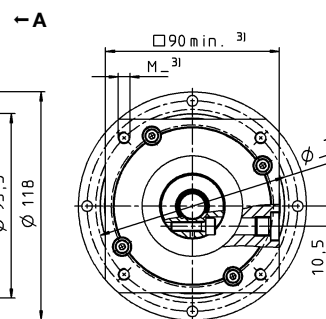
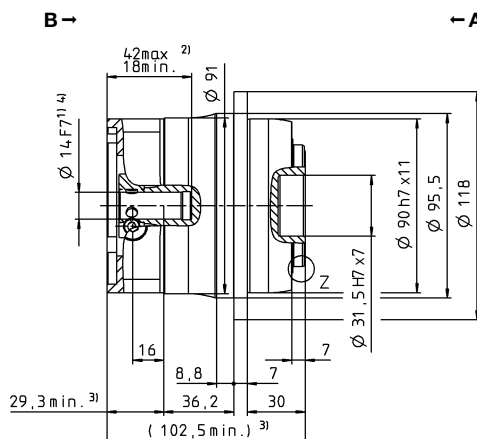
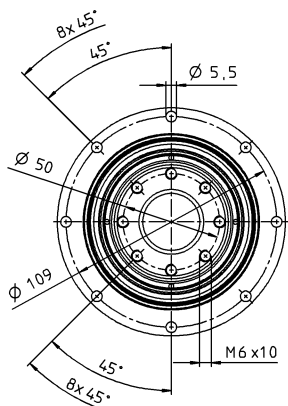
<sup>f)</sup> Please contact us to discuss  
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View A

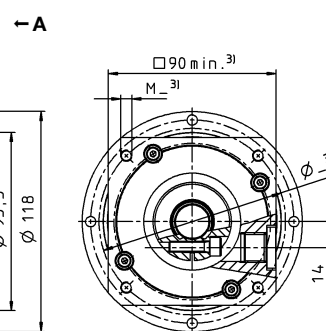
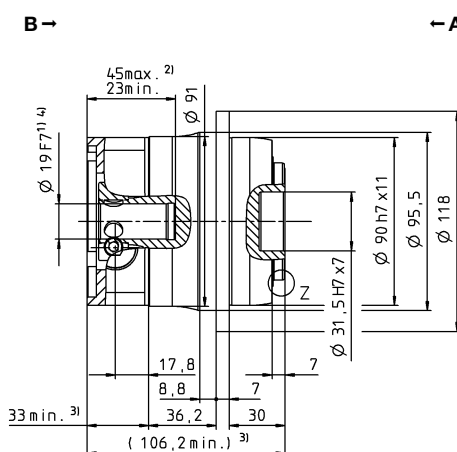
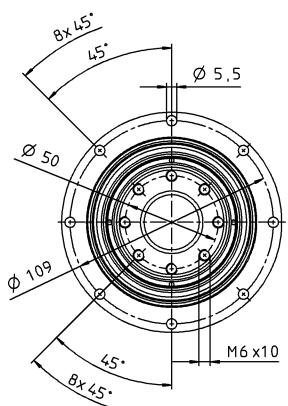
View B

# 1-stage

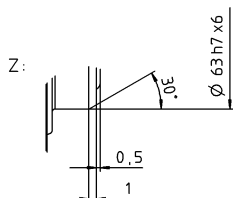
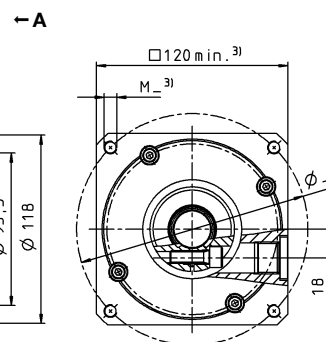
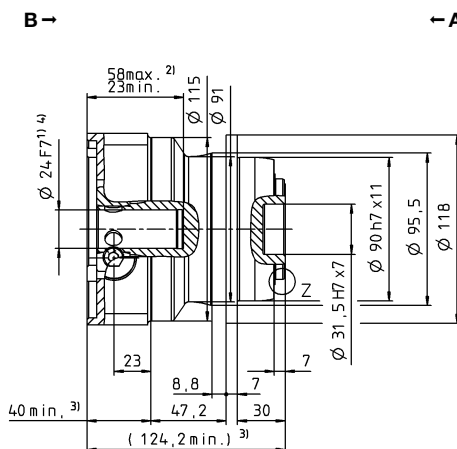
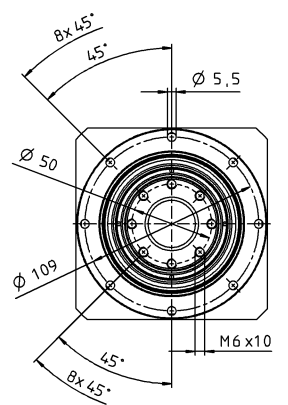
up to 14 <sup>4)</sup> (C)  
clamping hub  
diameter



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



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



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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



				2-stage															
Ratio			<i>i</i>		16	20	21	25	28	31	32	35	40	50	61	64	70	91	100
Max. torque <sup>a) b)</sup>			<i>T</i> <sub>2a</sub>	<i>Nm</i>	157	126	133	158	157	121	157	158	154	158	121	105	157	96	105
				<i>in.lb</i>	1392	1118	1174	1398	1392	1071	1392	1398	1363	1398	1071	932	1392	848	932
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)			<i>T</i> <sub>2B</sub>	<i>Nm</i>	157	126	120	158	157	121	157	158	154	158	121	105	157	96	105
				<i>in.lb</i>	1392	1118	1062	1398	1392	1071	1392	1398	1363	1398	1071	932	1392	848	932
Nominal torque (at <i>n</i> <sub>N</sub> )			<i>T</i> <sub>2N</sub>	<i>Nm</i>	106	101	96	124	107	87	119	126	112	126	97	84	126	77	84
				<i>in.lb</i>	935	895	850	1097	945	770	1053	1118	987	1118	857	746	1114	678	746
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)			<i>T</i> <sub>2Not</sub>	<i>Nm</i>	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251
				<i>in.lb</i>	2222	2222	2222	2222	2222	2222	2222	2222	2222	2222	2222	2222	2222	2222	2222
Permitted average input speed (at <i>T</i> <sub>2m</sub> and 20 °C ambient temperature) <sup>c)</sup>			<i>n</i> <sub>1N</sub>	<i>rpm</i>	3500	3500	3500	3500	3500	3500	3500	3500	3500	3800	4500	3800	4500	4500	4500
Max. input speed			<i>n</i> <sub>1Max</sub>	<i>rpm</i>	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500
Mean no load running torque <sup>b)</sup> (at <i>n</i> <sub>i</sub> = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> <sub>012</sub>	<i>Nm</i>	0.56	0.48	0.47	0.44	0.40	0.40	0.40	0.28	0.32	0.32	0.23	0.32	0.24	0.24	0.25
				<i>in.lb</i>	5.0	4.2	4.2	3.9	3.5	3.5	3.5	2.5	2.8	2.8	2.0	2.8	2.1	2.1	2.2
Max. backlash			<i>j</i> <sub>t</sub>	<i>arcmin</i>	Standard ≤ 3 / Reduced ≤ 1														
Torsional rigidity <sup>b)</sup>			<i>C</i> <sub>t21</sub>	<i>Nm/arcmin</i>	32	32	26	32	31	24	31	32	30	30	24	30	28	21	22
				<i>in.lb/arcmin</i>	283	283	230	283	274	212	274	283	266	266	212	266	248	186	195
Tilting rigidity			<i>C</i> <sub>2K</sub>	<i>Nm/arcmin</i>	225														
				<i>in.lb/arcmin</i>	1991														
Max. axial force <sup>c)</sup>			<i>F</i> <sub>2AMax</sub>	<i>N</i>	2795														
				<i>lb<sub>f</sub></i>	629														
Max. tilting moment			<i>M</i> <sub>2KMax</sub>	<i>Nm</i>	270														
				<i>in.lb</i>	2390														
Efficiency at full load			<i>η</i>	%	94														
Service life <sup>f)</sup>			<i>L</i> <sub>n</sub>	<i>h</i>	> 20000														
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	3.6														
				<i>lb<sub>m</sub></i>	8.0														
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> <sub>PA</sub>	<i>dB(A)</i>	≤ 55														
Max. permitted housing temperature				°C	+90														
				<i>F</i>	194														
Ambient temperature				°C	–15 to +40														
				<i>F</i>	5 to 104														
Lubrication				Lubricated for life															
Direction of rotation				In- and output same 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]  Optimized mass inertia version available on request	B	11	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	0.17	0.14	0.15	0.13	0.11	0.14	0.11	0.10	0.09	0.09	0.09	0.10	0.09	0.09	0.09
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	0.15	0.12	0.13	0.12	0.10	0.12	0.10	0.09	0.08	0.08	0.09	0.08	0.08	0.08	0.08
	C	14	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	0.24	0.21	0.22	0.20	0.18	0.21	0.18	0.18	0.17	0.17	0.17	0.17	0.16	0.17	0.16
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	0.21	0.19	0.20	0.18	0.16	0.18	0.16	0.16	0.15	0.15	0.15	0.15	0.15	0.15	0.14
	E	19	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	0.56	0.53	0.55	0.53	0.51	0.53	0.51	0.50	0.49	0.49	0.49	0.52	0.49	0.49	0.49
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	0.50	0.47	0.48	0.47	0.45	0.47	0.45	0.44	0.43	0.43	0.43	0.46	0.43	0.43	0.43

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

a) At max. 10 %  $M_{2KMav}$

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

f) Please contact us to discuss

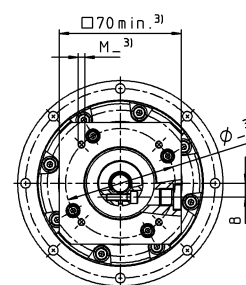
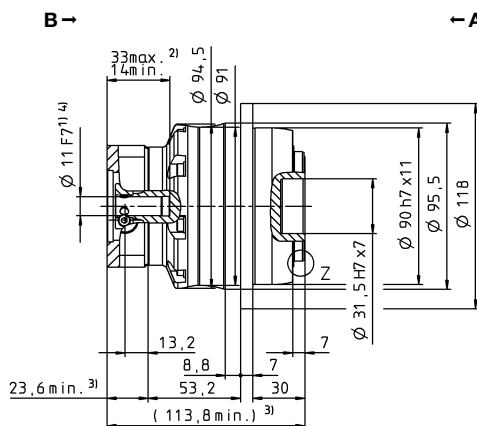
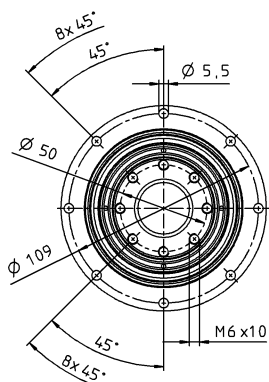
application-specific service lifetimes

View A

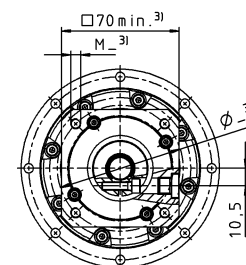
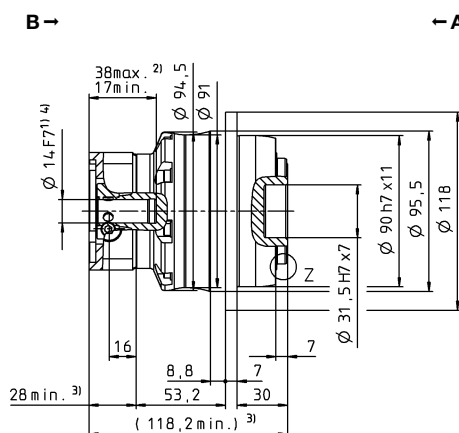
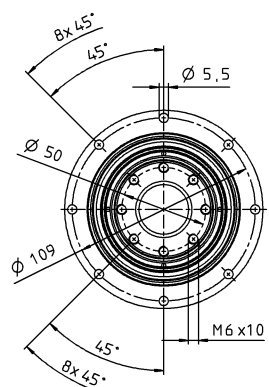
View B

# 2-stage

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

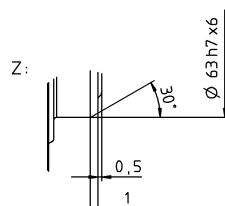
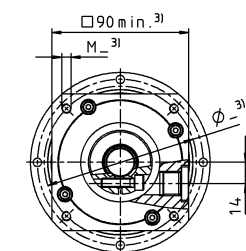
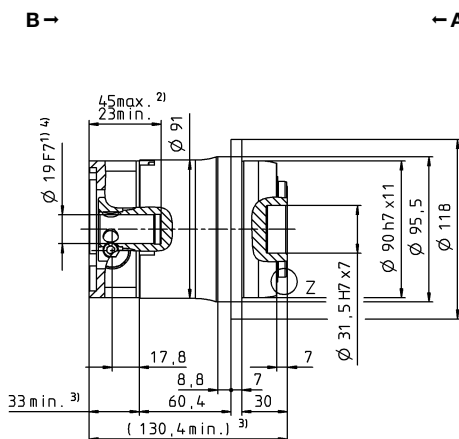
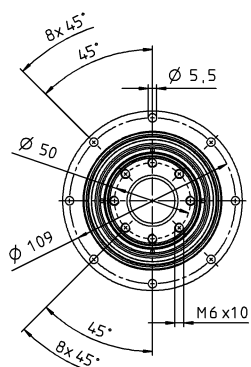


up to 14<sup>4)</sup> (C)<sup>5)</sup>  
clamping hub  
diameter



Motor shaft diameter [mm]

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



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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

# TP+ 025 MF 1-stage

				1-stage							
Ratio			<i>i</i>		4	5	7	8	10		
Max. torque <sup>a) b)</sup>			<i>T</i> <sub>2a</sub>	<i>Nm</i>	352	380	352	352	352		
				<i>in.lb</i>	3115	3363	3115	3115	3115		
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)			<i>T</i> <sub>2B</sub>	<i>Nm</i>	352	380	352	318	318		
				<i>in.lb</i>	3115	3363	3115	2815	2815		
Nominal torque (at <i>n</i> <sub>N</sub> )			<i>T</i> <sub>2N</sub>	<i>Nm</i>	175	169	172	172	180		
				<i>in.lb</i>	1548	1498	1524	1521	1591		
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)			<i>T</i> <sub>2Not</sub>	<i>Nm</i>	625	625	625	625	625		
				<i>in.lb</i>	5532	5532	5532	5532	5532		
Permitted average input speed (at <i>T</i> <sub>2N</sub> and 20 °C ambient temperature) <sup>d)</sup>			<i>n</i> <sub>1N</sub>	<i>rpm</i>	2300	2500	2500	2500	2500		
Max. input speed			<i>n</i> <sub>1Max</sub>	<i>rpm</i>	5500	5500	5500	5500	5500		
Mean no load running torque <sup>b)</sup> (at <i>n</i> <sub>i</sub> = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> <sub>012</sub>	<i>Nm</i>	2.8	2.3	1.7	1.7	1.2		
				<i>in.lb</i>	25	20	15	15	10		
Max. backlash			<i>j</i> <sub>t</sub>	<i>arcmin</i>	Standard ≤ 3 / Reduced ≤ 1						
Torsional rigidity <sup>b)</sup>			<i>C</i> <sub>t21</sub>	<i>Nm/arcmin</i>	80	86	76	62	62		
				<i>in.lb/arcmin</i>	708	761	673	549	549		
Tilting rigidity			<i>C</i> <sub>2K</sub>	<i>Nm/arcmin</i>	550						
				<i>in.lb/arcmin</i>	4868						
Max. axial force <sup>c)</sup>			<i>F</i> <sub>2AMax</sub>	<i>N</i>	4800						
				<i>lb<sub>f</sub></i>	1080						
Max. tilting moment			<i>M</i> <sub>2KMax</sub>	<i>Nm</i>	440						
				<i>in.lb</i>	3894						
Efficiency at full load			<i>η</i>	%	97						
Service life <sup>f)</sup>			<i>L</i> <sub>h</sub>	<i>h</i>	> 20000						
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	6.5						
				<i>lb<sub>m</sub></i>	14.4						
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> <sub>PA</sub>	<i>dB(A)</i>	≤ 61						
Max. permitted housing temperature				°C	+90						
				<i>F</i>	194						
Ambient temperature				°C	–15 to +40						
				<i>F</i>	5 to 104						
Lubrication					Lubricated for life						
Direction of rotation					In- and output same 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] Optimized mass inertia version available on request			E	19	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	2.59	2.11	1.69	1.69	1.45
						<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	2.29	1.87	1.50	1.50	1.28
			G	24	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	3.28	2.80	2.38	2.38	2.14
						<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	2.90	2.48	2.11	2.11	1.89
			H	28	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	2.89	2.41	1.99	1.99	1.75
						<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	2.56	2.13	1.76	1.76	1.55
			K	38	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	10.3	9.87	9.45	9.45	9.21
						<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	9.12	8.73	8.36	8.36	8.15

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

<sup>a)</sup> At max. 10 %  $M_{2KMax}$

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

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

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

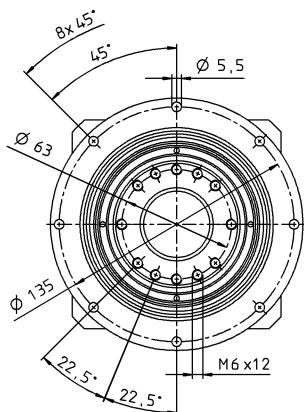
<sup>f)</sup> Please contact us to discuss  
application-specific service lifetimes

View A

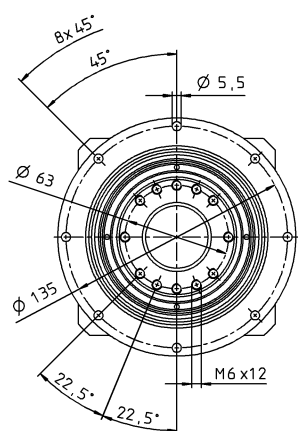
View B

# 1-stage

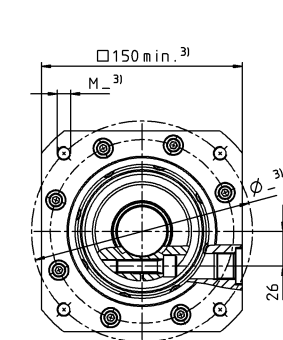
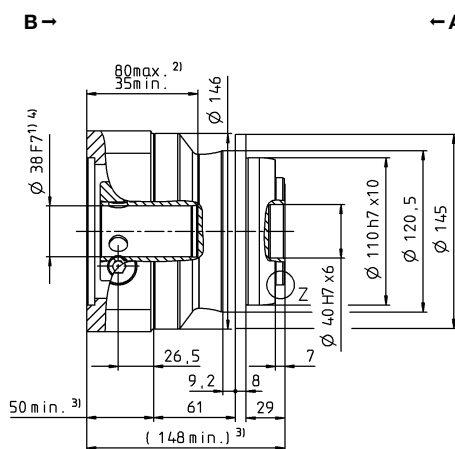
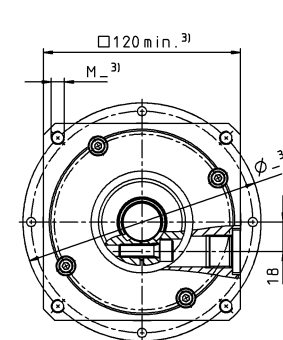
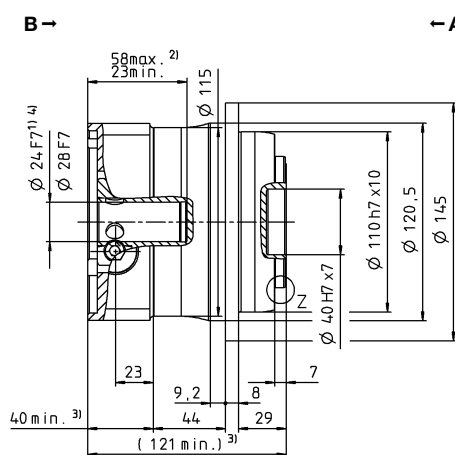
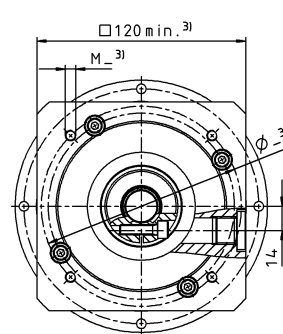
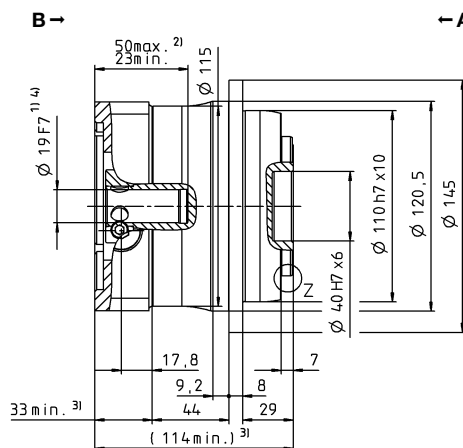
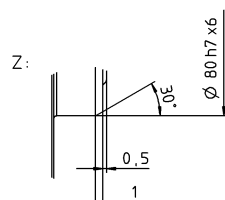
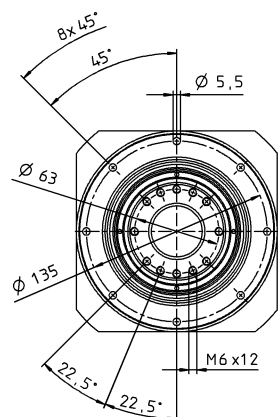
up to 19<sup>4)</sup> (E)  
clamping hub diameter



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



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



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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

# TP+ 025 MF 2-stage

					2-stage															
Ratio			<i>i</i>		16	20	21	25	28	31	32	35	40	50	61	64	70	91	100	
Max. torque <sup>a) b)</sup>			<i>T</i> <sub>2a</sub>	<i>Nm</i>	352	352	352	380	352	352	352	380	352	380	352	352	352	352	352	
				<i>in.lb</i>	3115	3115	3115	3363	3115	3115	3115	3363	3115	3363	3115	3115	3115	3115	3115	
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)			<i>T</i> <sub>2B</sub>	<i>Nm</i>	352	352	330	380	352	330	352	380	352	380	308	292	352	275	292	
				<i>in.lb</i>	3115	3115	2921	3363	3115	2921	3115	3363	3115	3363	2726	2584	3115	2434	2584	
Nominal torque (at <i>n</i> <sub>n</sub> )			<i>T</i> <sub>2N</sub>	<i>Nm</i>	250	267	211	265	282	231	251	294	282	304	246	233	282	220	233	
				<i>in.lb</i>	2213	2366	1872	2348	2492	2047	2220	2598	2492	2691	2181	2064	2492	1947	2064	
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)			<i>T</i> <sub>2Not</sub>	<i>Nm</i>	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	
				<i>in.lb</i>	5532	5532	5532	5532	5532	5532	5532	5532	5532	5532	5532	5532	5532	5532	5532	
Permitted average input speed (at <i>T</i> <sub>2N</sub> and 20 °C ambient temperature) <sup>d)</sup>			<i>n</i> <sub>1N</sub>	<i>rpm</i>	2800	2800	2800	2800	2800	2800	2800	2800	2800	3100	3500	3100	3500	4200	4200	
Max. input speed			<i>n</i> <sub>1Max</sub>	<i>rpm</i>	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	
Mean no load running torque <sup>b)</sup> (at <i>n</i> <sub>i</sub> = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> <sub>012</sub>	<i>Nm</i>	1.2	1.0	1.1	0.90	0.80	0.84	0.80	0.60	0.59	0.50	0.48	0.50	0.42	0.48	0.38	
				<i>in.lb</i>	10	8.9	9.9	8.0	7.1	7.4	7.1	5.3	5.2	4.4	4.2	4.4	3.7	4.2	3.4	
Max. backlash			<i>j</i> <sub>t</sub>	<i>arcmin</i>	Standard ≤ 3 / Reduced ≤ 1															
Torsional rigidity <sup>b)</sup>			<i>C</i> <sub>t21</sub>	<i>Nm/arcmin</i>	81	81	70	83	80	54	80	82	76	80	61	80	71	55	60	
				<i>in.lb/arcmin</i>	717	717	620	735	708	478	708	726	673	708	540	708	628	487	531	
Tilting rigidity			<i>C</i> <sub>2K</sub>	<i>Nm/arcmin</i>	550															
				<i>in.lb/arcmin</i>	4868															
Max. axial force <sup>c)</sup>			<i>F</i> <sub>2AMax</sub>	<i>N</i>	4800															
				<i>lb<sub>f</sub></i>	1080															
Max. tilting moment			<i>M</i> <sub>2KMax</sub>	<i>Nm</i>	440															
				<i>in.lb</i>	3894															
Efficiency at full load			<i>η</i>	%	94															
Service life <sup>f)</sup>			<i>L</i> <sub>h</sub>	<i>h</i>	> 20000															
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	6.7															
				<i>lb<sub>m</sub></i>	14.8															
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> <sub>PA</sub>	<i>dB(A)</i>	≤ 58															
Max. permitted housing temperature				°C	+90															
				<i>F</i>	194															
Ambient temperature				°C	–15 to +40															
				<i>F</i>	5 to 104															
Lubrication					Lubricated for life															
Direction of rotation (relates to the drive)					In- and output same 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] Optimized mass inertia version available on request		C	14	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	0.66	0.55	0.60	0.53	0.44	0.55	0.44	0.43	0.38	0.38	0.39	0.40	0.37	0.38	0.37
					<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	0.58	0.48	0.53	0.47	0.39	0.49	0.39	0.38	0.34	0.33	0.34	0.36	0.33	0.34	0.33
		E	19	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	0.83	0.71	0.77	0.70	0.61	0.72	0.61	0.60	0.55	0.55	0.55	0.57	0.54	0.55	0.54
					<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	0.73	0.63	0.68	0.62	0.54	0.64	0.54	0.53	0.49	0.48	0.49	0.50	0.48	0.48	0.48
		G	24	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	2.20	2.08	2.14	2.07	1.98	2.09	1.98	1.97	1.92	1.92	1.92	2.00	1.91	1.92	1.91
					<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	1.95	1.84	1.89	1.83	1.75	1.85	1.75	1.74	1.70	1.70	1.77	1.69	1.70	1.69	
		H	28	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	2.00	1.91	1.96	1.89	1.82	1.85	1.89	1.81	1.76	1.76	1.76	1.83	1.75	1.75	1.75
					<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	1.77	1.69	1.73	1.67	1.61	1.64	1.67	1.60	1.56	1.56	1.56	1.62	1.55	1.55	1.55

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

<sup>a)</sup> At max. 10 %  $M_{2KMax}$

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

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

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

<sup>f)</sup> Please contact us to discuss

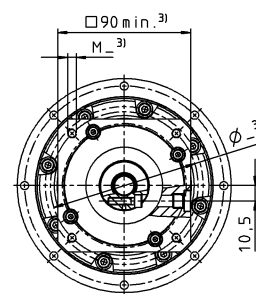
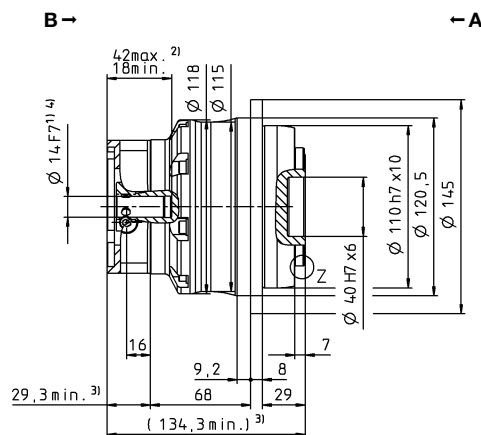
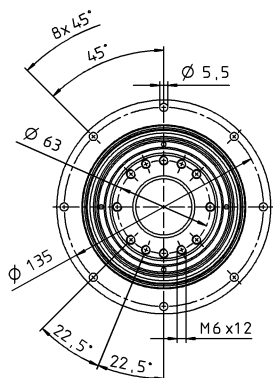
application-specific service lifetimes

View A

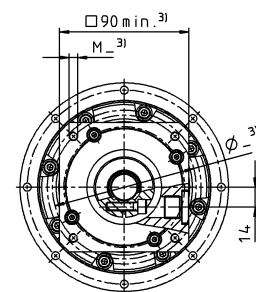
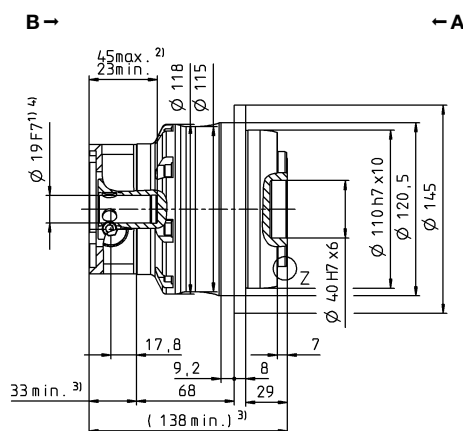
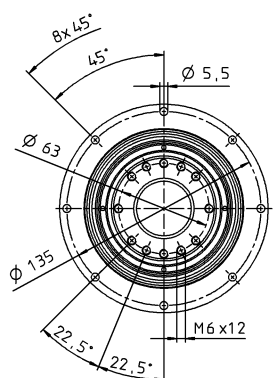
View B

# 2-stage

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

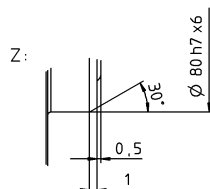
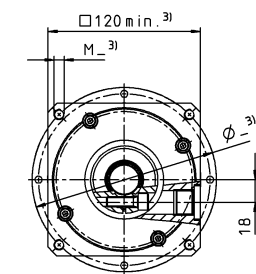
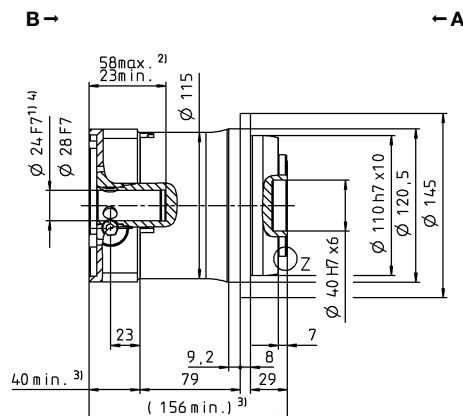
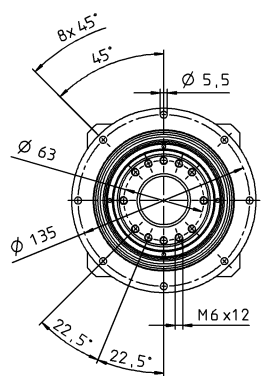


up to 19 <sup>4)</sup> (E) <sup>5)</sup>  
clamping hub  
diameter



Motor shaft diameter [mm]

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



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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

# TP+ 050 MF 1-stage

					1-stage				
Ratio	<i>i</i>				4	5	7	8	10
Max. torque <sup>a) b)</sup>	$T_{2a}$	<i>Nm</i>			992	992	868	720	720
		<i>in.lb</i>			8780	8780	7686	6373	6373
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)	$T_{2B}$	<i>Nm</i>			840	840	840	648	648
		<i>in.lb</i>			7435	7435	7435	5735	5735
Nominal torque (at $n_N$ )	$T_{2N}$	<i>Nm</i>			345	337	322	316	331
		<i>in.lb</i>			3052	2987	2854	2796	2928
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	<i>Nm</i>			1250	1250	1250	1250	1250
		<i>in.lb</i>			11064	11064	11064	11064	11064
Permitted average input speed (at $T_{2N}$ and 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	<i>rpm</i>			1900	2000	2500	2500	2500
Max. input speed	$n_{1Max}$	<i>rpm</i>			5000	5000	5000	5000	5000
Mean no load running torque <sup>b)</sup> (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	<i>Nm</i>			6.5	5.3	3.8	3.8	2.9
		<i>in.lb</i>			57	47	33	33	26
Max. backlash	$j_t$	<i>arcmin</i>			Standard ≤ 3 / Reduced ≤ 1				
Torsional rigidity <sup>b)</sup>	$C_{t21}$	<i>Nm/arcmin</i>			190	187	159	123	123
		<i>in.lb/arcmin</i>			1682	1655	1407	1089	1089
Tilting rigidity	$C_{2K}$	<i>Nm/arcmin</i>			560				
		<i>in.lb/arcmin</i>			4956				
Max. axial force <sup>c)</sup>	$F_{2AMax}$	<i>N</i>			6130				
		<i>lb<sub>f</sub></i>			1379				
Max. tilting moment	$M_{2KMax}$	<i>Nm</i>			1335				
		<i>in.lb</i>			11816				
Efficiency at full load	$\eta$	<i>%</i>			97				
Service life <sup>f)</sup>	$L_h$	<i>h</i>			> 20000				
Weight (incl. standard adapter plate)	$m$	<i>kg</i>			14				
		<i>lb<sub>m</sub></i>			30.9				
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	<i>dB(A)</i>			≤ 64				
Max. permitted housing temperature		°C			+90				
		F			194				
Ambient temperature		°C			–15 to +40				
		F			5 to 104				
Lubrication					Lubricated for life				
Direction of rotation					In- and output same direction				
Protection class					IP 65				
Metal bellows coupling (recommended product type – validate sizing with cymex <sup>®</sup> )					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] Optimized mass inertia version available on request	G	24	$J_1$	<i>kgcm<sup>2</sup></i>	9.47	7.85	6.39	6.39	5.54
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	8.38	6.95	5.66	5.66	4.90
	I	32	$J_1$	<i>kgcm<sup>2</sup></i>	12.6	11.0	9.55	9.55	8.10
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	11.2	9.74	8.45	8.45	7.17
	K	38	$J_1$	<i>kgcm<sup>2</sup></i>	13.7	12.1	10.6	10.6	9.78
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	12.1	10.7	9.38	9.38	8.66
	M	48	$J_1$	<i>kgcm<sup>2</sup></i>	28.3	26.7	25.3	25.3	24.4
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	25.1	23.6	22.4	22.4	21.6

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

<sup>a)</sup> At max. 10 %  $M_{2KMax}$

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

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

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

<sup>f)</sup> Please contact us to discuss  
application-specific service lifetimes

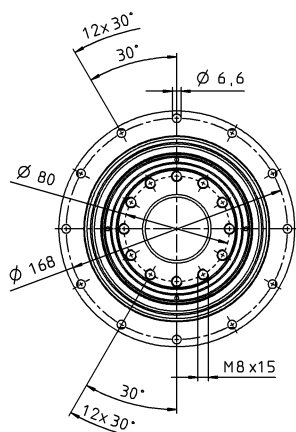


View A

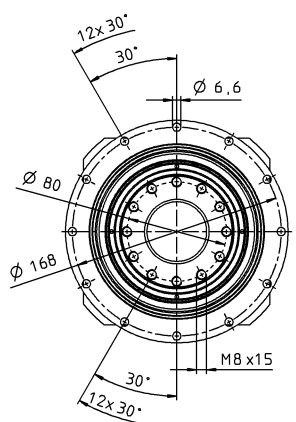
View B

# 1-stage

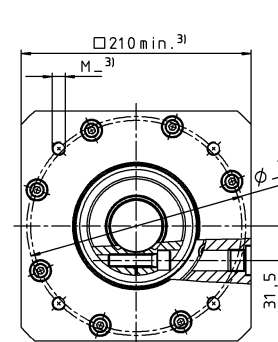
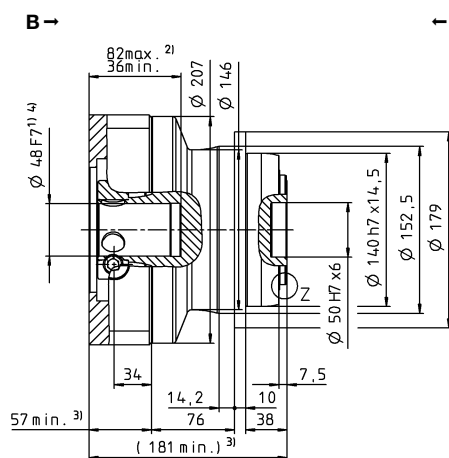
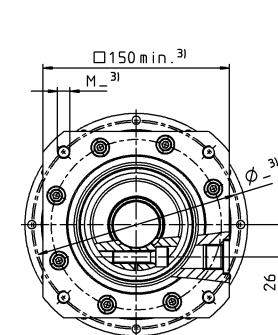
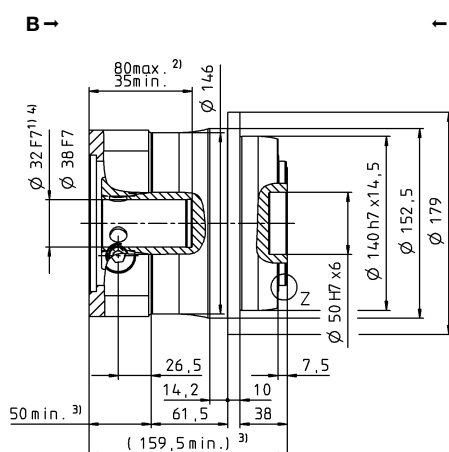
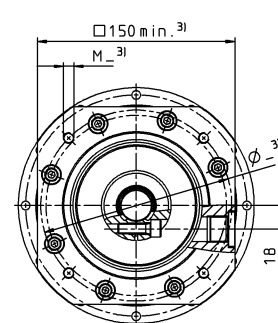
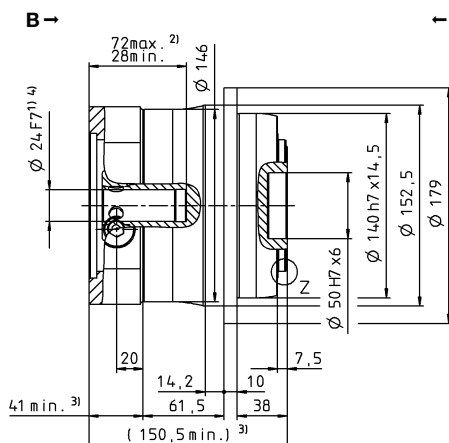
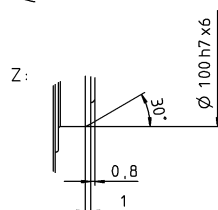
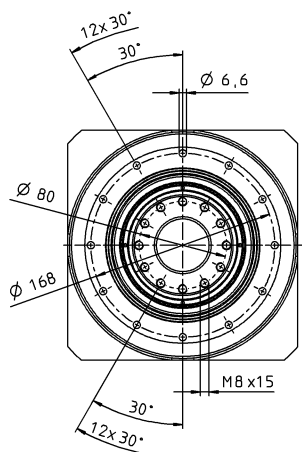
up to 24<sup>4)</sup> (G)  
clamping hub diameter



up to 32/38<sup>4)</sup>  
(I/K<sup>5)</sup>) clamping  
hub diameter



up to 48<sup>4)</sup> (M)  
clamping hub diameter



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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



# TP+ 050 MF 2-stage

				2-stage															
Ratio		<i>i</i>		16	20	21	25	28	31	32	35	40	50	61	64	70	91	100	
Max. torque <sup>a) b)</sup>		<i>T</i> <sub>2a</sub>	<i>Nm</i>	825	825	660	825	825	682	825	825	825	825	605	594	770	550	594	
			<i>in.lb</i>	7302	7302	5842	7302	7302	6036	7302	7302	7302	7302	5355	5257	6815	4868	5257	
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)		<i>T</i> <sub>2B</sub>	<i>Nm</i>	825	825	660	825	825	682	825	825	825	825	605	594	770	550	594	
			<i>in.lb</i>	7302	7302	5842	7302	7302	6036	7302	7302	7302	7302	5355	5257	6815	4868	5257	
Nominal torque (at <i>n</i> <sub>n</sub> )		<i>T</i> <sub>2N</sub>	<i>Nm</i>	461	493	393	489	545	431	464	541	607	585	425	475	598	440	475	
			<i>in.lb</i>	4078	4361	3476	4332	4824	3812	4104	4792	5370	5179	3765	4206	5291	3894	4206	
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)		<i>T</i> <sub>2Not</sub>	<i>Nm</i>	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	
			<i>in.lb</i>	11064	11064	11064	11064	11064	11064	11064	11064	11064	11064	11064	11064	11064	11064	11064	11064
Permitted average input speed (at <i>T</i> <sub>2N</sub> and 20 °C ambient temperature) <sup>c)</sup>		<i>n</i> <sub>1N</sub>	<i>rpm</i>	2900	2900	2900	2900	2900	2900	2900	2900	2900	3200	3200	3200	3200	3900	3900	
Max. input speed		<i>n</i> <sub>1Max</sub>	<i>rpm</i>	6250	6250	6250	6250	6250	6250	6250	6250	6250	6250	6250	6250	6250	6250	6250	
Mean no load running torque <sup>b)</sup> (at <i>n</i> <sub>i</sub> = 3000 rpm and 20 °C gearbox temperature)		<i>T</i> <sub>012</sub>	<i>Nm</i>	2.8	2.4	2.2	2.6	2.0	1.9	2.0	1.5	1.5	1.2	1.0	1.2	1.1	0.96	0.88	
			<i>in.lb</i>	25	22	20	23	17	17	17	14	13	11	8.9	11	9.9	8.5	7.8	
Max. backlash		<i>j</i> <sub>t</sub>	<i>arcmin</i>	Standard ≤ 3 / Reduced ≤ 1															
Torsional rigidity <sup>b)</sup>		<i>C</i> <sub>t21</sub>	<i>Nm/arcmin</i>	180	185	145	180	180	130	180	175	175	175	123	175	145	100	115	
			<i>in.lb/arcmin</i>	1593	1637	1283	1593	1593	1151	1593	1549	1549	1549	1089	1549	1283	885	1018	
Tilting rigidity		<i>C</i> <sub>2K</sub>	<i>Nm/arcmin</i>	560															
			<i>in.lb/arcmin</i>	4956															
Max. axial force <sup>c)</sup>		<i>F</i> <sub>2AMax</sub>	<i>N</i>	6130															
			<i>lb<sub>f</sub></i>	1379															
Max. tilting moment		<i>M</i> <sub>2KMax</sub>	<i>Nm</i>	1335															
			<i>in.lb</i>	11816															
Efficiency at full load		<i>η</i>	%	94															
Service life <sup>f)</sup>		<i>L</i> <sub>h</sub>	<i>h</i>	> 20000															
Weight (incl. standard adapter plate)		<i>m</i>	<i>kg</i>	14.1															
			<i>lb<sub>m</sub></i>	31.2															
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)		<i>L</i> <sub>PA</sub>	<i>dB(A)</i>	≤ 58															
Max. permitted housing temperature			°C	+90															
			<i>F</i>	194															
Ambient temperature			°C	-15 to +40															
			<i>F</i>	5 to 104															
Lubrication				Lubricated for life															
Direction of rotation				In- and output same 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] Optimized mass inertia version available on request	E	19	<i>J</i> <sub>i</sub>	<i>kgcm</i> <sup>2</sup>	2.53	2.08	2.30	2.01	1.67	2.12	1.67	1.64	1.44	1.42	1.46	1.51	1.41	1.43	1.40
				10 <sup>-3 in.lb.s</sup> <sup>2</sup>	2.24	1.84	2.04	1.78	1.48	1.88	1.48	1.45	1.27	1.26	1.29	1.34	1.25	1.27	1.24
	G	24	<i>J</i> <sub>i</sub>	<i>kgcm</i> <sup>2</sup>	3.22	2.77	2.99	2.70	2.37	2.81	2.37	2.33	2.13	2.12	2.15	2.20	2.10	2.12	2.09
				10 <sup>-3 in.lb.s</sup> <sup>2</sup>	2.85	2.45	2.65	2.39	2.10	2.49	2.10	2.06	1.89	1.88	1.90	1.95	1.86	1.88	1.85
	K	38	<i>J</i> <sub>i</sub>	<i>kgcm</i> <sup>2</sup>	10.3	9.83	10.1	9.77	9.43	9.88	9.43	9.40	9.20	9.18	9.22	9.50	9.17	9.19	9.16
				10 <sup>-3 in.lb.s</sup> <sup>2</sup>	9.12	8.70	8.94	8.65	8.35	8.74	8.35	8.32	8.14	8.12	8.16	8.41	8.12	8.13	8.11

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

<sup>a)</sup> At max. 10 %  $M_{2KMax}$

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

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

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

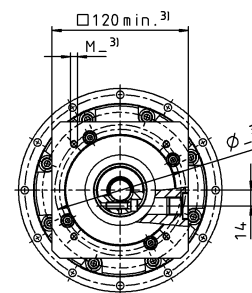
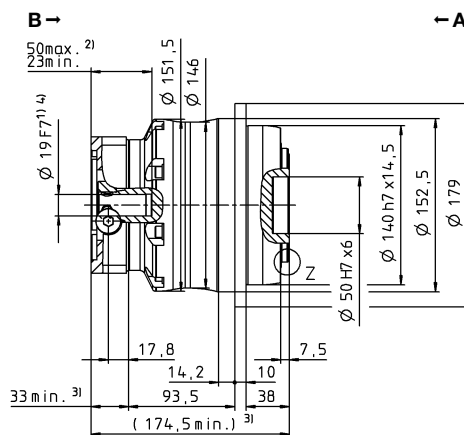
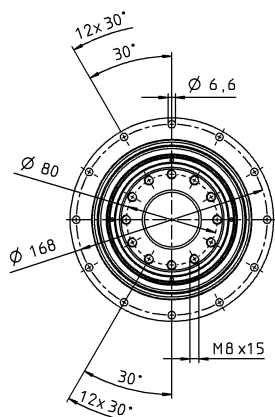
<sup>f)</sup> Please contact us to discuss  
application-specific service lifetimes

View A

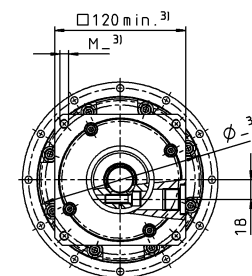
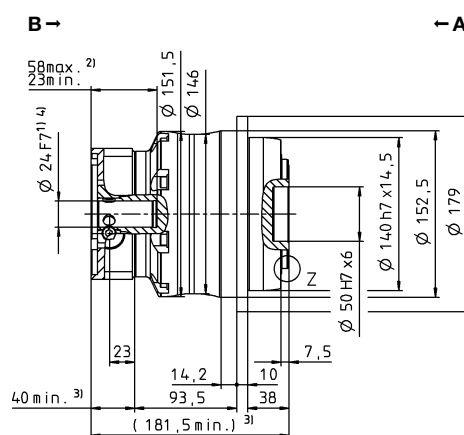
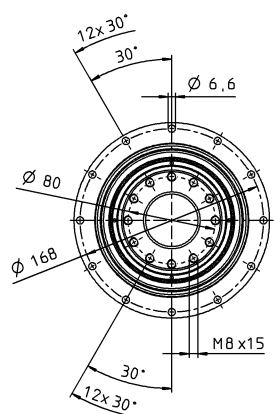
View B

# 2-stage

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

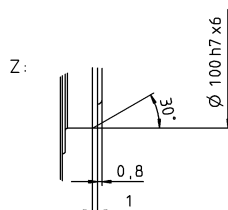
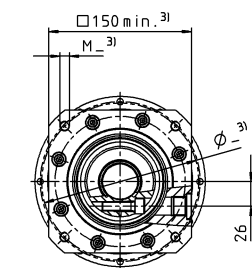
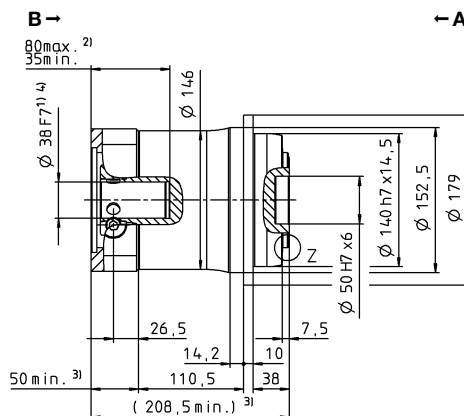
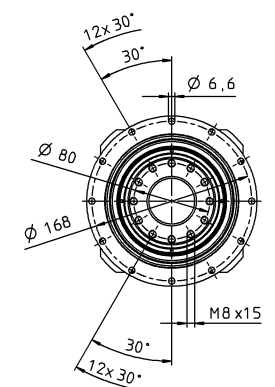


up to 24 <sup>4)</sup> (G) <sup>5)</sup>  
clamping hub  
diameter



Motor shaft diameter [mm]

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



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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

# TP+ 110 MF 1-stage

				1-stage					
Ratio			<i>i</i>		4	5	7	8	10
Max. torque <sup>a) b)</sup>			<i>T</i> <sub>2a</sub>	<i>Nm</i>	2560	2560	2560	2240	2240
				<i>in.lb</i>	22658	22658	22658	19826	19826
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)			<i>T</i> <sub>2B</sub>	<i>Nm</i>	1920	1920	1920	1680	1680
				<i>in.lb</i>	16994	16994	16994	14869	14869
Nominal torque (at <i>n</i> <sub>n</sub> )			<i>T</i> <sub>2N</sub>	<i>Nm</i>	946	919	861	861	901
				<i>in.lb</i>	8375	8134	7618	7618	7972
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)			<i>T</i> <sub>2Not</sub>	<i>Nm</i>	3075	3075	3075	3075	3075
				<i>in.lb</i>	27216	27216	27216	27216	27216
Permitted average input speed (at <i>T</i> <sub>2N</sub> and 20 °C ambient temperature) <sup>d)</sup>			<i>n</i> <sub>1N</sub>	<i>rpm</i>	1400	1500	2000	2000	2000
Max. input speed			<i>n</i> <sub>1Max</sub>	<i>rpm</i>	4500	4500	4500	4500	4500
Mean no load running torque <sup>b)</sup> (at <i>n</i> <sub>i</sub> = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> <sub>012</sub>	<i>Nm</i>	16	12	8.8	8.8	6.0
				<i>in.lb</i>	138	109	78	78	53
Max. backlash			<i>j</i> <sub>t</sub>	<i>arcmin</i>	Standard ≤ 3 / Reduced ≤ 1				
Torsional rigidity <sup>b)</sup>			<i>C</i> <sub>121</sub>	<i>Nm/arcmin</i>	610	610	550	445	445
				<i>in.lb/arcmin</i>	5399	5399	4868	3939	3939
Tilting rigidity			<i>C</i> <sub>2K</sub>	<i>Nm/arcmin</i>	1452				
				<i>in.lb/arcmin</i>	12851				
Max. axial force <sup>c)</sup>			<i>F</i> <sub>2AMax</sub>	<i>N</i>	10050				
				<i>lb<sub>f</sub></i>	2261				
Max. tilting moment			<i>M</i> <sub>2KMax</sub>	<i>Nm</i>	3280				
				<i>in.lb</i>	29031				
Efficiency at full load			<i>η</i>	%	97				
Service life <sup>f)</sup>			<i>L</i> <sub>h</sub>	<i>h</i>	> 20000				
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	30				
				<i>lb<sub>m</sub></i>	66.3				
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )			<i>L</i> <sub>PA</sub>	<i>dB(A)</i>	≤ 68				
Max. permitted housing temperature				°C	+90				
				<i>F</i>	194				
Ambient temperature				°C	–15 to +40				
				<i>F</i>	5 to 104				
Lubrication					Lubricated for life				
Direction of rotation					In- and output same direction				
Protection class					IP 65				
Metal bellows coupling (recommended product type – validate sizing with cymex <sup>®</sup> )					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] Optimized mass inertia version available on request	K	38	<i>J</i> <sub>i</sub>	<i>kgcm</i> <sup>2</sup>	44.5	34.6	25.5	25.5	20.6
				<i>10<sup>-3</sup> in.lb.s</i> <sup>2</sup>	39.4	30.6	22.6	22.6	18.2
	M	48	<i>J</i> <sub>i</sub>	<i>kgcm</i> <sup>2</sup>	58.8	41.9	32.9	32.9	28.0
				<i>10<sup>-3</sup> in.lb.s</i> <sup>2</sup>	52.0	37.1	29.1	29.1	24.8
	N	55	<i>J</i> <sub>i</sub>	<i>kgcm</i> <sup>2</sup>	61.5	51.5	42.3	42.3	37.3
				<i>10<sup>-3</sup> in.lb.s</i> <sup>2</sup>	54.4	45.6	37.4	37.4	33.0

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

<sup>a)</sup> At max. 10 %  $M_{2KMax}$

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

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

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

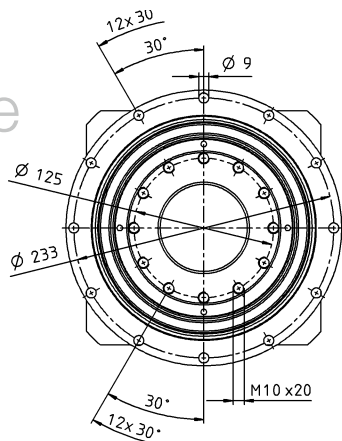
<sup>f)</sup> Please contact us to discuss  
application-specific service lifetimes

View A

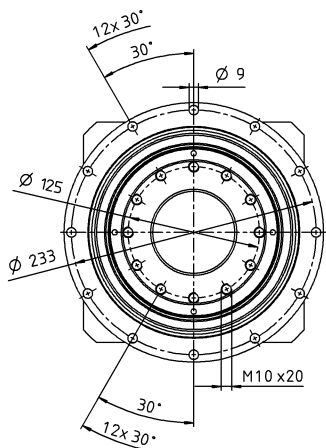
View B

# 1-stage

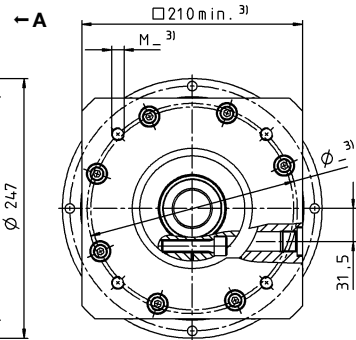
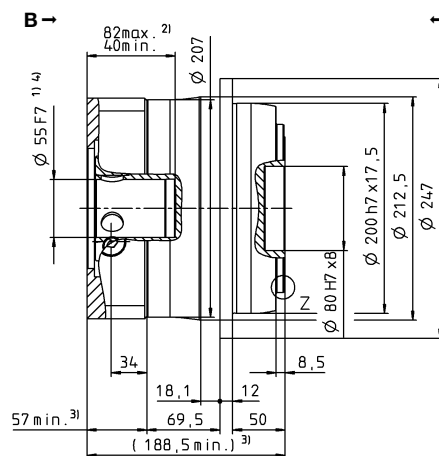
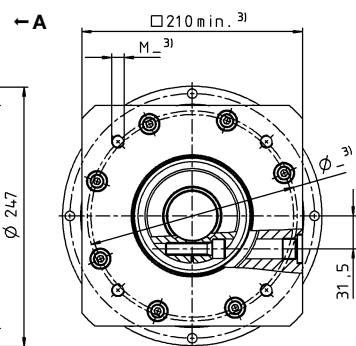
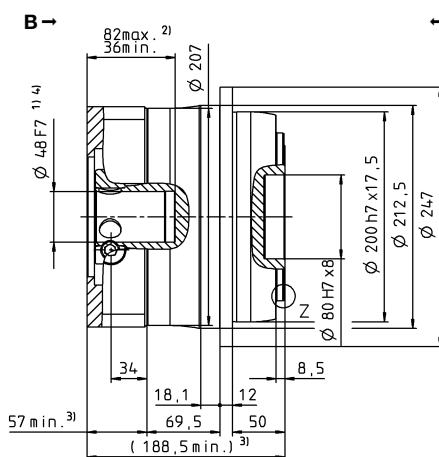
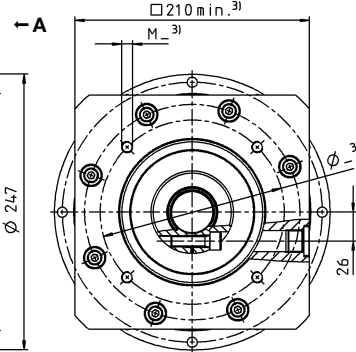
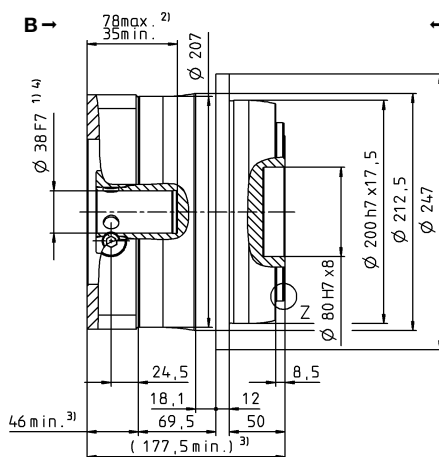
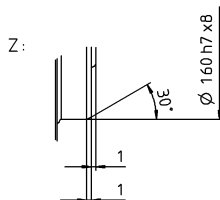
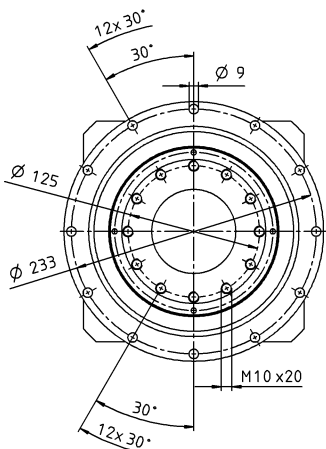
up to 38<sup>4)</sup> (K)  
clamping hub  
diameter



up to 48<sup>4)</sup> (M)<sup>5)</sup>  
clamping hub  
diameter



up to 55<sup>4)</sup> (N)  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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

# TP+ 110 MF 2-stage

				2-stage															
Ratio	<i>i</i>				16	20	21	25	28	31	32	35	40	50	61	64	70	91	100
Max. torque <sup>a) b)</sup>	<i>T</i> <sub>2a</sub>			<i>Nm</i>	1760	1760	1540	1760	1760	1760	1760	1760	1760	1760	1540	1540	1760	1430	1540
				<i>in.lb</i>	15577	15577	13630	15577	15577	15577	15577	15577	15577	15577	15577	13630	13630	15577	12657
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)	<i>T</i> <sub>2B</sub>			<i>Nm</i>	1760	1760	1540	1760	1760	1760	1760	1760	1760	1760	1540	1540	1760	1430	1540
				<i>in.lb</i>	15577	15577	13630	15577	15577	15577	15577	15577	15577	15577	15577	13630	13630	15577	12657
Nominal torque (at <i>n</i> <sub>N</sub> )	<i>T</i> <sub>2N</sub>			<i>Nm</i>	1205	1240	1023	1278	1257	1065	1221	1408	1315	1408	1232	1232	1408	1144	1232
				<i>in.lb</i>	10669	10976	9051	11312	11121	9422	10807	12462	11636	12462	10904	10904	12462	10125	10904
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	<i>T</i> <sub>2Not</sub>			<i>Nm</i>	3075	3075	3075	3075	3075	3075	3075	3075	3075	3075	3075	3075	3075	3075	3075
				<i>in.lb</i>	27216	27216	27216	27216	27216	27216	27216	27216	27216	27216	27216	27216	27216	27216	27216
Permitted average input speed (at <i>T</i> <sub>2N</sub> and 20 °C ambient temperature) <sup>c)</sup>	<i>n</i> <sub>1N</sub>			<i>rpm</i>	2500	2500	2500	2500	2500	2500	2500	2500	2500	2900	3200	2900	3200	3400	3400
Max. input speed	<i>n</i> <sub>1Max</sub>			<i>rpm</i>	5625	5625	5625	5625	5625	5625	5625	5625	5625	5625	5625	5625	5625	5625	5625
Mean no load running torque <sup>b)</sup> (at <i>n</i> <sub>i</sub> = 3000 rpm and 20 °C gearbox temperature)	<i>T</i> <sub>012</sub>			<i>Nm</i>	7.0	5.8	5.2	5.2	4.5	4.4	4.5	3.1	3.0	2.5	2.1	2.5	2.0	1.8	1.8
				<i>in.lb</i>	52	52	46	46	40	39	40	28	27	22	18	22	18	16	16
Max. backlash	<i>j</i> <sub>t</sub>			<i>arcmin</i>	Standard ≤ 3 / Reduced ≤ 1														
Torsional rigidity <sup>b)</sup>	<i>C</i> <sub>t21</sub>			<i>Nm/arcmin</i>	585	580	465	570	560	440	560	560	520	525	415	525	480	360	395
				<i>in.lb/arcmin</i>	5178	5133	4116	5045	4956	3894	4956	4956	4602	4647	3673	4647	4248	3186	3496
Tilting rigidity	<i>C</i> <sub>2K</sub>			<i>Nm/arcmin</i>	1452														
				<i>in.lb/arcmin</i>	12851														
Max. axial force <sup>c)</sup>	<i>F</i> <sub>2AMax</sub>			<i>N</i>	10050														
				<i>lb<sub>f</sub></i>	2261														
Max. tilting moment	<i>M</i> <sub>2KMax</sub>			<i>Nm</i>	3280														
				<i>in.lb</i>	29031														
Efficiency at full load	<i>η</i>			%	94														
Service life <sup>f)</sup>	<i>L</i> <sub>h</sub>			<i>h</i>	> 20000														
Weight (incl. standard adapter plate)	<i>m</i>			<i>kg</i>	34														
				<i>lb<sub>m</sub></i>	75.1														
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	<i>L</i> <sub>PA</sub>			<i>dB(A)</i>	≤ 61														
Max. permitted housing temperature				°C	+90														
				<i>F</i>	194														
Ambient temperature				°C	-15 to +40														
				<i>F</i>	5 to 104														
Lubrication					Lubricated for life														
Direction of rotation					In- and output same 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] Optimized mass inertia version available on request	G	24	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	8.51	8.21	8.98	7.82	6.57	8.09	6.57	6.37	5.63	5.54	5.63	5.78	5.44	5.51	5.40
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	7.53	7.27	7.95	6.92	5.81	7.16	5.81	5.64	4.98	4.90	4.98	5.12	4.81	4.88	4.78
	I	32	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	11.7	11.4	12.1	11.0	9.73	11.3	9.73	9.54	8.80	8.70	8.80	8.95	8.61	8.67	8.56
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	10.4	10.1	10.7	9.74	8.61	10.0	8.61	8.44	7.79	7.70	7.79	7.92	7.62	7.67	7.58
	K	38	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	12.7	12.5	13.2	12.1	10.8	12.3	10.8	10.6	9.87	9.77	9.87	10.0	9.68	9.74	9.63
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	11.2	11.1	11.7	10.7	9.56	10.9	9.56	9.39	8.73	8.65	8.73	8.87	8.57	8.62	8.52
	M	48	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	27.4	27.1	27.8	26.7	25.4	26.9	25.4	25.3	24.5	24.4	24.5	24.9	24.3	24.4	24.3
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	24.3	24.0	24.6	23.6	22.5	23.8	22.5	22.4	21.7	21.6	21.7	22.0	21.5	21.6	21.5

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

<sup>a)</sup> At max. 10 %  $M_{2KMax}$

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

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

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

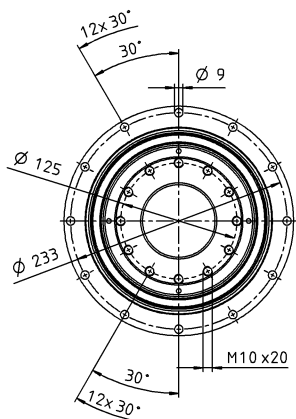
<sup>f)</sup> Please contact us to discuss  
application-specific service lifetimes

View A

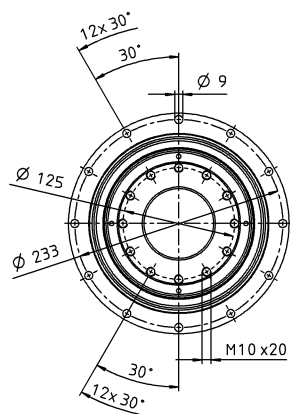
View B

# 2-stage

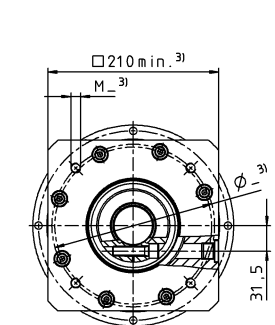
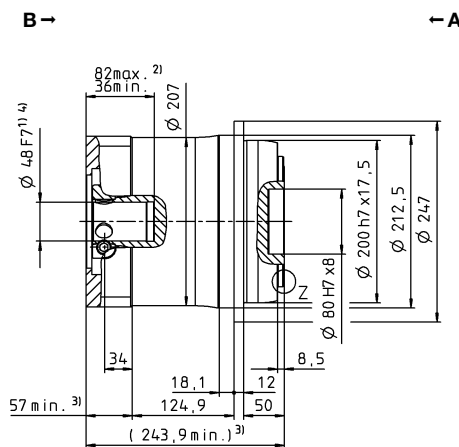
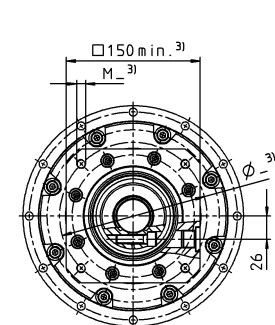
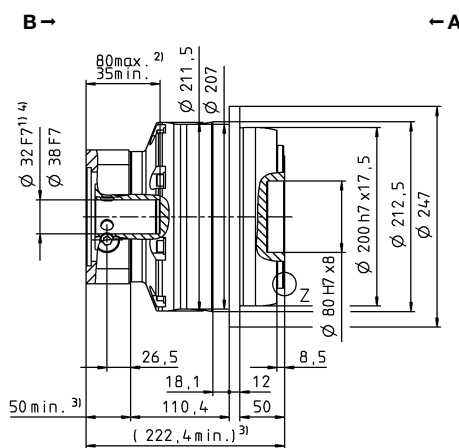
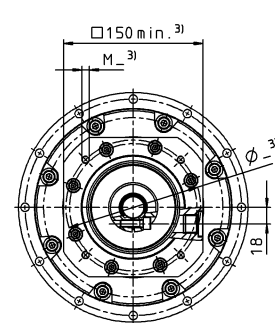
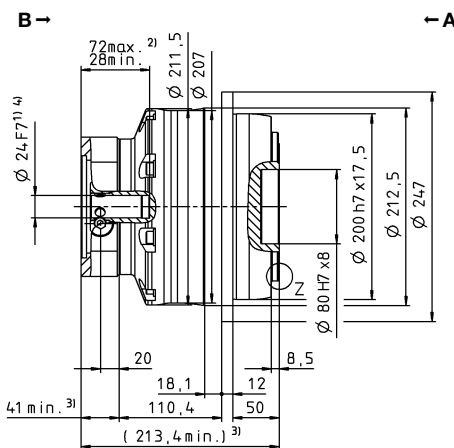
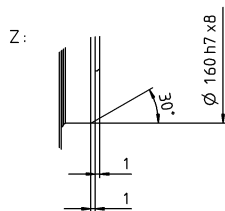
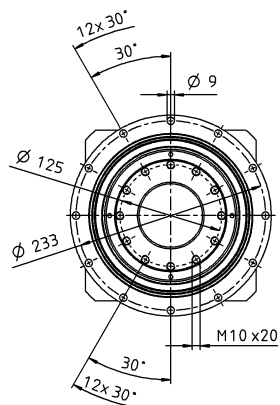
up to 24<sup>4)</sup> (G)  
clamping hub diameter



up to 32/38<sup>4)</sup>  
(I/K<sup>5)</sup>) clamping  
hub diameter



up to 48<sup>4)</sup> (M)  
clamping hub diameter



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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

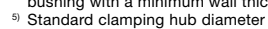
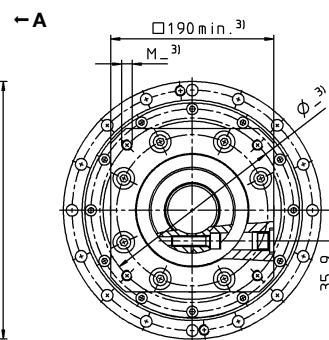
# TP+ 300 MF 1-stage

				1-stage				
Ratio		$i$		5	7	8	10	
Max. torque <sup>a) b)</sup>		$T_{2a}$	$Nm$ $in.lb$	5600 49564	5250 46467	2800 24782	2800 24782	
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)		$T_{2B}$	$Nm$ $in.lb$	4200 37173	3960 35049	2280 20180	2280 20180	
Nominal torque (at $n_n$ )		$T_{2N}$	$Nm$ $in.lb$	1996 17666	1835 16242	1815 16063	1794 15878	
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)		$T_{2Not}$	$Nm$ $in.lb$	9900 87623	9900 87623	8557 75733	8750 77445	
Permitted average input speed (at $T_{2a}$ and 20 °C ambient temperature) <sup>d)</sup>		$n_{1N}$	$rpm$	1000	1400	1400	1700	
Max. input speed		$n_{1Max}$	$rpm$	3000	3000	3000	3000	
Mean no load running torque <sup>b)</sup> (at $n_i$ = 2000 rpm and 20 °C gearbox temperature)		$T_{012}$	$Nm$ $in.lb$	20 177	14 120	14 120	8.8 78	
Max. backlash		$j_t$	$arcmin$	Standard ≤ 3 / Reduced ≤ 1				
Torsional rigidity <sup>b)</sup>		$C_{t21}$	$Nm/arcmin$ $in.lb/arcmin$	1000 8851	900 7966	700 6196	700 6196	
Tilting rigidity		$C_{2K}$	$Nm/arcmin$ $in.lb/arcmin$	5560 49210				
Max. axial force <sup>c)</sup>		$F_{2AMax}$	$N$ $lb_f$	33000 7425				
Max. tilting moment		$M_{2KMax}$	$Nm$ $in.lb$	3900 34518				
Efficiency at full load		$\eta$	%	95				
Service life <sup>f)</sup>		$L_h$	$h$	> 20000				
Weight (incl. standard adapter plate)		$m$	$kg$ $lb_m$	60 132.6				
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)		$L_{PA}$	$dB(A)$	≤ 64				
Max. permitted housing temperature			°C $F$	+90 194				
Ambient temperature			°C $F$	–15 to +40 5 to 104				
Lubrication				Lubricated for life				
Direction of rotation				In- and output same 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] Optimized mass inertia version available on request	N	55	$J_i$	$kgcm^2$	82.6	61.2	61.2	49.5
				$10^{-3} in.lb.s^2$	73.1	54.2	54.2	43.8

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

- <sup>a)</sup> At max. 10 %  $M_{2KMax}$   
<sup>b)</sup> Valid for standard clamping hub diameter  
<sup>c)</sup> Refers to center of the output shaft or flange  
<sup>d)</sup> Please reduce input speed at higher ambient temperatures  
<sup>f)</sup> Please contact us to discuss application-specific service lifetimes

up to 55 <sup>4)</sup> (N) <sup>5)</sup>  
clamping hub  
diameter





# TP+ 300 MF 2-stage

				2-stage											
Ratio	<i>i</i>			20	21	25	31	32	35	50	61	64	70	91	100
Max. torque <sup>a) b)</sup>	$T_{2a}$	Nm		3850	3740	3949	3850	3630	3949	3600	3080	2800	3630	2800	2800
		in.lb		34076	33102	34947	34076	32128	34947	31863	27260	24782	32128	24782	24782
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)	$T_{2B}$	Nm		3850	3740	3949	3850	3630	3949	3600	3080	2800	3630	2800	2800
		in.lb		34076	33102	34952	34076	32128	34952	31863	27260	24782	32128	24782	24782
Nominal torque (at $n_n$ )	$T_{2N}$	Nm		1354	1456	1676	2114	2353	1710	1722	2070	2240	2339	2240	2240
		in.lb		11981	12888	14834	18709	20823	15131	15238	18320	19826	20698	19826	19826
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm		9900	9870	9900	9156	9900	9900	9900	9008	9900	9900	8750	8750
		in.lb		87623	87357	87623	81035	87623	87623	87623	79728	87623	87623	77445	77445
Permitted average input speed (at $T_{2N}$ and 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm		2000	2000	2000	2000	2000	2000	2300	2400	2300	2400	2500	2500
Max. input speed	$n_{1Max}$	rpm		4375	4375	4375	4375	4375	4375	4375	4375	4375	4375	4375	4375
Mean no load running torque <sup>b)</sup> (at $n_i = 2000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm		6.7	5.5	5.5	4.8	5.5	4.0	3.8	2.8	3.8	3.0	2.8	2.4
		in.lb		59	49	48	43	48	35	34	25	34	26	25	21
Max. backlash	$j_t$	arcmin		Standard $\leq 3$ / Reduced $\leq 2$											
Torsional rigidity <sup>b)</sup>	$C_{t21}$	Nm/arcmin		850	800	950	750	950	900	800	700	800	800	600	650
		in.lb/arcmin		7523	7081	8408	6638	8408	7966	7081	6196	7081	7081	5310	5753
Tilting rigidity	$C_{2K}$	Nm/arcmin		5560											
		in.lb/arcmin		49210											
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N		33000											
		lb <sub>f</sub>		7425											
Max. tilting moment	$M_{2KMax}$	Nm		5900											
		in.lb		52220											
Efficiency at full load	$\eta$	%		94											
Service life <sup>f)</sup>	$L_h$	h		> 20000											
Weight (incl. standard adapter plate)	$m$	kg		58.5											
		lb <sub>m</sub>		129.3											
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)		$\leq 61$											
Max. permitted housing temperature		°C		+90											
		F		194											
Ambient temperature		°C		-15 to +40											
		F		5 to 104											
Lubrication				Lubricated for life											
Direction of rotation				In- and output same direction											
Protection class				IP 65											
Metal bellows coupling (recommended product type – validate sizing with cymex <sup>®</sup> )				–											
Bore diameter of coupling on the application side		mm		–											
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	M 48	$J_i$	kgcm <sup>2</sup>	27.5	27.0	25.9	25.6	22.4	22.4	21.5	21.4	25.8	21.3	21.2	21.2
			10 <sup>-3</sup> in.lb.s <sup>2</sup>	24.3	23.9	22.9	22.7	19.8	19.8	19.0	18.9	22.8	18.9	18.8	18.8

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

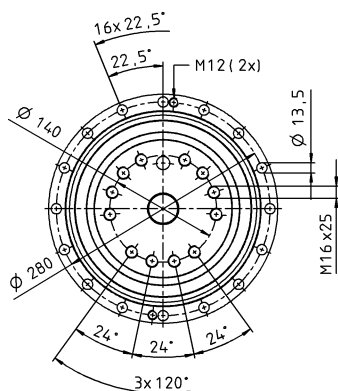
- <sup>a)</sup> At max. 10 %  $M_{2KMax}$   
<sup>b)</sup> Valid for standard clamping hub diameter  
<sup>c)</sup> Refers to center of the output shaft or flange  
<sup>d)</sup> Please reduce input speed at higher ambient temperatures  
<sup>f)</sup> Please contact us to discuss application-specific service lifetimes

View A

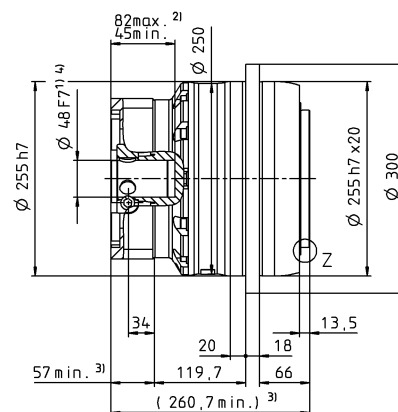
View B

Motor shaft diameter [mm]

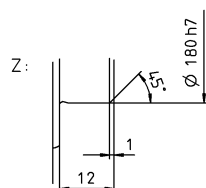
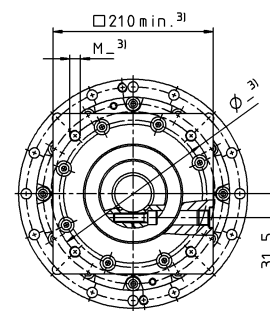
2-stage

up to 48 <sup>4)</sup> (M) <sup>5)</sup>  
clamping hub  
diameter


B →



← A



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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

# TP+ 500 MF 1-stage

			1-stage			
Ratio	<i>i</i>		5	7	8	10
Max. torque <sup>a) b)</sup>	$T_{2a}$	Nm	9600	6790	4000	4000
		in.lb	84968	60097	35403	35403
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)	$T_{2B}$	Nm	7200	6000	4000	4000
		in.lb	63726	53105	35403	35403
Nominal torque (at $n_n$ )	$T_{2N}$	Nm	3131	2857	2830	2840
		in.lb	27711	25286	25049	25135
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	15000	15000	15000	15000
		in.lb	132762	132762	132762	132762
Permitted average input speed (at $T_{2N}$ and 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm	900	1300	1300	1500
Max. input speed	$n_{1Max}$	rpm	3000	3000	3000	3000
Mean no load running torque <sup>b)</sup> (at $n_i = 2000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm	27	19	19	12
		in.lb	242	170	170	110
Max. backlash	$j_t$	arcmin	Standard $\leq 3$ / Reduced $\leq 1$			
Torsional rigidity <sup>b)</sup>	$C_{t21}$	Nm/arcmin	1450	1300	1100	1100
		in.lb/arcmin	12834	11506	9736	9736
Tilting rigidity	$C_{2K}$	Nm/arcmin	9480			
		in.lb/arcmin	83906			
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N	50000			
		lb <sub>f</sub>	11250			
Max. tilting moment	$M_{2KMax}$	Nm	5500			
		in.lb	48679			
Efficiency at full load	$\eta$	%	95			
Service life <sup>f)</sup>	$L_h$	h	> 20000			
Weight (incl. standard adapter plate)	$m$	kg	82			
		lb <sub>m</sub>	181.2			
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	$\leq 64$			
Max. permitted housing temperature		°C	+90			
		F	194			
Ambient temperature		°C	-15 to +40			
		F	5 to 104			
Lubrication			Lubricated for life			
Direction of rotation			In- and output same direction			
Protection class			IP 65			
Metal bellows coupling (recommended product type – validate sizing with cymex <sup>®</sup> )			–			
Bore diameter of coupling on the application side		mm	–			
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	O 60 $J_1$	kgcm <sup>2</sup>	182	142	142	120
		10 <sup>-3</sup> in.lb.s <sup>2</sup>	161	126	126	106

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

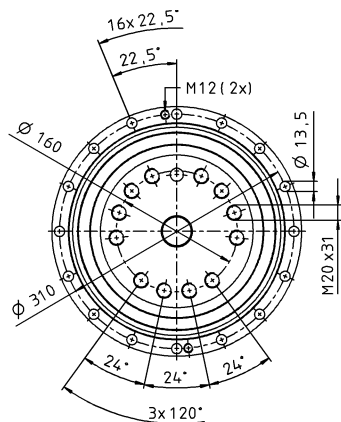
- <sup>a)</sup> At max. 10 %  $M_{2KMax}$   
<sup>b)</sup> Valid for standard clamping hub diameter  
<sup>c)</sup> Refers to center of the output shaft or flange  
<sup>d)</sup> Please reduce input speed at higher ambient temperatures  
<sup>f)</sup> Please contact us to discuss application-specific service lifetimes

View A

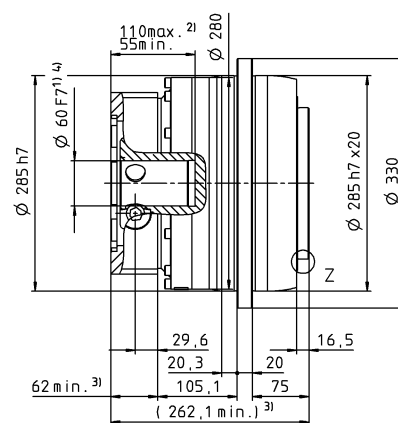
View B

Motor shaft diameter [mm]

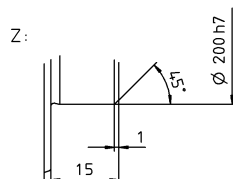
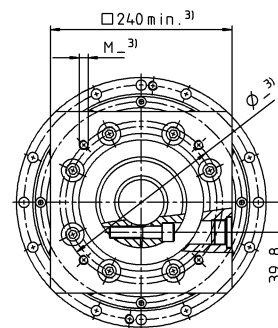
1-stage

up to 60 <sup>4)</sup> (O) <sup>5)</sup>  
clamping hub  
diameter


B →



← A



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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

TP+

MF

Planetary gearboxes

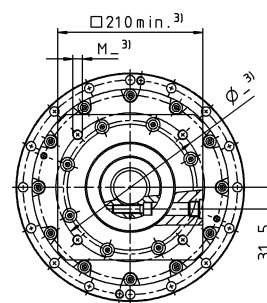
# TP+ 500 MF 2-stage

				2-stage												
Ratio	<i>i</i>			20	21	25	31	32	35	50	61	64	70	91	100	
Max. torque <sup>a) b)</sup>	<i>T</i> <sub>2a</sub>	<i>Nm</i>		5446	5718	6808	6354	5500	6808	4975	5280	4800	5500	4800	4800	
		<i>in.lb</i>		48202	50612	60252	56239	48679	60252	44033	46732	42484	48679	42484	42484	
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)	<i>T</i> <sub>2B</sub>	<i>Nm</i>		5446	5718	6808	6324	5500	6808	4975	5280	4800	5500	4800	4800	
		<i>in.lb</i>		48202	50612	60252	56239	48679	60252	44033	46732	42484	48679	42484	42484	
Nominal torque (at <i>n</i> <sub>n</sub> )	<i>T</i> <sub>2N</sub>	<i>Nm</i>		3026	3270	3729	4086	4376	3828	3697	4224	3840	4400	3840	3840	
		<i>in.lb</i>		26785	28944	33002	36160	38730	33878	32720	37386	33987	38944	33987	33987	
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	<i>T</i> <sub>2Not</sub>	<i>Nm</i>		15000	13928	15000	10854	15000	15000	15000	10678	15000	15000	15000	15000	
		<i>in.lb</i>		132762	123274	132762	96063	132762	132762	132762	94513	132762	132762	132762	132762	
Permitted average input speed (at <i>T</i> <sub>2a</sub> and 20 °C ambient temperature) <sup>d)</sup>	<i>n</i> <sub>1N</sub>	<i>rpm</i>		1500	1500	1500	1500	1500	1500	2000	2100	2000	2100	2200	2200	
Max. input speed	<i>n</i> <sub>1Max</sub>	<i>rpm</i>		4375	4375	4375	4375	4375	4375	4375	4375	4375	4375	4375	4375	
Mean no load running torque <sup>b)</sup> (at <i>n</i> <sub>i</sub> = 2000 rpm and 20 °C gearbox temperature)	<i>T</i> <sub>012</sub>	<i>Nm</i>		10	9.6	9.2	7.0	9.2	7.0	5.8	3.4	5.8	4.5	3.5	3.6	
		<i>in.lb</i>		92	85	81	62	81	62	51	30	51	40	31	32	
Max. backlash	<i>j</i> <sub>t</sub>	<i>arcmin</i>		Standard ≤ 3 / Reduced ≤ 2												
Torsional rigidity <sup>b)</sup>	<i>C</i> <sub>121</sub>	<i>Nm/arcmin</i>		1400	1200	1450	1200	1450	1400	1300	1100	1300	1250	950	1050	
		<i>in.lb/arcmin</i>		12391	10621	12834	10621	12834	12391	11506	9736	11506	11064	8408	9293	
Tilting rigidity	<i>C</i> <sub>2K</sub>	<i>Nm/arcmin</i>		9480												
		<i>in.lb/arcmin</i>		83906												
Max. axial force <sup>c)</sup>	<i>F</i> <sub>2AMax</sub>	<i>N</i>		50000												
		<i>lb<sub>f</sub></i>		11250												
Max. tilting moment	<i>M</i> <sub>2KMax</sub>	<i>Nm</i>		8800												
		<i>in.lb</i>		77887												
Efficiency at full load	<i>η</i>	%		94												
Service life <sup>f)</sup>	<i>L</i> <sub>n</sub>	<i>h</i>		> 20000												
Weight (incl. standard adapter plate)	<i>m</i>	<i>kg</i>		77.5												
		<i>lb<sub>m</sub></i>		171.3												
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	<i>L</i> <sub>PA</sub>	<i>dB(A)</i>		≤ 60												
Max. permitted housing temperature		°C		+90												
		<i>F</i>		194												
Ambient temperature		°C		–15 to +40												
		<i>F</i>		5 to 104												
Lubrication				Lubricated for life												
Direction of rotation				In- and output same 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] Optimized mass inertia version available on request	M	48	<i>J</i> <sub>i</sub>	<i>kgcm²</i>	24.8	35.9	40.2	33.7	35.4	27.4	27.4	25.4	25.8	31.0	25.0	25.2
				10 <sup>-3</sup> <i>in.lb.s²</i>	21.9	31.8	35.6	29.8	31.3	24.2	24.2	22.5	22.8	27.4	22.1	22.3

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

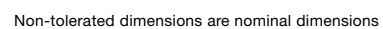
- <sup>a)</sup> At max. 10 %  $M_{2KMax}$   
<sup>b)</sup> Valid for standard clamping hub diameter  
<sup>c)</sup> Refers to center of the output shaft or flange  
<sup>d)</sup> Please reduce input speed at higher ambient temperatures  
<sup>f)</sup> Please contact us to discuss application-specific service lifetimes

up to 48 <sup>4)</sup> (M) <sup>5)</sup>  
clamping hub  
diameter



Tip+

MF



- 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 wall thickness of 1 mm

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

# TP+ 010 MA 2-/3-stage

				2-stage				3-stage						
Ratio			<i>i</i>		22	27.5	38.5	55	88	110	154	220		
Max. torque <sup>a) b)</sup>			<i>T</i> <sub>2a</sub>	Nm	315	315	315	315	315	315	315	315		
				in.lb	2788	2788	2788	2788	2788	2788	2788	2788	2788	
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)			<i>T</i> <sub>2B</sub>	Nm	230	230	230	230	230	230	230	230		
				in.lb	2036	2036	2036	2036	2036	2036	2036	2036	2036	
Nominal torque (at <i>n</i> <sub>n</sub> )			<i>T</i> <sub>2N</sub>	Nm	140	137	139	147	184	184	181	184		
				in.lb	1242	1213	1230	1303	1629	1629	1599	1629	1629	
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)			<i>T</i> <sub>2Not</sub>	Nm	525	525	525	525	525	525	525	525		
				in.lb	4647	4647	4647	4647	4647	4647	4647	4647	4647	
Permitted average input speed (at <i>T</i> <sub>2N</sub> and 20 °C ambient temperature) <sup>c)</sup>			<i>n</i> <sub>1N</sub>	rpm	4000	4000	4000	4000	4500	4500	4500	4500		
Max. input speed			<i>n</i> <sub>1Max</sub>	rpm	7500	7500	7500	7500	7500	7500	7500	7500		
Mean no load running torque <sup>b)</sup> (at <i>n</i> <sub>i</sub> = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> <sub>012</sub>	Nm	0.52	0.47	0.41	0.38	0.28	0.26	0.22	0.18		
				in.lb	4.6	4.2	4.0	3.4	2.5	2.3	1.9	1.6		
Max. backlash			<i>j</i> <sub>t</sub>	arcmin	≤ 1									
Torsional rigidity <sup>b)</sup>			<i>C</i> <sub>t21</sub>	Nm/arcmin	43	43	43	42	42	42	42	42		
				in.lb/arcmin	381	381	381	372	372	372	372	372	372	
Tilting rigidity			<i>C</i> <sub>2K</sub>	Nm/arcmin	225									
				in.lb/arcmin	1991									
Max. axial force <sup>c)</sup>			<i>F</i> <sub>2AMax</sub>	N	2795									
				lb <sub>f</sub>	629									
Max. tilting moment			<i>M</i> <sub>2KMax</sub>	Nm	400									
				in.lb	3540									
Efficiency at full load			<i>η</i>	%	94									
Service life <sup>f)</sup>			<i>L</i> <sub>h</sub>	h	> 20000									
Weight (incl. standard adapter plate)			<i>m</i>	kg	3.2				3.6					
				lb <sub>m</sub>	7.1				8.0					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )			<i>L</i> <sub>PA</sub>	dB(A)	≤ 56									
Max. permitted housing temperature				°C	+90									
				F	194									
Ambient temperature				°C	–15 to +40									
				F	5 to 104									
Lubrication					Lubricated for life									
Direction of rotation					In- and output same direction									
Protection class					IP 65									
Metal bellows coupling (recommended product type – validate sizing with cymex <sup>®</sup> )					BCT-00150AAX-050.00									
Bore diameter of coupling on the application side				mm	X = 016.000 - 038.000									
Mass moment of inertia (relates to the drive)  Clamping hub diameter [mm]  Optimized mass inertia version available on request			C	14	<i>J</i> <sub>1</sub>	kgcm <sup>2</sup>	0.21	0.18	0.16	0.14	0.16	0.15	0.14	0.13
						10 <sup>–3</sup> in.lb.s <sup>2</sup>	0.19	0.16	0.14	0.12	0.14	0.13	0.12	0.12
			E	19	<i>J</i> <sub>1</sub>	kgcm <sup>2</sup>	0.52	0.50	0.47	0.46	-	-	-	-
						10 <sup>–3</sup> in.lb.s <sup>2</sup>	0.46	0.44	0.42	0.41	-	-	-	-

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

<sup>a)</sup> At max. 10 %  $M_{2KMax}$

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

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

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

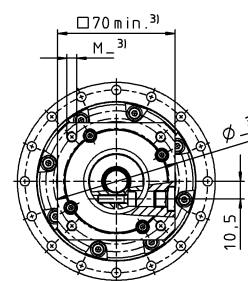
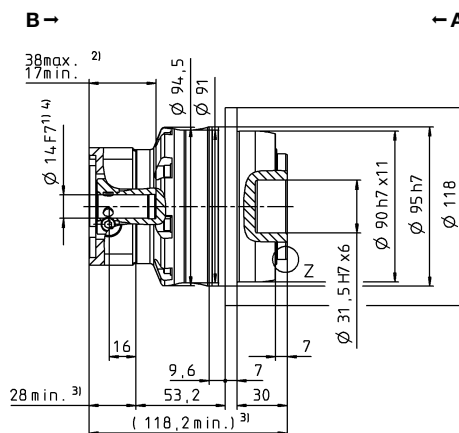
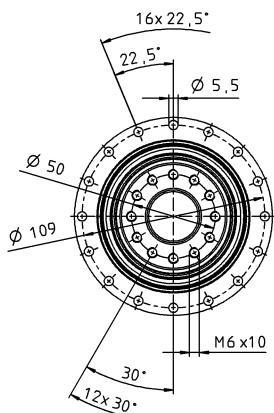
<sup>f)</sup> Please contact us to discuss  
application-specific service lifetimes

View A

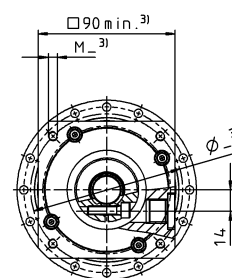
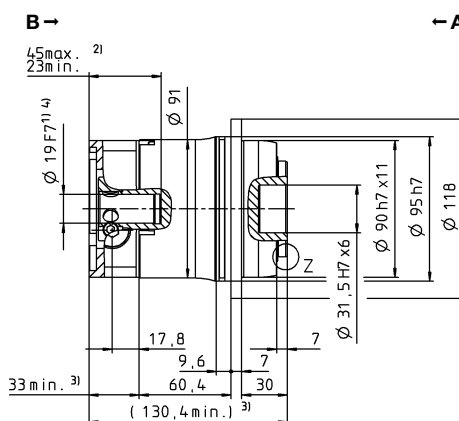
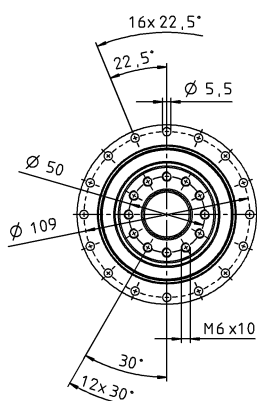
View B

# 2-stage

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



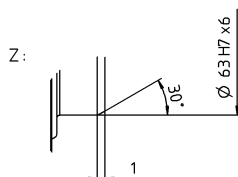
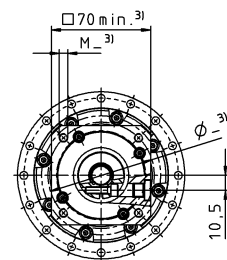
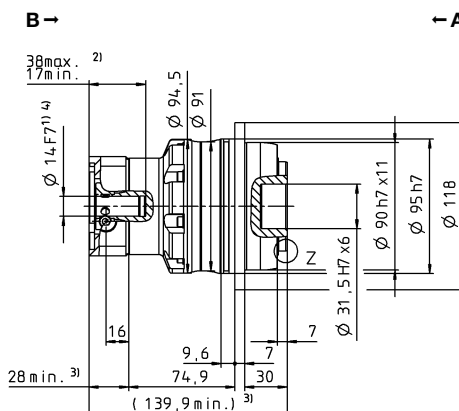
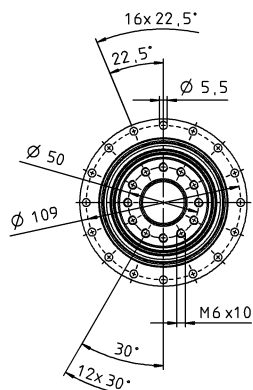
up to 19<sup>4)</sup> (E)  
clamping hub  
diameter



Motor shaft diameter [mm]

# 3-stage

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



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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



# TP+ 025 MA 2-/3-stage

				2-stage				3-stage					
Ratio			<i>i</i>		22	27.5	38.5	55	66	88	110	154	220
Max. torque <sup>a) b)</sup>			<i>T</i> <sub>2a</sub>	<i>Nm</i>	583	583	583	583	525	525	525	525	525
				<i>in.lb</i>	5160	5160	5160	5160	4645	4645	4645	4645	4645
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)			<i>T</i> <sub>2B</sub>	<i>Nm</i>	530	530	530	530	480	480	480	480	480
				<i>in.lb</i>	4691	4691	4691	4691	4248	4248	4248	4248	4248
Nominal torque (at <i>n</i> <sub>n</sub> )			<i>T</i> <sub>2N</sub>	<i>Nm</i>	312	314	371	413	260	276	296	330	364
				<i>in.lb</i>	2762	2775	3286	3652	2304	2447	2617	2920	3222
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)			<i>T</i> <sub>2Not</sub>	<i>Nm</i>	1200	1200	1200	1200	1200	1200	1200	1200	1200
				<i>in.lb</i>	10621	10621	10621	10621	10621	10621	10621	10621	10621
Permitted average input speed (at <i>T</i> <sub>2N</sub> and 20 °C ambient temperature) <sup>d)</sup>			<i>n</i> <sub>1N</sub>	<i>rpm</i>	3500	3500	3500	3500	4000	4000	4000	4000	4000
Max. input speed			<i>n</i> <sub>1Max</sub>	<i>rpm</i>	7500	7500	7500	7500	7500	7500	7500	7500	7500
Mean no load running torque <sup>b)</sup> (at <i>n</i> <sub>i</sub> = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> <sub>012</sub>	<i>Nm</i>	1.0	0.87	0.78	0.70	0.62	0.52	0.44	0.35	0.27
				<i>in.lb</i>	9.2	7.7	6.9	6.2	5.5	4.6	3.9	3.1	2.4
Max. backlash			<i>j</i> <sub>t</sub>	<i>arcmin</i>	≤ 1								
Torsional rigidity <sup>b)</sup>			<i>C</i> <sub>t21</sub>	<i>Nm/arcmin</i>	105	105	105	100	95	95	95	95	95
				<i>in.lb/arcmin</i>	929	929	929	885	841	841	841	841	841
Tilting rigidity			<i>C</i> <sub>2K</sub>	<i>Nm/arcmin</i>	550								
				<i>in.lb/arcmin</i>	4868								
Max. axial force <sup>c)</sup>			<i>F</i> <sub>2AMax</sub>	<i>N</i>	4800								
				<i>lb<sub>f</sub></i>	1080								
Max. tilting moment			<i>M</i> <sub>2KMax</sub>	<i>Nm</i>	550								
				<i>in.lb</i>	4868								
Efficiency at full load			<i>η</i>	%	94								
Service life <sup>f)</sup>			<i>L</i> <sub>h</sub>	<i>h</i>	> 20000								
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	5.6				6.1				
				<i>lb<sub>m</sub></i>	12.4				13.5				
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> <sub>PA</sub>	<i>dB(A)</i>	≤ 58				≤ 56				
Max. permitted housing temperature				°C	+90								
				<i>F</i>	194								
Ambient temperature				°C	–15 to +40								
				<i>F</i>	5 to 104								
Lubrication					Lubricated for life								
Direction of rotation					In- and output same direction								
Protection class					IP 65								
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BCT-00300AAX-063.00								
Bore diameter of coupling on the application side				<i>mm</i>	X = 030.000 - 056.000								
Mass moment of inertia (relates to the drive)		E 19	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	0.87	0.7	0.6	0.55	0.63	0.56	0.53	0.51	0.50
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	0.77	0.62	0.53	0.49	0.56	0.50	0.47	0.45	0.44
Clamping hub diameter [mm] Optimized mass inertia version available on request		G 24	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	2.39	2.22	2.12	2.07	-	-	-	-	-
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	2.12	1.96	1.88	1.83	-	-	-	-	-

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

<sup>a)</sup> At max. 10 %  $M_{2KMax}$

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

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

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

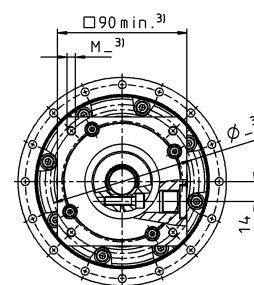
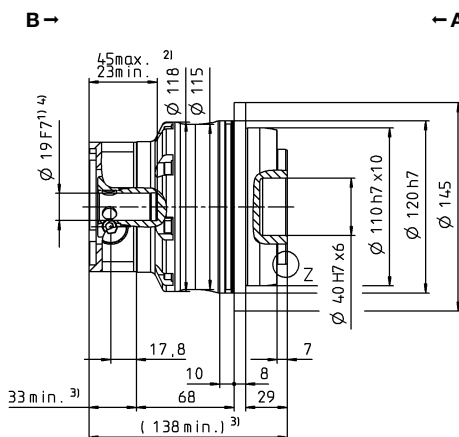
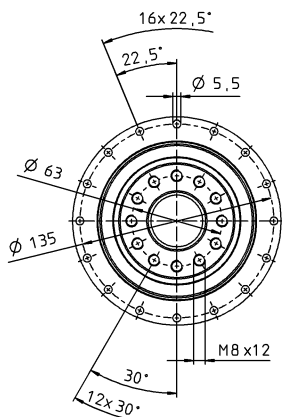
<sup>f)</sup> Please contact us to discuss  
application-specific service lifetimes

View A

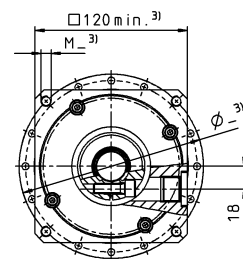
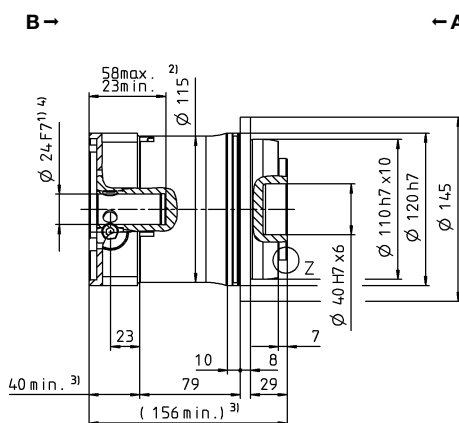
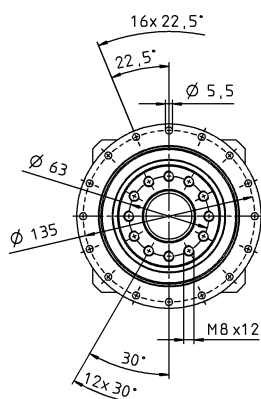
View B

# 2-stage

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



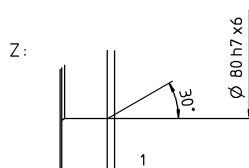
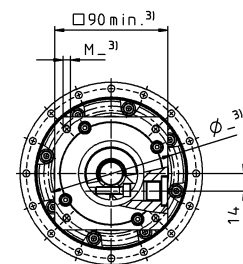
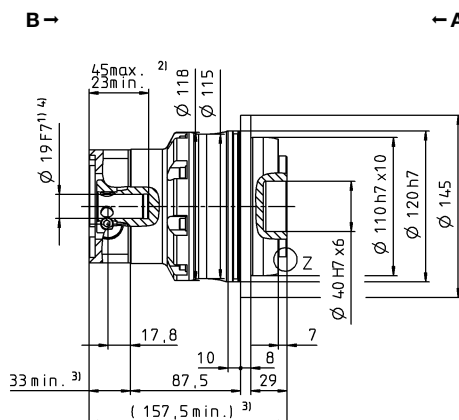
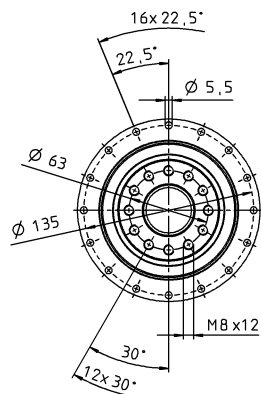
up to 24<sup>4)</sup> (G)  
clamping hub  
diameter



Motor shaft diameter [mm]

# 3-stage

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



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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

# TP+ 050 MA 2-/3-stage

				2-stage				3-stage						
Ratio			<i>i</i>		22	27.5	38.5	55	66	88	110	154	220	
Max. torque <sup>a) b)</sup>			<i>T</i> <sub>2a</sub>	<i>Nm</i>	1402	1402	1402	1402	1402	1402	1402	1402	1402	
				<i>in.lb</i>	12406	12406	12406	12406	12406	12406	12406	12406	12406	12406
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)			<i>T</i> <sub>2B</sub>	<i>Nm</i>	992	992	992	992	992	992	992	992	992	
				<i>in.lb</i>	8780	8780	8780	8780	8780	8780	8780	8780	8780	8780
Nominal torque (at <i>n</i> <sub>n</sub> )			<i>T</i> <sub>2N</sub>	<i>Nm</i>	523	566	638	717	723	794	794	794	794	
				<i>in.lb</i>	4632	5005	5649	6348	6400	7024	7024	7024	7024	7024
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)			<i>T</i> <sub>2Not</sub>	<i>Nm</i>	2375	2375	2375	2375	2375	2375	2375	2375	2375	
				<i>in.lb</i>	21021	21021	21021	21021	21021	21021	21021	21021	21021	21021
Permitted average input speed (at <i>T</i> <sub>2N</sub> and 20 °C ambient temperature) <sup>d)</sup>			<i>n</i> <sub>1N</sub>	<i>rpm</i>	3000	3000	3000	3000	3500	3500	3500	3500	3500	
Max. input speed			<i>n</i> <sub>1Max</sub>	<i>rpm</i>	6250	6250	6250	6250	6250	6250	6250	6250	6250	
Mean no load running torque <sup>b)</sup> (at <i>n</i> <sub>i</sub> = 3000 rpm and 20 °C gearbox temperature)			<i>T</i> <sub>012</sub>	<i>Nm</i>	2.7	2.4	2.1	1.7	1.8	1.3	1.1	0.9	0.72	
				<i>in.lb</i>	23.9	21.2	18.9	15.0	15.9	11.5	10.1	8.0	6.4	
Max. backlash			<i>j</i> <sub>t</sub>	<i>arcmin</i>	≤ 1									
Torsional rigidity <sup>b)</sup>			<i>C</i> <sub>t21</sub>	<i>Nm/arcmin</i>	220	220	220	220	205	205	205	205	205	
				<i>in.lb/arcmin</i>	1947	1947	1947	1947	1814	1814	1814	1814	1814	1814
Tilting rigidity			<i>C</i> <sub>2K</sub>	<i>Nm/arcmin</i>	560									
				<i>in.lb/arcmin</i>	4956									
Max. axial force <sup>c)</sup>			<i>F</i> <sub>2AMax</sub>	<i>N</i>	6130									
				<i>lb<sub>f</sub></i>	1379									
Max. tilting moment			<i>M</i> <sub>2KMax</sub>	<i>Nm</i>	1335									
				<i>in.lb</i>	11816									
Efficiency at full load			<i>η</i>	%	94				92					
Service life <sup>f)</sup>			<i>L</i> <sub>h</sub>	<i>h</i>	> 20000									
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	12.5				13.4					
				<i>lb<sub>m</sub></i>	27.6				29.6					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			<i>L</i> <sub>PA</sub>	<i>dB(A)</i>	≤ 60				≤ 57					
Max. permitted housing temperature				°C	+90									
				<i>F</i>	194									
Ambient temperature				°C	–15 to +40									
				<i>F</i>	5 to 104									
Lubrication					Lubricated for life									
Direction of rotation					In- and output same direction									
Protection class					IP 65									
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BCT-00300AAX-080.00									
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]  Optimized mass inertia version available on request		G	24	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	3.80	3.33	3.00	2.80	2.60	2.40	2.20	2.10	2.10
					<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	3.36	2.95	2.66	2.48	2.30	2.10	1.90	1.90	1.90
		K	38	<i>J</i> <sub>i</sub>	<i>kgcm<sup>2</sup></i>	10.7	10.3	9.90	9.70	-	-	-	-	-
					<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	9.47	9.12	8.76	8.58	-	-	-	-	-

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

<sup>a)</sup> At max. 10 %  $M_{2KMax}$

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

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

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

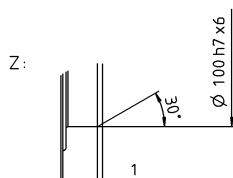
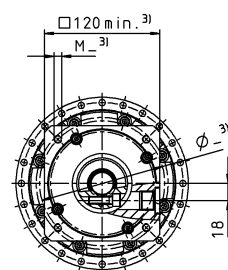
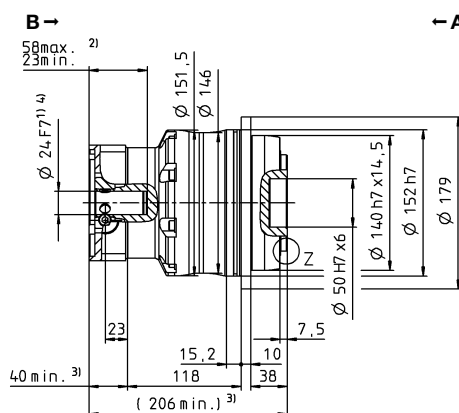
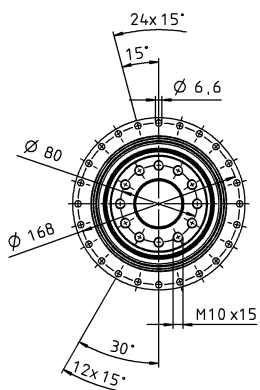
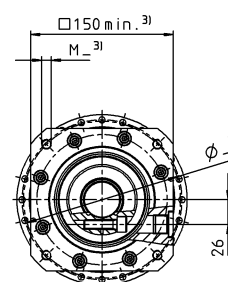
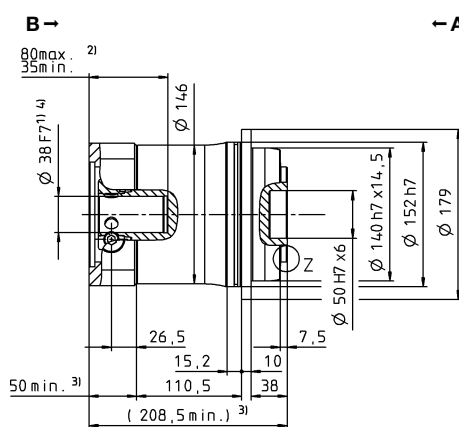
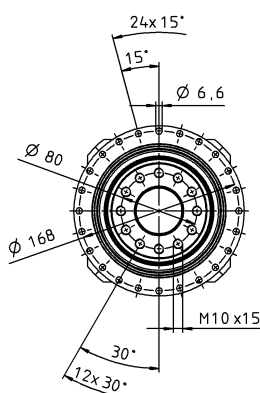
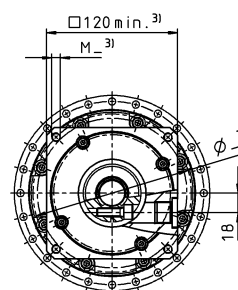
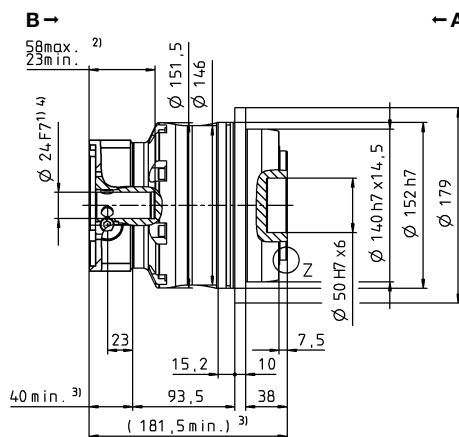
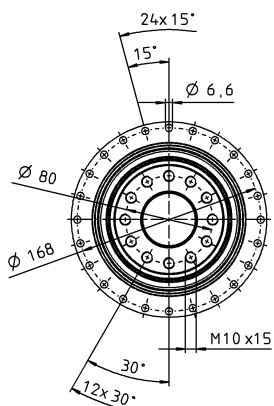
<sup>f)</sup> Please contact us to discuss  
application-specific service lifetimes

View A

View B

## 2-stage

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



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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

Motor shaft diameter [mm]

## 3-stage

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

Planetary gearboxes

TP+

MA

# TP+ 110 MA 2-/3-stage

			2-stage				3-stage						
Ratio	<i>i</i>			22	27.5	38.5	55	66	88	110	154	220	
Max. torque <sup>a) b)</sup>	<i>T</i> <sub>2a</sub>		<i>Nm</i>	3822	3822	3822	3200	3023	3023	3023	3023	3023	
			<i>in.lb</i>	33826	33826	33826	28323	26757	26757	26757	26757	26757	
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)	<i>T</i> <sub>2B</sub>		<i>Nm</i>	3100	3100	3100	2400	2600	2600	2600	2600	2600	
			<i>in.lb</i>	27437	27437	27437	21242	23012	23012	23012	23012	23012	
Nominal torque (at <i>n</i> <sub>n</sub> )	<i>T</i> <sub>2N</sub>		<i>Nm</i>	1546	1662	2149	1827	1649	1797	1924	2080	2080	
			<i>in.lb</i>	13687	14708	19022	16169	14593	15909	17033	18410	18410	
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	<i>T</i> <sub>2Not</sub>		<i>Nm</i>	6500	6500	6500	6500	6500	6500	6500	6500	6500	
			<i>in.lb</i>	57530	57530	57530	57530	57530	57530	57530	57530	57530	
Permitted average input speed (at <i>T</i> <sub>2N</sub> and 20 °C ambient temperature) <sup>d)</sup>	<i>n</i> <sub>1N</sub>		<i>rpm</i>	2500	2500	2500	2500	3000	3000	3000	3000	3000	
Max. input speed	<i>n</i> <sub>1Max</sub>		<i>rpm</i>	5625	5625	5625	5625	5625	5625	5625	5625	5625	
Mean no load running torque <sup>b)</sup> (at <i>n</i> <sub>i</sub> = 3000 rpm and 20 °C gearbox temperature)	<i>T</i> <sub>012</sub>		<i>Nm</i>	6.2	5.5	4.8	4.3	3.8	3.0	2.6	1.8	1.6	
			<i>in.lb</i>	55.0	48.7	42.5	38.1	33.6	26.9	23	15.6	14.2	
Max. backlash	<i>j</i> <sub>t</sub>		<i>arcmin</i>	≤ 1									
Torsional rigidity <sup>b)</sup>	<i>C</i> <sub>t21</sub>		<i>Nm/arcmin</i>	730	725	715	670	650	650	650	650	650	
			<i>in.lb/arcmin</i>	6461	6417	6328	5930	5753	5753	5753	5753	5753	
Tilting rigidity	<i>C</i> <sub>2K</sub>		<i>Nm/arcmin</i>	1452									
			<i>in.lb/arcmin</i>	12851									
Max. axial force <sup>c)</sup>	<i>F</i> <sub>2AMax</sub>		<i>N</i>	10050									
			<i>lb<sub>f</sub></i>	2261									
Max. tilting moment	<i>M</i> <sub>2KMax</sub>		<i>Nm</i>	3280									
			<i>in.lb</i>	29031									
Efficiency at full load	<i>η</i>		%	94									
Service life <sup>f)</sup>	<i>L</i> <sub>h</sub>		<i>h</i>	> 20000									
Weight (incl. standard adapter plate)	<i>m</i>		<i>kg</i>	33.1				35.4					
			<i>lb<sub>m</sub></i>	73.2				78.2					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	<i>L</i> <sub>PA</sub>		<i>dB(A)</i>	≤ 61				≤ 59					
Max. permitted housing temperature			°C	+90									
			<i>F</i>	194									
Ambient temperature			°C	–15 to +40									
			<i>F</i>	5 to 104									
Lubrication				Lubricated for life									
Direction of rotation				In- and output same direction									
Protection class				IP 65									
Metal bellows coupling (recommended product type – validate sizing with cymex <sup>®</sup> )				BCT-01500AAX-125.00									
Bore diameter of coupling on the application side			<i>mm</i>	X = 055.000 - 070.000									
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	K	38	<i>J</i> <sub>1</sub>	<i>kgcm</i> <sup>2</sup>	16.6	15.2	13.9	13.1	13.8	10.2	9.80	9.50	9.20
				10 <sup>–3</sup> <i>in.lb.s</i> <sup>2</sup>	14.7	13.5	12.3	11.6	12.2	9.00	8.70	8.40	8.10
	M	48	<i>J</i> <sub>1</sub>	<i>kgcm</i> <sup>2</sup>	31.4	29.9	28.7	28.0	-	-	-	-	-
				10 <sup>–3</sup> <i>in.lb.s</i> <sup>2</sup>	27.8	26.5	25.4	24.8	-	-	-	-	-

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

<sup>a)</sup> At max. 10 %  $M_{2KMax}$

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

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

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

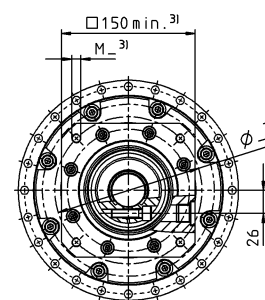
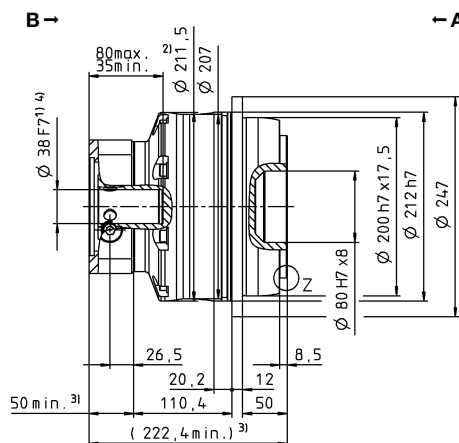
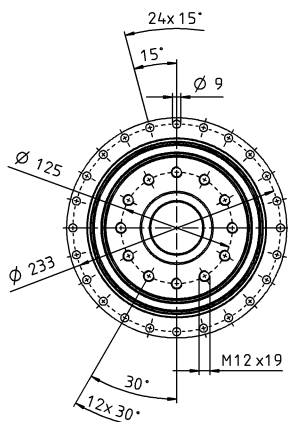
<sup>f)</sup> Please contact us to discuss  
application-specific service lifetimes

View A

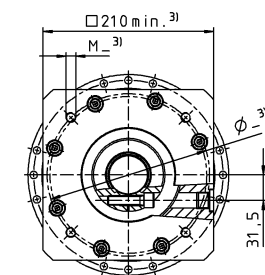
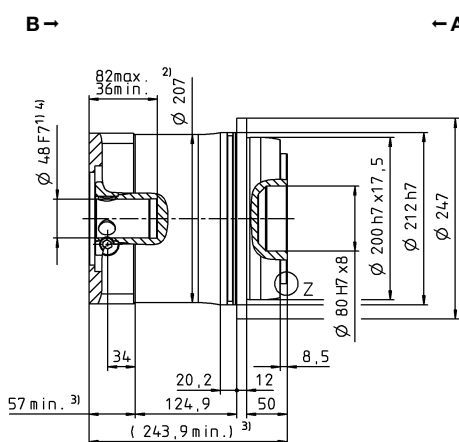
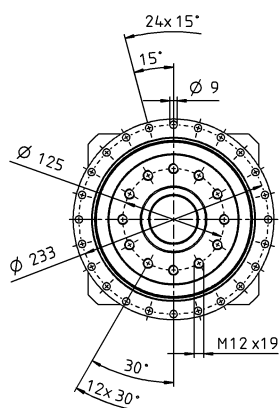
View B

## 2-stage

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



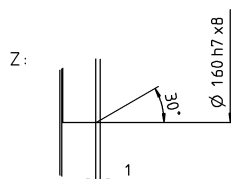
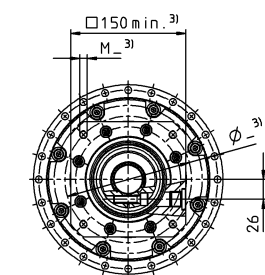
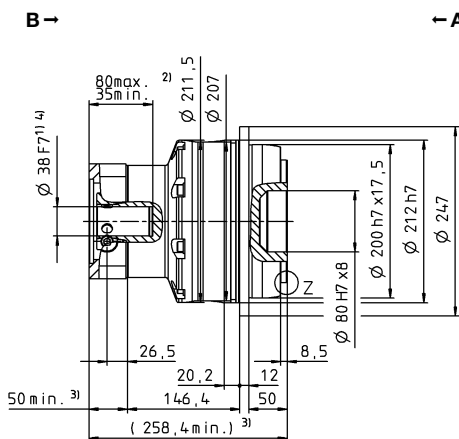
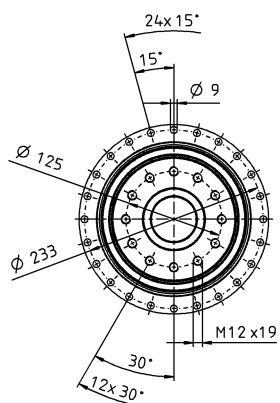
up to 48<sup>4)</sup> (M)  
clamping hub  
diameter



Motor shaft diameter [mm]

## 3-stage

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



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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

# TP+ 300 MA 1-/2-/3-stage

				1-stage	2-stage				3-stage					
Ratio			<i>i</i>		5.5	22	27.5	38.5	55	66	88	110	154	220
Max. torque <sup>a) b)</sup>			<i>T</i> <sub>2a</sub>	<i>Nm</i>	7360	7535	7535	7535	5473	6987	6987	6987	6987	6987
				<i>in.lb</i>	65142	66691	66691	66691	48436	61838	61838	61838	61838	61838
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)			<i>T</i> <sub>2B</sub>	<i>Nm</i>	5520	6600	6600	6600	4680	6600	6600	6600	6600	6600
				<i>in.lb</i>	48856	58415	58415	58415	41422	58415	58415	58415	58415	58415
Nominal torque (at <i>n</i> <sub>n</sub> )			<i>T</i> <sub>2N</sub>	<i>Nm</i>	2829	3566	3788	3884	3744	3216	3506	3750	4148	4617
				<i>in.lb</i>	25035	31563	33530	34378	33137	28465	31035	33186	36711	40863
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)			<i>T</i> <sub>2Not</sub>	<i>Nm</i>	10938	15333	15333	15296	15333	15333	15333	15333	15333	15333
				<i>in.lb</i>	96806	135709	135709	135377	135709	135709	135709	135709	135709	135709
Permitted average input speed (at <i>T</i> <sub>2N</sub> and 20 °C ambient temperature) <sup>d)</sup>			<i>n</i> <sub>1N</sub>	<i>rpm</i>	1000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Max. input speed			<i>n</i> <sub>1Max</sub>	<i>rpm</i>	3125	4375	4375	4375	4375	4375	4375	4375	4375	4375
Mean no load running torque <sup>b)</sup> (at <i>n</i> <sub>i</sub> = 2000 rpm and 20 °C gearbox temperature)			<i>T</i> <sub>012</sub>	<i>Nm</i>	19	8.8	7.8	6.8	5.9	5.2	3.6	3.1	2.1	1.5
				<i>in.lb</i>	170	78	69	60	52	46	32	27	19	13
Max. backlash			<i>j</i> <sub>t</sub>	<i>arcmin</i>	Standard ≤ 2 / Reduced ≤ 1		Standard ≤ 3 / Reduced ≤ 1.5							
Torsional rigidity <sup>b)</sup>			<i>C</i> <sub>121</sub>	<i>Nm/arcmin</i>	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
				<i>in.lb/arcmin</i>	10621	10621	10621	10621	10621	10621	10621	10621	10621	10621
Tilting rigidity			<i>C</i> <sub>2K</sub>	<i>Nm/arcmin</i>	5560									
				<i>in.lb/arcmin</i>	49210									
Max. axial force <sup>c)</sup>			<i>F</i> <sub>2AMax</sub>	<i>N</i>	33000									
				<i>lb<sub>f</sub></i>	7425									
Max. tilting moment			<i>M</i> <sub>2KMax</sub>	<i>Nm</i>	3900	6500								
				<i>in.lb</i>	34518	57530								
Efficiency at full load			<i>η</i>	%	95	93								
Service life <sup>f)</sup>			<i>L</i> <sub>h</sub>	<i>h</i>	> 20000									
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i>	55	64				67				
				<i>lb<sub>m</sub></i>	122	141				148				
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )			<i>L</i> <sub>PA</sub>	<i>dB(A)</i>	≤ 65	≤ 62				≤ 59				
Max. permitted housing temperature				°C	+90									
				<i>F</i>	194									
Ambient temperature				°C	–15 to +40									
				<i>F</i>	5 to 104									
Lubrication					Lubricated for life									
Direction of rotation					In- and output same direction									
Protection class					IP 65									
Metal bellows coupling (recommended product type – validate sizing with cymex <sup>®</sup> )					BCT-04000AAX-145.00									
Bore diameter of coupling on the application side				<i>mm</i>	X = 070.000 - 100.000									
Mass moment of inertia (relates to the drive)  Clamping hub diameter [mm] Optimized mass inertia version available on request	K	38	<i>J</i> <sub>1</sub>	<i>kgcm<sup>2</sup></i>	-	-	-	-	-	16.6	12.9	11.6	10.3	9.50
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	-	-	-	-	-	14.7	11.4	10.3	9.10	8.40
	M	48	<i>J</i> <sub>1</sub>	<i>kgcm<sup>2</sup></i>	-	30.8	27.6	24.9	23.0	-	-	-	-	-
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	-	27.3	24.4	22.0	20.4	-	-	-	-	-
	N	55	<i>J</i> <sub>1</sub>	<i>kgcm<sup>2</sup></i>	129	-	-	-	-	-	-	-	-	-
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	114	-	-	-	-	-	-	-	-	-

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

<sup>a)</sup> At max. 10 %  $M_{2KMax}$

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

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

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

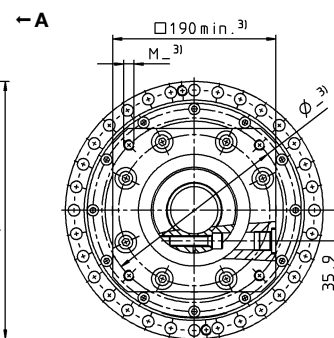
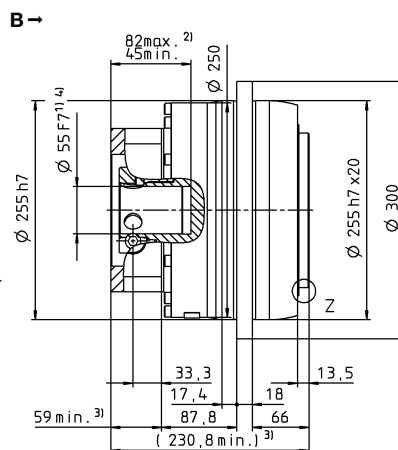
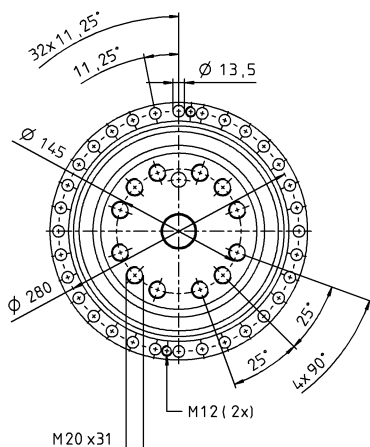
<sup>f)</sup> Please contact us to discuss  
application-specific service lifetimes

View A

View B

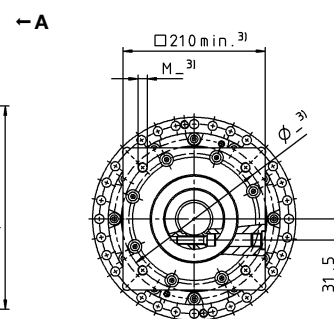
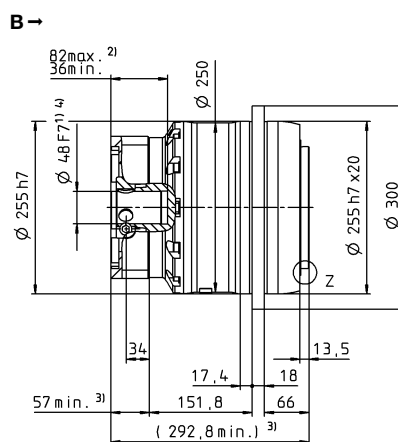
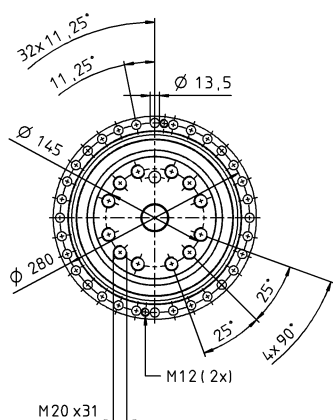
# 1-stage

up to 55<sup>4)</sup> (N)<sup>5)</sup>  
clamping hub  
diameter



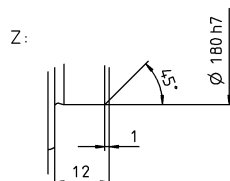
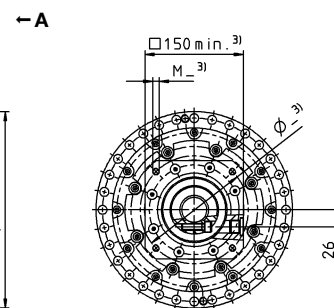
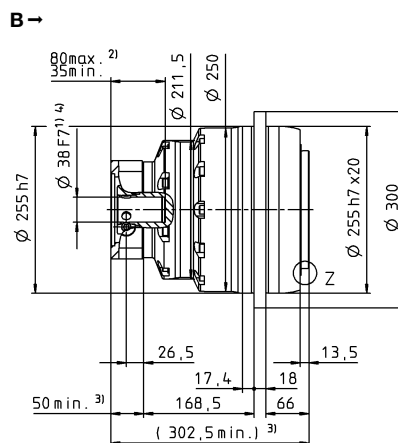
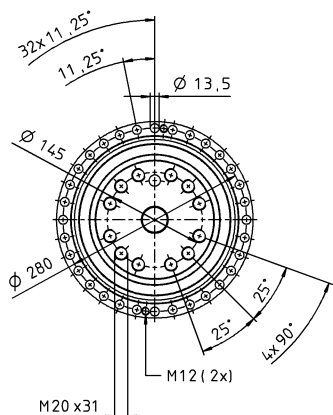
# 2-stage

up to 48<sup>4)</sup> (M)<sup>5)</sup>  
clamping hub  
diameter



# 3-stage

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



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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



# TP+ 500 MA 1-/2-/3-stage

				1-stage		2-stage				3-stage					
Ratio			<i>i</i>		5.5	22	27.5	38.5	55	66	88	110	154	220	
Max. torque <sup>a) b)</sup>			<i>T</i> <sub>2a</sub>	<i>Nm</i> <i>in.lb</i>	10450 92491	10450 92491	10450 92491	10450 92491	10450 92491	10450 92491	10450 92491	10450 92491	10450 92491	10450 92491	
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)			<i>T</i> <sub>2B</sub>	<i>Nm</i> <i>in.lb</i>	9600 84968	10450 92491	10450 92491	10450 92491	8640 76471	10450 92491	10450 92491	10450 92491	10450 92491	10450 92491	
Nominal torque (at <i>n</i> <sub>n</sub> )			<i>T</i> <sub>2N</sub>	<i>Nm</i> <i>in.lb</i>	4313 38174	5068 44858	4980 44075	5057 44759	5325 47129	4941 43731	7464 66060	7396 65462	7546 66792	7907 69986	
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)			<i>T</i> <sub>2Not</sub>	<i>Nm</i> <i>in.lb</i>	18750 165953	25000 221270	25000 221270	25000 221270	25000 221270	25000 221270	25000 221270	25000 221270	25000 221270	25000 221270	
Permitted average input speed (at <i>T</i> <sub>2N</sub> and 20 °C ambient temperature) <sup>d)</sup>			<i>n</i> <sub>1N</sub>	<i>rpm</i>	900	1500	1500	1500	1500	1500	1500	1500	1500	1500	
Max. input speed			<i>n</i> <sub>1Max</sub>	<i>rpm</i>	3125	4375	4375	4375	4375	4375	4375	4375	4375	4375	
Mean no load running torque <sup>b)</sup> (at <i>n</i> <sub>i</sub> = 2000 rpm and 20 °C gearbox temperature)			<i>T</i> <sub>012</sub>	<i>Nm</i> <i>in.lb</i>	27 241	11 100	10 89	8.9 79	7.8 69	6.8 60	5.0 45	4.7 42	3.6 32	3.0 27	
Max. backlash			<i>j</i> <sub>t</sub>	<i>arcmin</i>	Standard ≤ 2 / Reduced ≤ 1		Standard ≤ 3 / Reduced ≤ 1.5								
Torsional rigidity <sup>b)</sup>			<i>C</i> <sub>t21</sub>	<i>Nm/arcmin</i> <i>in.lb/arcmin</i>	2000 17702	2000 17702	2000 17702	1950 17259	1900 16817	1800 15931	1800 15931	1800 15931	1800 15931	1800 15931	
Tilting rigidity			<i>C</i> <sub>2K</sub>	<i>Nm/arcmin</i> <i>in.lb/arcmin</i>	9480 83906										
Max. axial force <sup>c)</sup>			<i>F</i> <sub>2AMax</sub>	<i>N</i> <i>lb<sub>f</sub></i>	50000 11250										
Max. tilting moment			<i>M</i> <sub>2KMax</sub>	<i>Nm</i> <i>in.lb</i>	6600 58415	9500 84083									
Efficiency at full load			<i>η</i>	%	95	93									
Service life <sup>f)</sup>			<i>L</i> <sub>h</sub>	<i>h</i>	> 20000										
Weight (incl. standard adapter plate)			<i>m</i>	<i>kg</i> <i>lb<sub>m</sub></i>	80 177	80 177				89 197					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )			<i>L</i> <sub>PA</sub>	<i>dB(A)</i>	≤ 70	≤ 63				≤ 60					
Max. permitted housing temperature				°C <i>F</i>	+90 194										
Ambient temperature				°C <i>F</i>	−15 to +40 5 to 104										
Lubrication					Lubricated for life										
Direction of rotation					In- and output same direction										
Protection class					IP 65										
Metal bellows coupling (recommended product type – validate sizing with cymex <sup>®</sup> )					BCT-10000AAX-166.00										
Bore diameter of coupling on the application side				<i>mm</i>	X = 080.000 - 180.000										
Mass moment of inertia (relates to the drive)  Clamping hub diameter [mm]  Optimized mass inertia version available on request	K	38	<i>J</i> <sub>1</sub>	<i>kgcm<sup>2</sup></i>	-	-	-	-	-	17.9	13.5	11.9	10.5	9.70	
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	-	-	-	-	-	15.8	11.9	10.5	9.30	8.60	
	M	48	<i>J</i> <sub>1</sub>	<i>kgcm<sup>2</sup></i>	-	43.8	36.9	30.5	27.0	32.7	28.3	26.7	25.2	24.4	
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	-	38.8	32.7	27.0	23.9	28.9	25.0	23.6	22.3	21.6	
	O	60	<i>J</i> <sub>1</sub>	<i>kgcm<sup>2</sup></i>	175	-	-	-	-	-	-	-	-	-	-
				<i>10<sup>-3</sup> in.lb.s<sup>2</sup></i>	155	-	-	-	-	-	-	-	-	-	-

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

<sup>a)</sup> At max. 10 %  $M_{2KMax}$

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

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

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

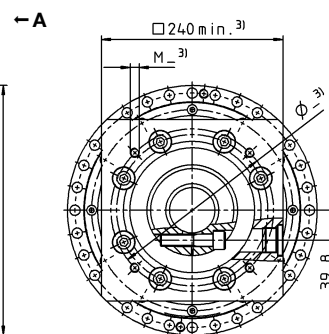
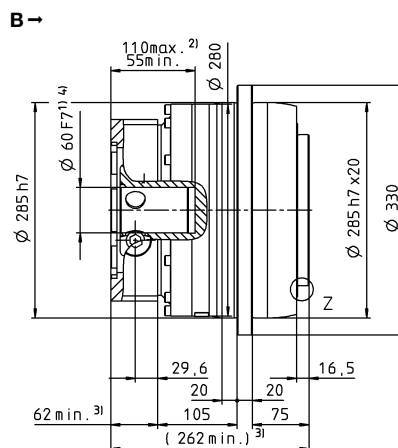
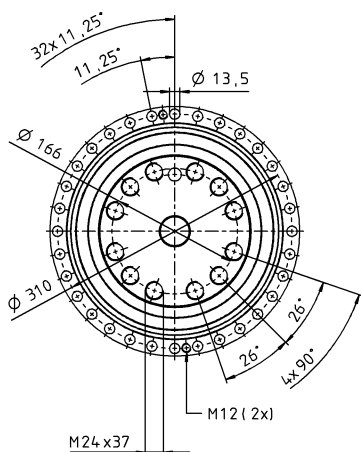
<sup>f)</sup> Please contact us to discuss  
application-specific service lifetimes

View A

View B

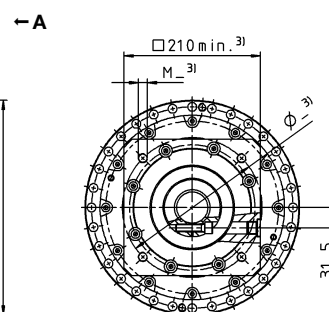
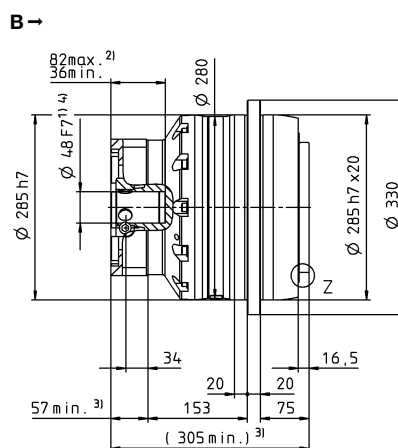
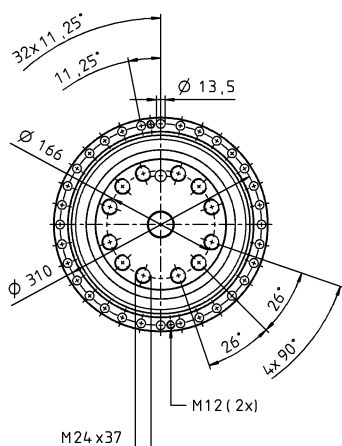
# 1-stage

up to 60<sup>4)</sup> (O)<sup>5)</sup>  
clamping hub  
diameter



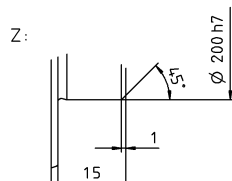
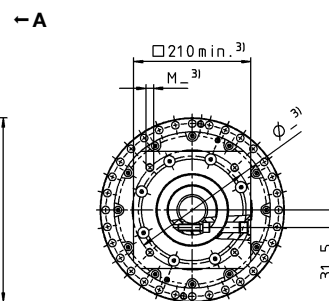
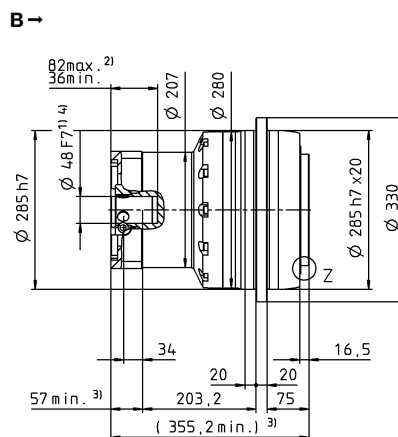
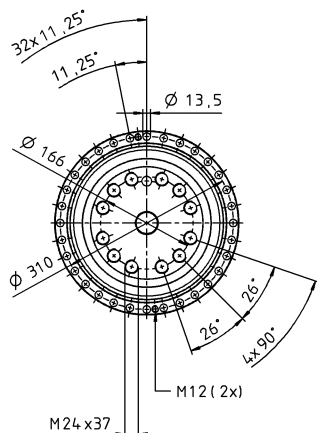
# 2-stage

up to 48<sup>4)</sup> (M)<sup>5)</sup>  
clamping hub  
diameter



# 3-stage

up to 38/48<sup>4)</sup>  
(K/M<sup>5)</sup>) clamping  
hub diameter



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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

Motor shaft diameter [mm]

Planetary gearboxes

TP

MA

# TP+ 2000 MA 2-/3-stage

			2-stage			3-stage							
Ratio			<i>i</i>		22	30.25	66	88	110	121	154	220	302.5
Max. torque <sup>a) b)</sup>			<i>T</i> <sub>2a</sub>	Nm	22000	22000	22000	22000	22000	22000	22000	15600	21500
				in.lb	194718	194718	194718	194718	194718	194718	194718	194718	138072
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)			<i>T</i> <sub>2B</sub>	Nm	22000	22000	22000	22000	22000	22000	22000	15600	21500
				in.lb	194718	194718	194718	194718	194718	194718	194718	194718	138072
Nominal torque (at <i>n</i> <sub>n</sub> )			<i>T</i> <sub>2N</sub>	Nm	13500	13500	13500	13500	13500	13500	13500	10000	13500
				in.lb	119486	119486	119486	119486	119486	119486	119486	119486	88508
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)			<i>T</i> <sub>2Not</sub>	Nm	44000	44000	44000	44000	44000	44000	44000	44000	44000
				in.lb	389435	389435	389435	389435	389435	389435	389435	389435	389435
Permitted average input speed (at <i>T</i> <sub>2N</sub> and 20 °C ambient temperature) <sup>d)</sup>			<i>n</i> <sub>1N</sub>	rpm	2000	2000	2500	2500	2500	2500	2500	2500	2500
Max. input speed			<i>n</i> <sub>1Max</sub>	rpm	3000	3000	3500	3500	3500	3500	3500	3500	3500
Mean no load running torque <sup>b) h)</sup> (at <i>n</i> <sub>i</sub> = 2000 rpm and 20 °C gearbox temperature)			<i>T</i> <sub>012</sub>	Nm	17	13	7.5	6.0	5.0	5.0	4.5	4.0	4.0
				in.lb	151	115	66	53	44	44	40	35	35
Max. backlash			<i>j</i> <sub>t</sub>	arcmin	≤ 3								
Torsional rigidity <sup>b)</sup>			<i>C</i> <sub>t21</sub>	Nm/arcmin	2900	2900	3000	3000	3000	3000	2950	2850	2850
				in.lb/arcmin	25667	25667	26552	26552	26552	26552	26110	25225	25225
Tilting rigidity			<i>C</i> <sub>2K</sub>	Nm/arcmin	13000								
				in.lb/arcmin	115060								
Max. axial force <sup>c)</sup>			<i>F</i> <sub>2AMax</sub>	N	100000								
				lb <sub>f</sub>	22500								
Max. tilting moment			<i>M</i> <sub>2KMax</sub>	Nm	31600								
				in.lb	279685								
Efficiency at full load			<i>η</i>	%	95								
Service life <sup>f)</sup>			<i>L</i> <sub>h</sub>	h	> 20000								
Weight (incl. standard adapter plate)			<i>m</i>	kg	190			185					
				lb <sub>m</sub>	420			409					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )			<i>L</i> <sub>PA</sub>	dB(A)	≤ 68			≤ 66					
Max. permitted housing temperature				°C	+90								
				F	194								
Ambient temperature				°C	0 to +40								
				F	32 to 104								
Lubrication					Lubricated for life								
Direction of rotation					In- and output same direction								
Protection class					IP 65								
Metal bellows coupling (recommended product type – validate sizing with cymex <sup>®</sup> )					–								
Bore diameter of coupling on the application side				mm	–								
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	M	48	<i>J</i> <sub>1</sub>	kgcm <sup>2</sup>	–	–	52	37	35	35	28	26	25
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	–	–	46	33	31	31	25	23	22
	N	55	<i>J</i> <sub>1</sub>	kgcm <sup>2</sup>	101	74	–	–	–	–	–	–	–
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	89	65	–	–	–	–	–	–	–

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

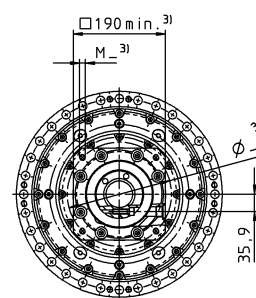
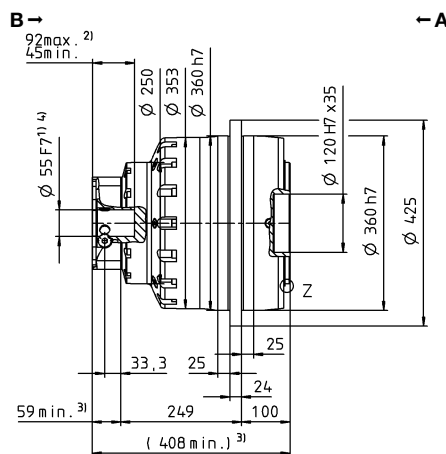
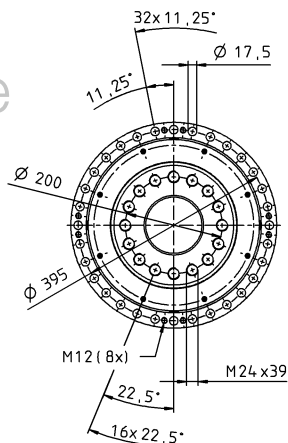
- <sup>a)</sup> At max. 10 %  $M_{2KMax}$   
<sup>b)</sup> Valid for standard clamping hub diameter  
<sup>c)</sup> Refers to center of the output shaft or flange  
<sup>d)</sup> Please reduce input speed at higher ambient temperatures  
<sup>f)</sup> Please contact us to discuss application-specific service lifetimes  
<sup>h)</sup> Depending on the mounting position.  
Please contact WITTENSTEIN alpha for details.

View A

View B

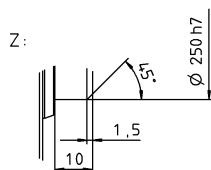
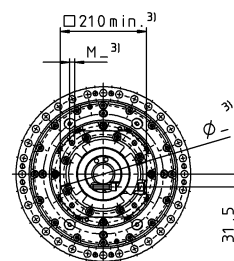
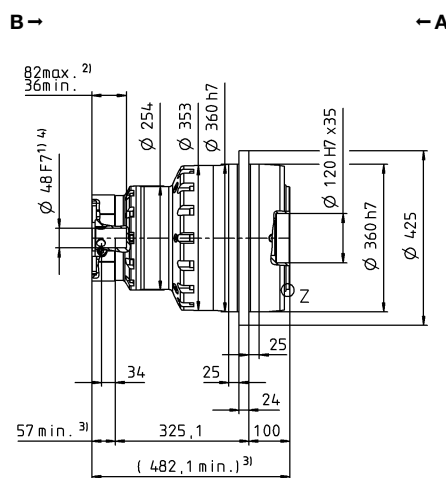
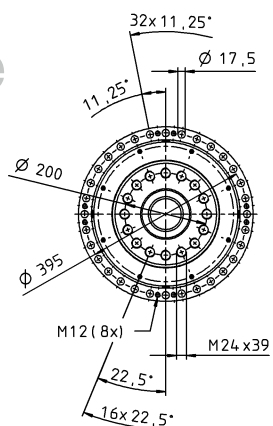
# 2-stage

up to 55<sup>4)</sup> (N)<sup>5)</sup>  
clamping hub  
diameter



# 3-stage

up to 48<sup>4)</sup> (M)<sup>5)</sup>  
clamping hub  
diameter



Non-tolerated dimensions are nominal dimensions

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

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

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

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

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

Motor shaft diameter [mm]

Planetary gearboxes

TP\*

MA