

DP+ – The right solution for all requirements

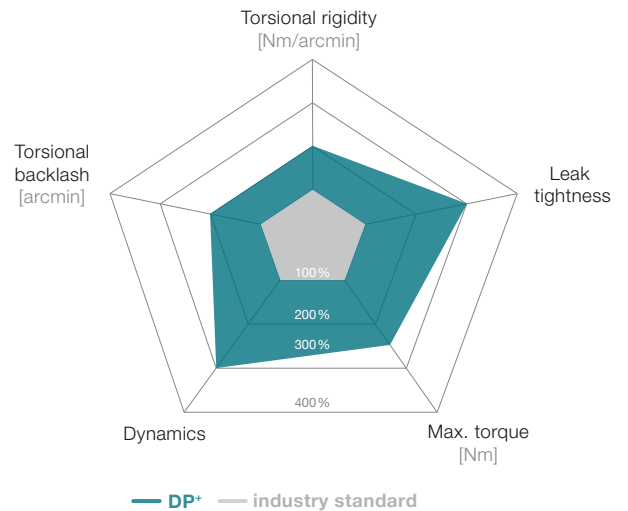


The DP+ planetary gearbox was specially developed for use in Delta robotics applications. Various characteristics allow use of the gearbox in dry, spray and wet areas (HDP+). In addition to an optimized sealing system, this drive solution includes advantages such as improved dynamics due to the optimized moment of inertia. The DP+ is available in four sizes and covers a ratio range of $i = 16 - 55$.

The DP+ compared to the industry standard

Product highlights

- Reliability** Extremely reliable gearboxes prevent cost-intensive machine breakdowns
- Positioning accuracy** Minimal backlash and extreme rigidity ensure maximum positioning accuracy at the tool center point
- Speed** Highest speeds increase machine output
- Maintenance** Highest quality standards guarantee a long service life and extend maintenance intervals
- Consistently high performance** Constant backlash throughout the service life of the gearbox ensures a consistently high performance
- Low inertia** Use of an servo actuator further reduces inertia



Dry area

DP+
premo® TP Line

Fields of application: Secondary packaging, Handling, Mounting, Intralogistics ...

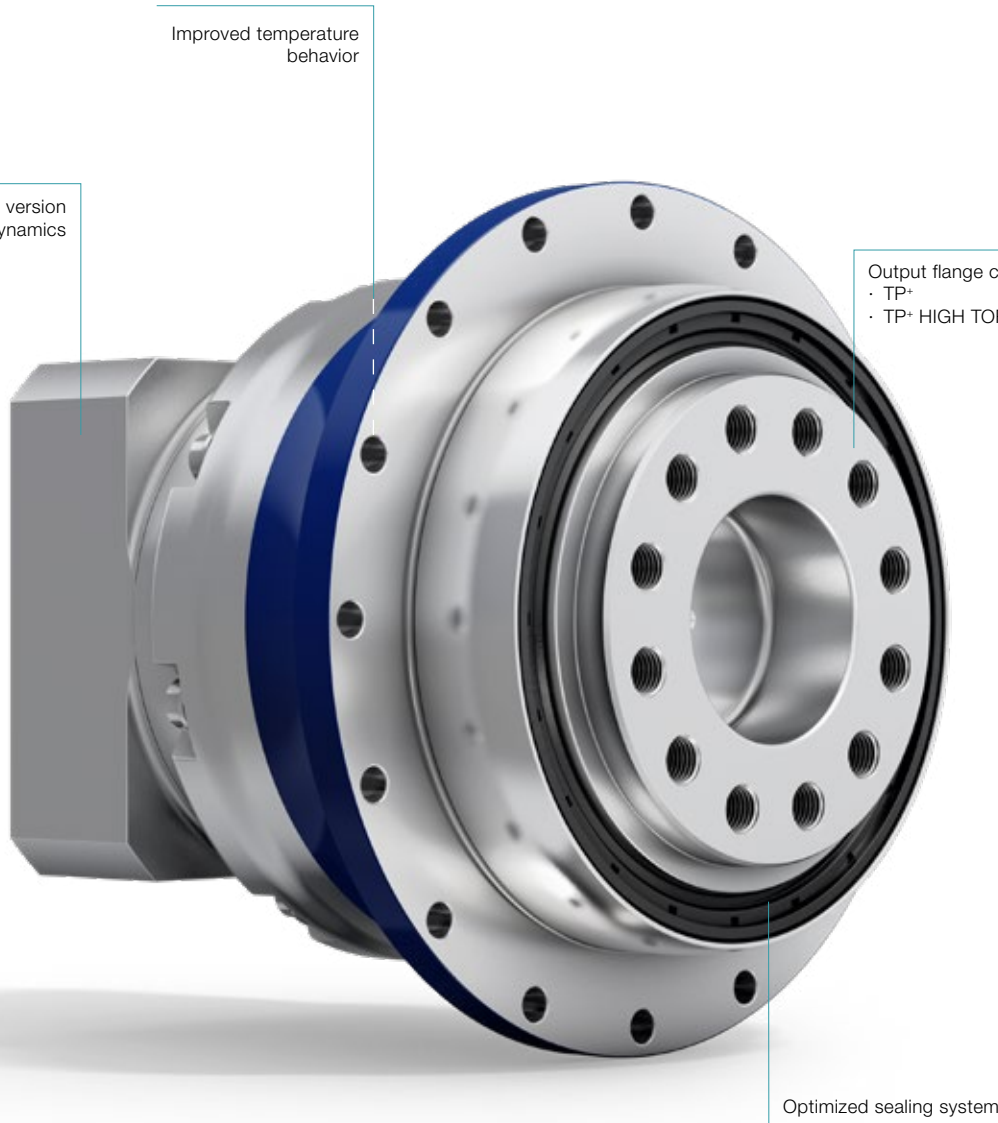
Spray area (close to the process)

DP+ (painted)
DP+ (unpainted)

Fields of application: Pharmaceutical industry, Medical technology, Primary packaging without hygiene design requirements, Clean room...



More information on Delta robotics: simply scan the QR code with your smartphone.



Improved temperature behavior

Mass inertia optimized version for improved dynamics

Output flange compatible with:
· TP+
· TP+ HIGH TORQUE

Optimized sealing system

Application-spec. solutions

💧 Wet area (integrated in the process)



HDP+

Fields of application: Primary packaging with hygiene design requirements

We are happy to advise you on individual solutions for your project-specific requirements.



Custom solutions

DP+ 004 MF 2-stage

			2-stage										
Ratio	<i>i</i>		16	20	21	25	28	31	35	40	50		
Max. torque ^{a) b)}	T_{2a}	Nm	57	57	60	72	57	50	72	57	72		
		in.lb	507	507	533	634	507	442	634	507	634		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	57	57	48	66	57	48	66	57	66		
		in.lb	507	507	425	584	507	425	584	507	584		
Nominal torque (at n_n)	T_{2N}	Nm	39	41	32	41	45	36	45	46	48		
		in.lb	342	365	286	361	403	320	399	406	421		
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	100	100	100	100	100	100	100	100	100		
		in.lb	885	885	885	885	885	885	885	885	885		
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	rpm	4000	4000	4000	4000	4000	4000	4000	4000	4800		
Max. input speed	n_{1Max}	rpm	7500	7500	7500	7500	7500	7500	7500	7500	7500		
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.28	0.23	0.24	0.22	0.21	0.22	0.17	0.18	0.17		
		in.lb	2.5	2.0	2.1	1.9	1.9	1.9	1.5	1.6	1.5		
Max. backlash	j_t	arcmin	Standard ≤ 4 / Reduced ≤ 2										
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	12	12	10	12	12	9	12	11	12		
		in.lb/arcmin	106	106	89	106	106	80	106	97	106		
Tilting rigidity	C_{2K}	Nm/arcmin	85										
		in.lb/arcmin	752										
Max. axial force ^{c)}	F_{2AMax}	N	2119										
		lb _f	477										
Max. tilting moment	M_{2KMax}	Nm	110										
		in.lb	974										
Efficiency at full load	η	%	94										
Service life ^{f)}	L_h	h	> 20000										
Weight (incl. standard adapter plate)	m	kg	1.5										
		lb _m	3.3										
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	dB(A)	≤ 54										
Max. permitted housing temperature		°C	+90										
		F	194										
Ambient temperature		°C	-15 to +40										
		F	5 to 104										
Lubrication			Lubricated for life										
Direction of rotation			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	B	11	J_1	kgcm ²	0.078	0.070	0.074	0.068	0.062	0.072	0.061	0.057	0.057
				10 ⁻³ in.lb.s ²	0.069	0.062	0.065	0.060	0.055	0.064	0.054	0.050	0.050
	C	14	J_1	kgcm ²	0.17	0.17	0.17	0.16	0.16	0.17	0.16	0.15	0.15
				10 ⁻³ in.lb.s ²	0.15	0.15	0.15	0.15	0.14	0.15	0.14	0.14	0.14

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

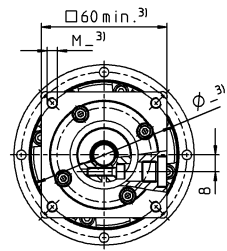
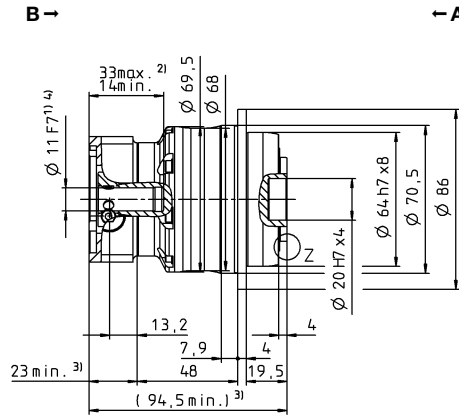
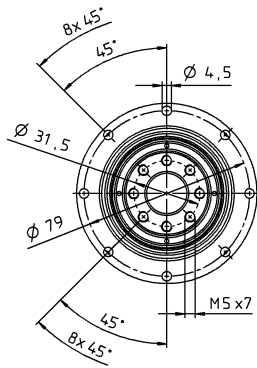
- ^{a)} At max. 10 % M_{2KMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{f)} Please contact us to discuss application-specific service lifetimes

View A

View B

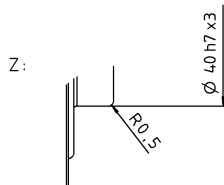
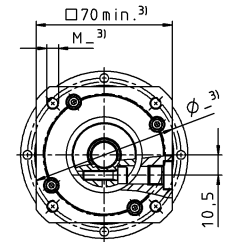
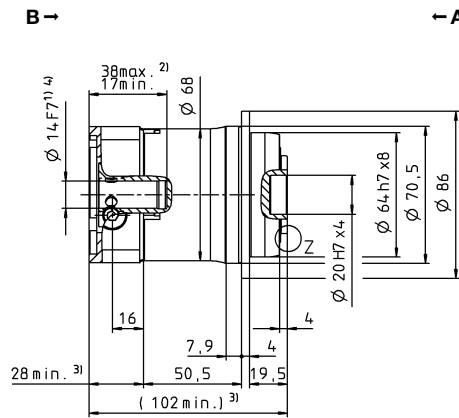
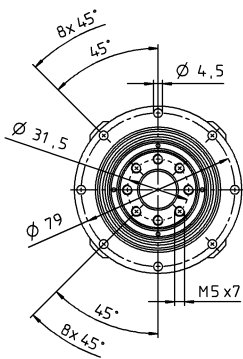
2-stage

up to 11⁴⁾ (B)⁵⁾
clamping hub
diameter



Motor shaft diameter [mm]

up to 14⁴⁾ (C)
clamping hub
diameter



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

⁵⁾ Standard clamping hub diameter

DP+ 010 MF 2-stage

			2-stage										
Ratio	<i>i</i>		16	20	21	25	28	31	35	40	50		
Max. torque ^{a) b)}	T_{2a}	Nm	157	126	133	158	157	121	158	154	158		
		in.lb	1392	1118	1174	1398	1392	1071	1398	1363	1398		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	157	126	120	158	157	121	158	154	158		
		in.lb	1392	1113	1062	1398	1392	1071	1398	1363	1398		
Nominal torque (at n_n)	T_{2N}	Nm	106	101	96	124	107	87	126	112	126		
		in.lb	935	895	850	1097	945	770	1118	987	1118		
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	251	251	251	251	251	251	251	251	251		
		in.lb	2222	2222	2222	2222	2222	2222	2222	2222	2222		
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	rpm	3500	3500	3500	3500	3500	3500	3500	3500	3800		
Max. input speed	n_{1Max}	rpm	7500	7500	7500	7500	7500	7500	7500	7500	7500		
Mean no load running torque ^{b)} (at $n_i = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.56	0.48	0.47	0.44	0.40	0.40	0.28	0.32	0.32		
		in.lb	5.0	4.2	4.2	3.9	3.5	3.5	2.5	2.8	2.8		
Max. backlash	j_t	arcmin	Standard ≤ 3 / Reduced ≤ 1										
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	32	32	26	32	31	24	32	30	30		
		in.lb/arcmin	283	283	230	283	274	212	283	266	266		
Tilting rigidity	C_{2K}	Nm/arcmin	225										
		in.lb/arcmin	1991										
Max. axial force ^{c)}	F_{2AMax}	N	2795										
		lb _f	629										
Max. tilting moment	M_{2KMax}	Nm	270										
		in.lb	2390										
Efficiency at full load	η	%	94										
Service life ^{f)}	L_h	h	> 20000										
Weight (incl. standard adapter plate)	m	kg	3.6										
		lb _m	8.0										
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	dB(A)	≤ 55										
		°C	+90										
Max. permitted housing temperature		F	194										
		°C	-15 to +40										
Ambient temperature		F	5 to 104										
		°C											
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	B	11	J_1	kgcm ²	0.17	0.14	0.15	0.13	0.11	0.14	0.10	0.09	0.09
				10 ⁻³ in.lb.s ²	0.15	0.12	0.13	0.12	0.10	0.12	0.09	0.08	0.08
	C	14	J_1	kgcm ²	0.24	0.21	0.22	0.20	0.18	0.21	0.18	0.17	0.17
				10 ⁻³ in.lb.s ²	0.21	0.19	0.20	0.18	0.16	0.18	0.16	0.15	0.15
	E	19	J_1	kgcm ²	0.56	0.53	0.55	0.53	0.51	0.53	0.50	0.49	0.49
				10 ⁻³ in.lb.s ²	0.50	0.47	0.48	0.47	0.45	0.47	0.44	0.43	0.43

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

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

^{b)} Valid for standard clamping hub diameter

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

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

^{f)} Please contact us to discuss

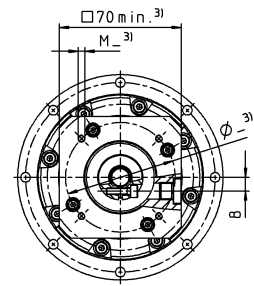
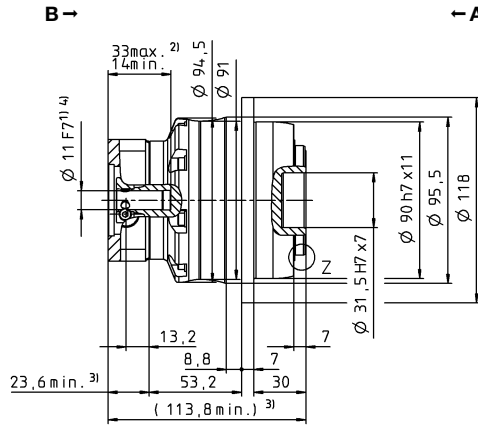
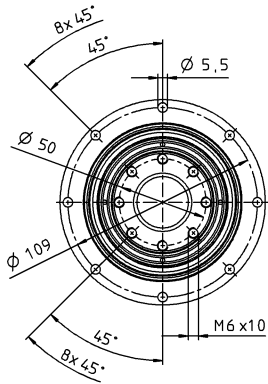
application-specific service lifetimes

View A

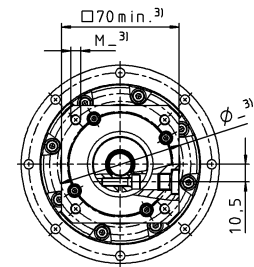
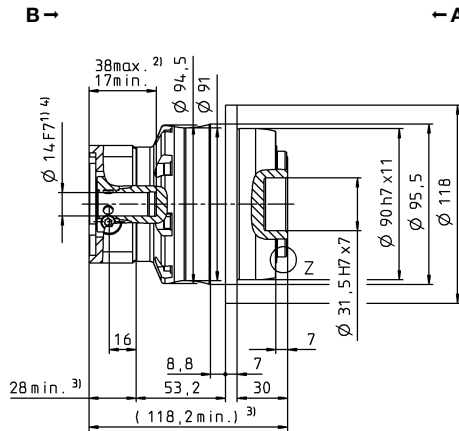
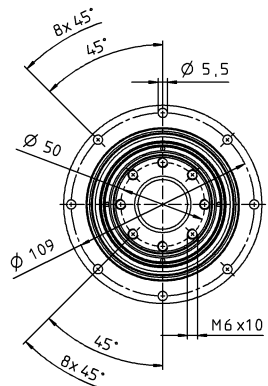
View B

2-stage

up to 11⁴⁾ (B)
clamping hub diameter

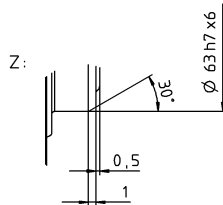
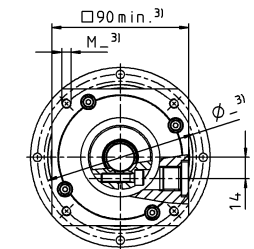
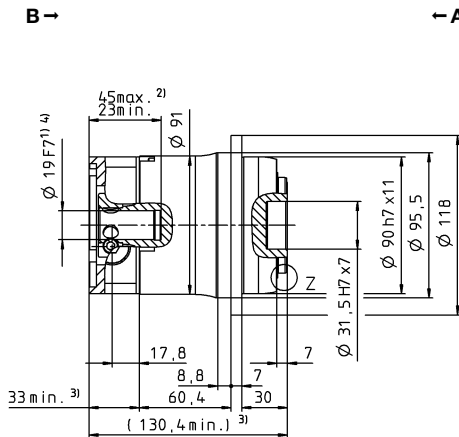
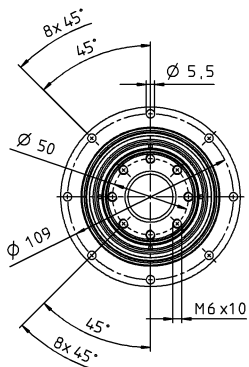


up to 14⁴⁾ (C)⁵⁾
clamping hub diameter



Motor shaft diameter [mm]

up to 19⁴⁾ (E)
clamping hub diameter



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

⁵⁾ Standard clamping hub diameter

DP+ 025 MF 2-stage

			2-stage										
Ratio	<i>i</i>		16	20	21	25	28	31	35	40	50		
Max. torque ^{a) b)}	T_{2a}	Nm	352	352	352	380	352	352	380	352	380		
		in.lb	3115	3115	3115	3363	3115	3115	3363	3115	3363		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	352	352	330	380	352	330	380	352	380		
		in.lb	3115	3115	2921	3363	3115	2921	3363	3115	3363		
Nominal torque (at n_n)	T_{2N}	Nm	250	267	211	265	282	231	294	282	304		
		in.lb	2213	2366	1872	2348	2492	2047	2598	2492	2691		
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	625	625	625	625	625	625	625	625	625		
		in.lb	5532	5532	5532	5532	5532	5532	5532	5532	5532		
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	rpm	2800	2800	2800	2800	2800	2800	2800	2800	3100		
Max. input speed	n_{1Max}	rpm	7500	7500	7500	7500	7500	7500	7500	7500	7500		
Mean no load running torque ^{b)} (at $n_i = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	1.2	1.0	1.1	0.90	0.80	0.84	0.60	0.59	0.50		
		in.lb	10	8.9	9.9	8.0	7.1	7.4	5.3	5.2	4.4		
Max. backlash	j_t	arcmin	Standard ≤ 3 / Reduced ≤ 1										
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	81	81	70	83	80	54	82	76	80		
		in.lb/arcmin	717	717	620	735	708	478	726	673	708		
Tilting rigidity	C_{2K}	Nm/arcmin	550										
		in.lb/arcmin	4868										
Max. axial force ^{c)}	F_{2AMax}	N	4800										
		lb _f	1080										
Max. tilting moment	M_{2KMax}	Nm	440										
		in.lb	3894										
Efficiency at full load	η	%	94										
Service life ^{f)}	L_h	h	> 20000										
Weight (incl. standard adapter plate)	m	kg	6.7										
		lb _m	14.8										
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	dB(A)	≤ 58										
Max. permitted housing temperature		°C	+90										
		F	194										
Ambient temperature		°C	-15 to +40										
		F	5 to 104										
Lubrication			Lubricated for life										
Direction of rotation			In- and output same direction										
Protection class			IP 65										
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	C	14	J_1	kgcm ²	0.66	0.55	0.60	0.53	0.44	0.55	0.43	0.38	0.38
				10 ⁻³ in.lb.s ²	0.58	0.48	0.53	0.47	0.39	0.49	0.38	0.34	0.33
	E	19	J_1	kgcm ²	0.83	0.71	0.77	0.70	0.61	0.72	0.60	0.55	0.55
				10 ⁻³ in.lb.s ²	0.73	0.63	0.68	0.62	0.54	0.64	0.53	0.49	0.48
	G	24	J_1	kgcm ²	2.20	2.08	2.14	2.07	1.98	2.09	1.97	1.92	1.92
				10 ⁻³ in.lb.s ²	1.95	1.84	1.89	1.83	1.75	1.85	1.74	1.70	1.70
	H	28	J_1	kgcm ²	2.00	1.91	1.96	1.89	1.82	1.85	1.81	1.76	1.76
				10 ⁻³ in.lb.s ²	1.77	1.69	1.73	1.67	1.61	1.64	1.60	1.56	1.56

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

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

^{b)} Valid for standard clamping hub diameter

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

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

^{f)} Please contact us to discuss

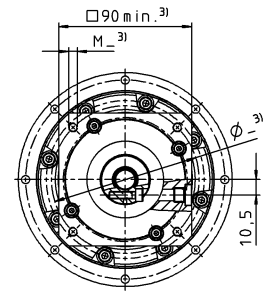
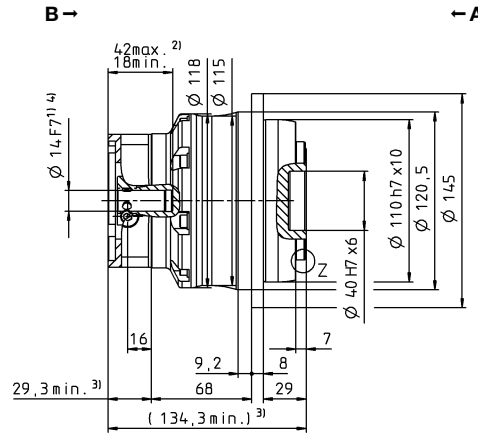
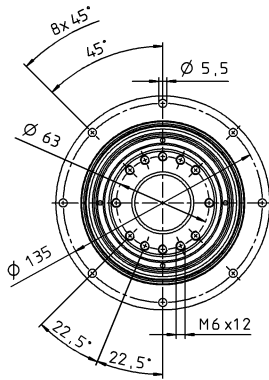
application-specific service lifetimes

View A

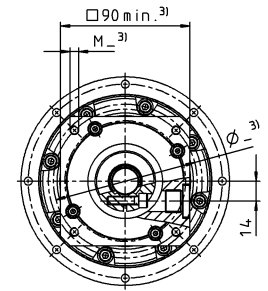
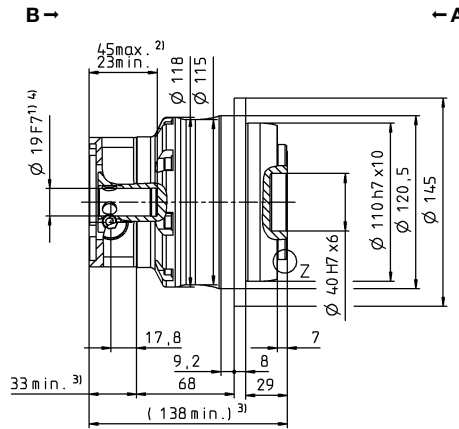
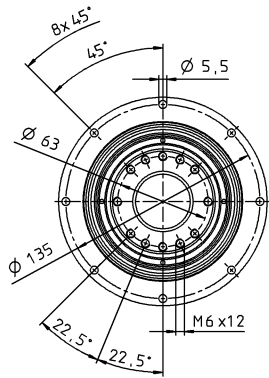
View B

2-stage

up to 14⁴⁾ (C)
clamping hub
diameter

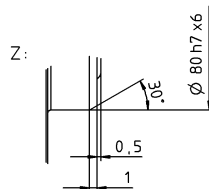
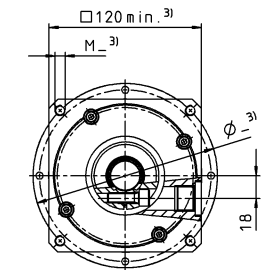
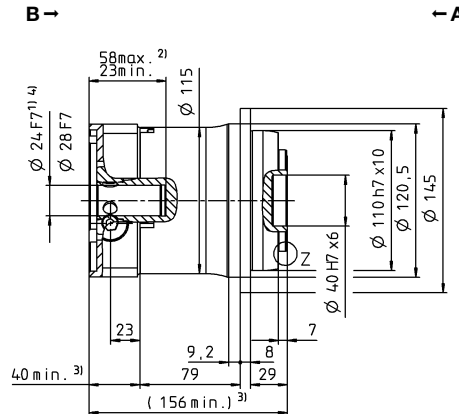
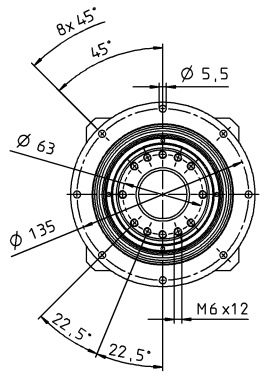


up to 19⁴⁾ (E)⁵⁾
clamping hub
diameter



Motor shaft diameter [mm]

up to 24/28⁴⁾
(G/H) clamping
hub diameter



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

⁵⁾ Standard clamping hub diameter

DP+ 050 MF 2-stage

			2-stage										
Ratio	i		16	20	21	25	28	31	35	40	50		
Max. torque ^{a) b)}	T_{2a}	Nm	825	825	660	825	825	682	825	825	825		
		in.lb	7302	7302	5842	7302	7302	6036	7302	7302	7302		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	825	825	660	825	825	682	825	825	825		
		in.lb	7302	7302	5842	7302	7302	6036	7302	7302	7302		
Nominal torque (at n_n)	T_{2N}	Nm	461	493	393	489	545	431	541	607	585		
		in.lb	4078	4361	2476	4332	4824	3812	4792	5370	5179		
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	1250	1250	1250	1250	1250	1250	1250	1250	1250		
		in.lb	11064	11064	11064	11064	11064	11064	11064	11064	11064		
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	rpm	2900	2900	2900	2900	2900	2900	2900	2900	3200		
Max. input speed	n_{1Max}	rpm	6250	6250	6250	6250	6250	6250	6250	6250	6250		
Mean no load running torque ^{b)} (at $n_i = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	2.8	2.4	2.2	2.6	2.0	1.9	1.5	1.5	1.2		
		in.lb	25	22	20	23	17	17	14	13	11		
Max. backlash	j_t	arcmin	Standard ≤ 3 / Reduced ≤ 1										
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	180	185	145	180	180	130	175	175	175		
		in.lb/arcmin	1593	1637	1283	1593	1593	1151	1549	1549	1549		
Tilting rigidity	C_{2K}	Nm/arcmin	560										
		in.lb/arcmin	4956										
Max. axial force ^{c)}	F_{2AMax}	N	6130										
		lb _f	1379										
Max. tilting moment	M_{2KMax}	Nm	1379										
		in.lb	11816										
Efficiency at full load	η	%	94										
Service life ^{f)}	L_h	h	> 20000										
Weight (incl. standard adapter plate)	m	kg	14.1										
		lb _m	31.2										
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	dB(A)	≤ 60										
		°C	+90										
Max. permitted housing temperature		F	194										
		°C	-15 to +40										
Ambient temperature		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 [®])			-										
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	E	19	J_1	kgcm ²	2.53	2.08	2.30	2.01	1.67	2.12	1.64	1.44	1.42
				10 ⁻³ in.lb.s ²	2.24	1.84	2.04	1.78	1.48	1.88	1.45	1.27	1.26
	G	24	J_1	kgcm ²	3.22	2.77	2.99	2.70	2.37	2.81	2.33	2.13	2.12
				10 ⁻³ in.lb.s ²	2.85	2.45	2.65	2.39	2.10	2.49	2.06	1.89	1.88
	K	38	J_1	kgcm ²	10.3	9.83	10.1	9.77	9.43	9.88	9.40	9.20	9.18
				10 ⁻³ in.lb.s ²	9.12	8.70	8.94	8.65	8.35	8.74	8.32	8.14	8.12

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

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

^{b)} Valid for standard clamping hub diameter

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

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

^{f)} Please contact us to discuss

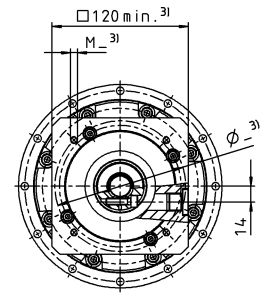
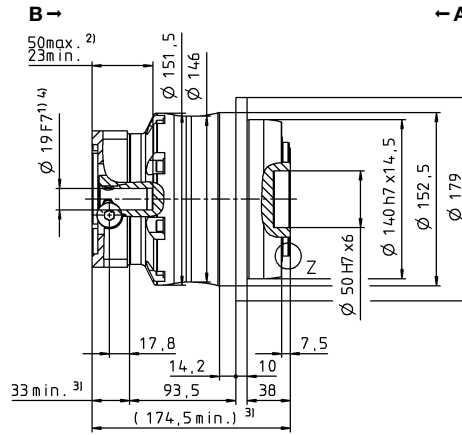
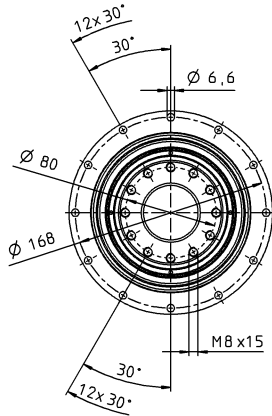
application-specific service lifetimes

View A

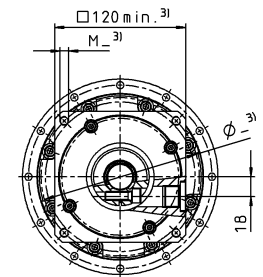
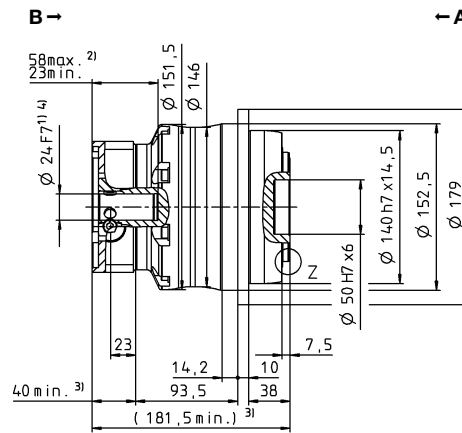
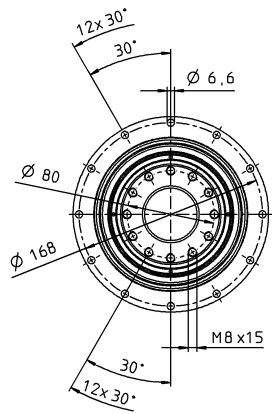
View B

2-stage

up to 19⁴⁾ (E)
clamping hub diameter

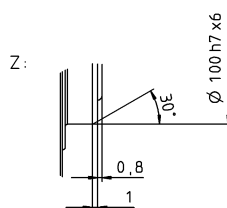
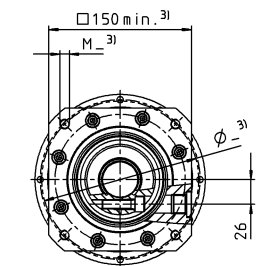
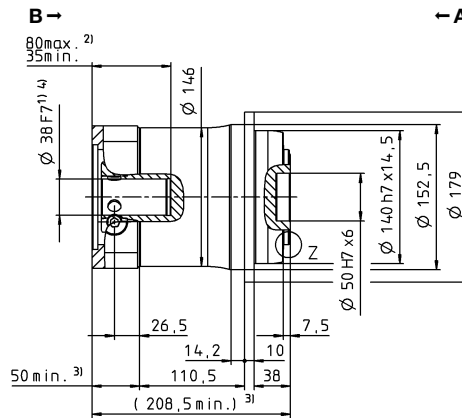
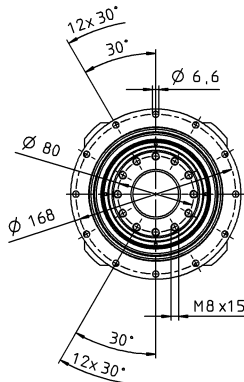


up to 24⁴⁾ (G)⁵⁾
clamping hub diameter



Motor shaft diameter [mm]

up to 38⁴⁾ (K)
clamping hub diameter



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

⁵⁾ Standard clamping hub diameter

DP+ 010 MA 2-stage

			2-stage					
Ratio	<i>i</i>		22	27.5	38.5	55		
Max. torque ^{a) b)}	T_{2a}	Nm	315	315	315	315		
		in.lb	2788	2788	2788	2788		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	230	230	230	230		
		in.lb	2036	2036	2036	2036		
Nominal torque (at n_n)	T_{2N}	Nm	140	137	139	147		
		in.lb	1242	1213	1230	1303		
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	525	525	525	525		
		in.lb	4647	4647	4647	4647		
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	rpm	4000	4000	4000	4000		
Max. input speed	n_{1Max}	rpm	7500	7500	7500	7500		
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.52	0.47	0.41	0.38		
		in.lb	4.6	4.2	4.0	3.4		
Max. backlash	j_t	arcmin	≤ 1					
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	43	43	43	42		
		in.lb/arcmin	381	381	381	372		
Tilting rigidity	C_{2K}	Nm/arcmin	225					
		in.lb/arcmin	1991					
Max. axial force ^{c)}	F_{2AMax}	N	2795					
		lb _f	629					
Max. tilting moment	M_{2KMax}	Nm	400					
		in.lb	3540					
Efficiency at full load	η	%	94					
Service life ¹⁾	L_h	h	> 20000					
Weight (incl. standard adapter plate)	m	kg	3.2					
		lb _m	7.1					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	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 [®])			-					
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	C	14	J_1	kgcm ²	0.21	0.18	0.16	0.14
				10 ⁻³ in.lb.s ²	0.19	0.16	0.14	0.12
	E	19	J_1	kgcm ²	0.52	0.50	0.47	0.46
				10 ⁻³ in.lb.s ²	0.46	0.44	0.42	0.41

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

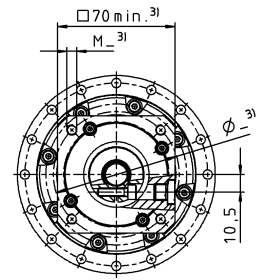
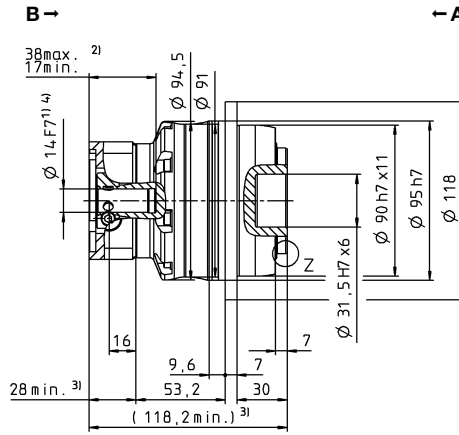
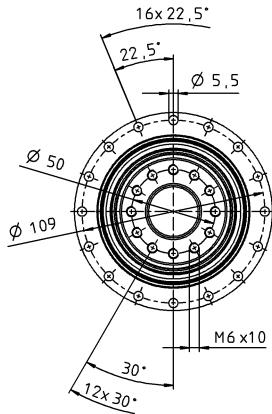
- ^{a)} At max. 10 % M_{2KMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ¹⁾ Please contact us to discuss application-specific service lifetimes

View A

View B

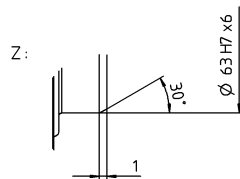
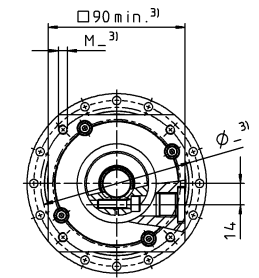
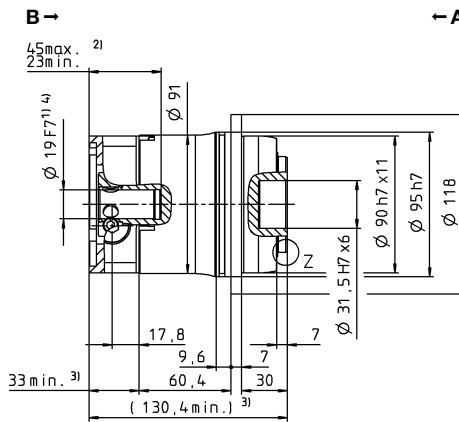
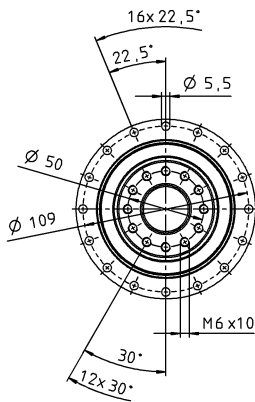
2-stage

up to 14⁴⁾ (C)⁵⁾
clamping hub
diameter



Motor shaft diameter [mm]

up to 19⁴⁾ (E)
clamping hub
diameter



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

⁵⁾ Standard clamping hub diameter

DP+ 025 MA 2-stage

			2-stage					
Ratio	<i>i</i>		22	27.5	38.5	55		
Max. torque ^{a) b)}	T_{2a}	Nm	583	583	583	583		
		in.lb	5160	5160	5160	5160		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	530	530	530	530		
		in.lb	4691	4691	4691	4691		
Nominal torque (at n_n)	T_{2N}	Nm	312	314	371	413		
		in.lb	2762	2775	3286	3652		
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	1200	1200	1200	1200		
		in.lb	10621	10621	10621	10621		
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	rpm	3500	3500	3500	3500		
Max. input speed	n_{1Max}	rpm	7500	7500	7500	7500		
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	1.0	0.87	0.78	0.70		
		in.lb	9.2	7.7	6.9	6.2		
Max. backlash	j_t	arcmin	≤ 1					
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	105	105	105	100		
		in.lb/arcmin	929	929	929	885		
Tilting rigidity	C_{2K}	Nm/arcmin	550					
		in.lb/arcmin	4868					
Max. axial force ^{c)}	F_{2AMax}	N	4800					
		lb _f	1080					
Max. tilting moment	M_{2KMax}	Nm	550					
		in.lb	4868					
Efficiency at full load	η	%	94					
Service life ^{f)}	L_h	h	> 20000					
Weight (incl. standard adapter plate)	m	kg	5.6					
		lb _m	12.4					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	dB(A)	≤ 58					
Max. permitted housing temperature		°C	+90					
		F	194					
Ambient temperature		°C	-15 to +40					
		F	5 to 104					
Lubrication			Lubricated for life					
Direction of rotation			In- and output same direction					
Protection class			IP 65					
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	E	19	J_1	kgcm ²	0.87	0.70	0.60	0.55
				10 ⁻³ in.lb.s ²	0.77	0.62	0.53	0.49
	G	24	J_1	kgcm ²	2.39	2.22	2.12	2.07
				10 ⁻³ in.lb.s ²	2.12	1.96	1.88	1.83

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

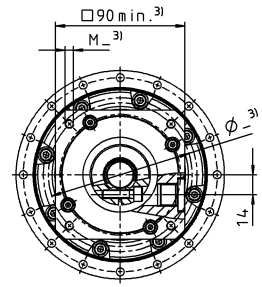
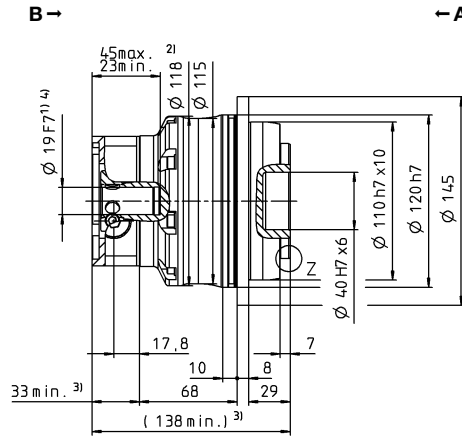
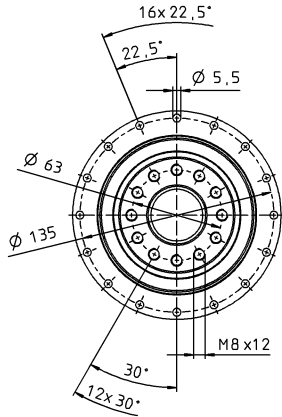
- ^{a)} At max. 10 % M_{2KMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{f)} Please contact us to discuss application-specific service lifetimes

View A

View B

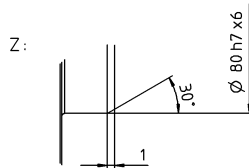
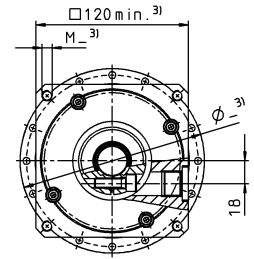
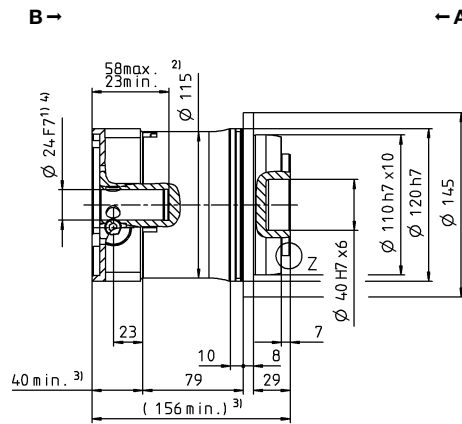
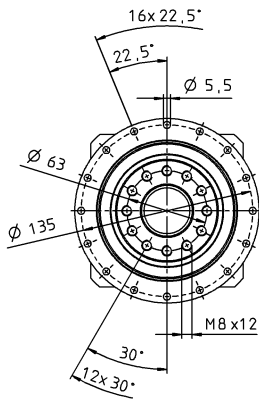
2-stage

up to 19⁴⁾ (E)⁵⁾
clamping hub diameter



Motor shaft diameter [mm]

up to 24⁴⁾ (G)
clamping hub diameter



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

⁵⁾ Standard clamping hub diameter

DP+ 050 MA 2-stage

			2-stage					
Ratio	i		22	27.5	38.5	55		
Max. torque ^{a) b)}	T_{2a}	Nm	1402	1402	1402	1402		
		in.lb	12406	12406	12406	12406		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	992	992	992	992		
		in.lb	8780	8780	8780	8780		
Nominal torque (at n_n)	T_{2N}	Nm	523	566	638	717		
		in.lb	4632	5005	5649	6348		
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	2375	2375	2375	2375		
		in.lb	21021	21021	21021	21021		
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	rpm	3000	3000	3000	3000		
Max. input speed	n_{1Max}	rpm	6250	6250	6250	6250		
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	2.7	2.4	2.1	1.7		
		in.lb	23.9	21.2	18.9	15.0		
Max. backlash	j_t	arcmin	≤ 1					
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	220	220	220	220		
		in.lb/arcmin	1947	1947	1947	1947		
Tilting rigidity	C_{2K}	Nm/arcmin	560					
		in.lb/arcmin	4956					
Max. axial force ^{c)}	F_{2AMax}	N	6130					
		lb _f	1379					
Max. tilting moment	M_{2KMax}	Nm	1335					
		in.lb	11816					
Efficiency at full load	η	%	94					
Service life ¹⁾	L_h	h	> 20000					
Weight (incl. standard adapter plate)	m	kg	12.5					
		lb _m	27.6					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	dB(A)	≤ 60					
Max. permitted housing temperature		°C	+90					
		F	194					
Ambient temperature		°C	-15 to +40					
		F	5 to 104					
Lubrication			Lubricated for life					
Direction of rotation			In- and output same direction					
Protection class			IP 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	G	24	J_1	kgcm ²	3.80	3.33	3.00	2.80
				10 ⁻³ in.lb.s ²	3.36	2.95	2.66	2.48
	K	38	J_1	kgcm ²	10.7	10.3	9.90	9.70
				10 ⁻³ in.lb.s ²	9.47	9.12	8.76	8.58

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

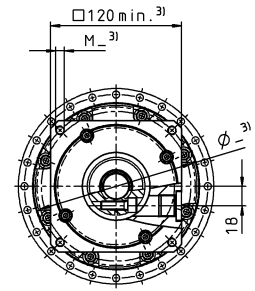
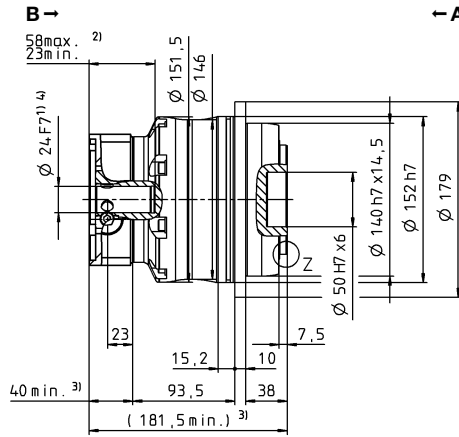
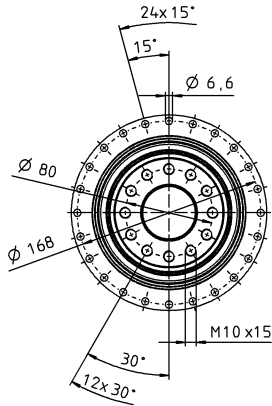
- ^{a)} At max. 10 % M_{2KMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ¹⁾ Please contact us to discuss application-specific service lifetimes

View A

View B

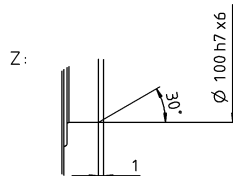
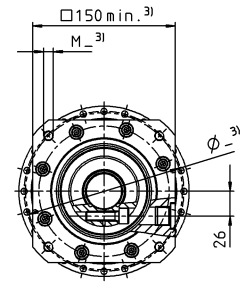
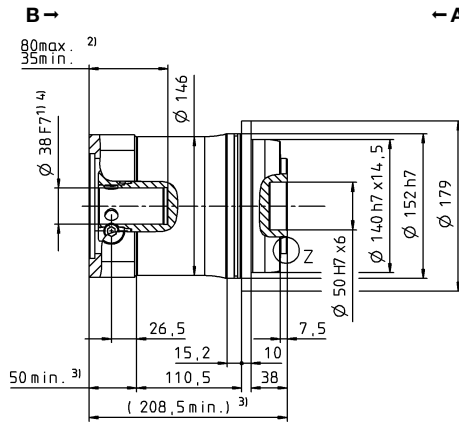
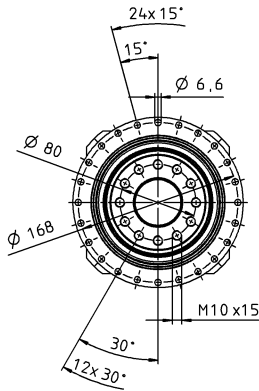
2-stage

up to 24⁴⁾ (G)⁵⁾
clamping hub diameter



Motor shaft diameter [mm]

up to 38⁴⁾ (K)
clamping hub diameter



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

⁵⁾ Standard clamping hub diameter