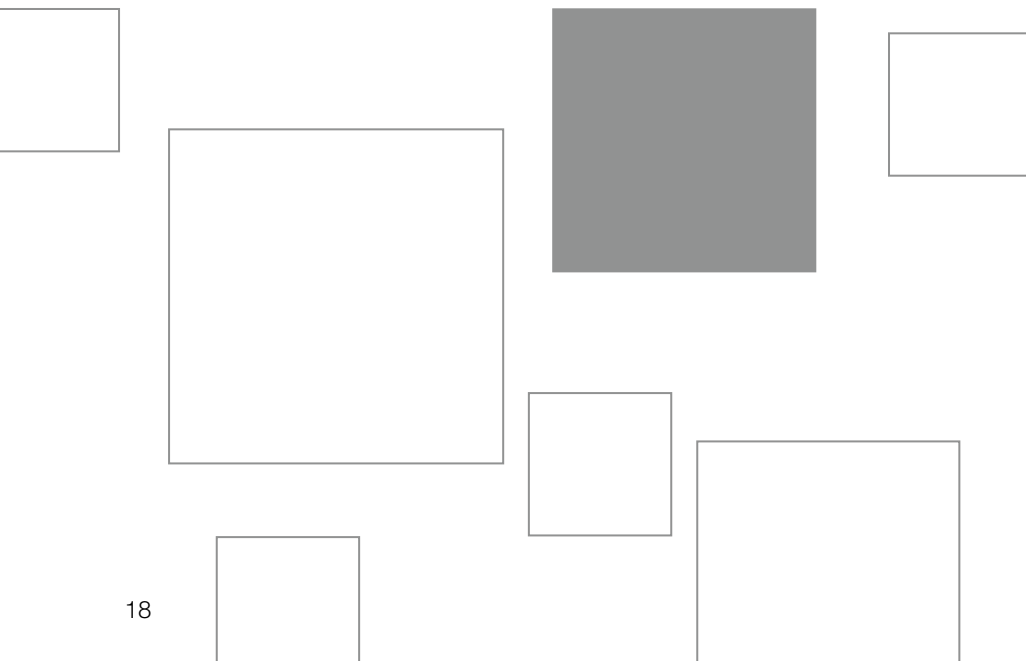


alpha Basic Line

PLANETARY GEARBOXES CP / CPS

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





* CPS with replaceable B5 output flange

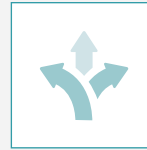
CP / CPS – Geared up to Fit

CP



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

PRODUCT HIGHLIGHTS



High flexibility

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



Maximum economy

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



Fast sizing

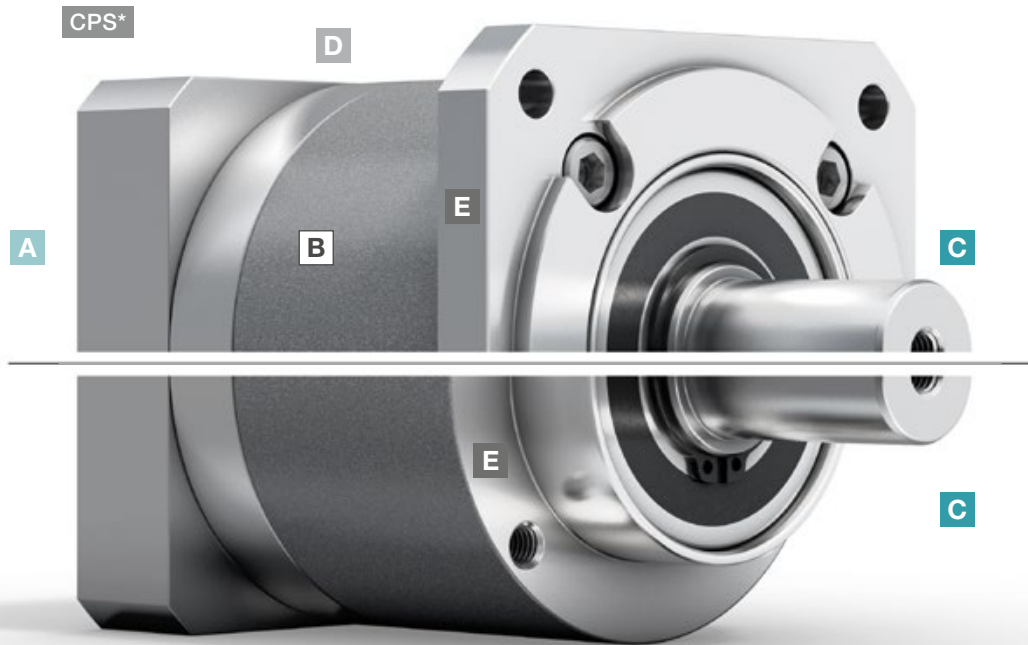
Efficient online sizing within seconds in the SIZING ASSISTANT on the basis of the application data or the motor.



CPS – planetary gearbox with replaceable B5 output flange



CPS – planetary gearbox with long centering



CPS

* CPS with replaceable B5 output flange

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

- B High ratio variation**
- Large number of ratios ($i=3$ to $i=100$)
 - Available in the common binary ratios

- C Various output shapes**
- With smooth shaft as well as shaft with key

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

- E Variable application connection**
- Reduced installation space and maximum compactness thanks to a long centering
 - Flange attachment for B5 mounting



CPS – planetary gearbox with elastomer coupling



SIZING ASSISTANT
YOUR GEARBOX WITHIN SECONDS

Efficient gearbox sizing within seconds – online without login
www.sizing-assistant.com

			1-stage					
Ratio	i		4	5	7	8	10	
Max. torque ^{a) b) e)}	T_{2a}	Nm	17	21	21	20	20	
		in.lb	150	186	186	177	177	
Max. acceleration torque ^{e)} (max. 1000 cycles per hour)	T_{2B}	Nm	11	14	14	13	13	
		in.lb	97	124	124	115	115	
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	26	26	26	26	26	
		in.lb	230	230	230	230	230	
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1N}	rpm	3800	3800	4300	4300	4300	
Max. input speed	n_{1Max}	rpm	9000	9000	9000	9000	9000	
Mean no load running torque ^{b)} (at $n_1=3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.07	0.06	0.06	0.06	0.05	
		in.lb	0.62	0.53	0.53	0.53	0.44	
Max. backlash	j_t	arcmin	≤ 12					
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	0.58	0.58	0.58	0.52	0.52	
		in.lb/arcmin	5.1	5.1	5.1	4.6	4.6	
Max. axial force ^{c)}	F_{2AMax}	N	240					
		lb _f	54					
Max. lateral force ^{c) 1)}	F_{2QMMax}	N	170					
		lb _f	38					
Max. tilting moment	M_{2KMMax}	Nm	4					
		in.lb	35					
Efficiency at full load	η	%	97					
Service life	L_n	h	> 20000					
Weight (incl. standard adapter plate)	m	kg	0.5					
		lb _m	1.1					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	dB(A)	≤ 59					
Max. permitted housing temperature		°C	+90					
		°F	+194					
Ambient temperature		°C	-15 to +40					
		°F	+5 to +104					
Lubrication			Lubricated for life					
Direction of rotation			In- and output same direction					
Protection class			IP 64					
Elastomer coupling (recommended product type – validate sizing with cymex®)			ELC-0005BA010.000-X					
Bore diameter of coupling on the application side		mm	X = 004.000 - 012.700					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	B 11	J_1	kgcm ²	0.04	0.04	0.04	0.03	0.03
			10 ⁻³ in.lb.s ²	0.04	0.04	0.04	0.03	0.03

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

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

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

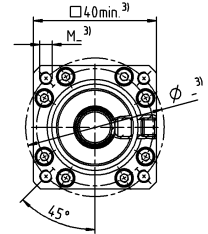
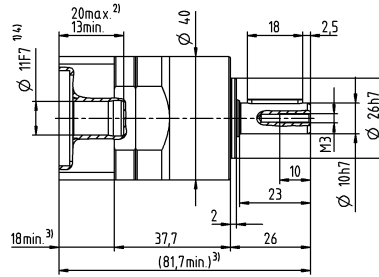
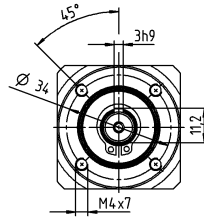
^{e)} Valid for: Smooth shaft

¹⁾ At increased lateral forces – see glossary

Motor shaft diameter [mm]

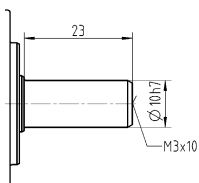
1-stage

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



Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

⁵⁾ Standard clamping hub diameter

			2-stage									
Ratio	i		16	20	25	28	35	40	50	70	100	
Max. torque ^{a) b) e)}	T_{2a}	Nm	17	17	21	17	21	17	21	21	20	
		in.lb	150	150	186	150	186	150	186	186	177	
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	11	11	14	11	14	11	14	14	13	
		in.lb	97	97	124	97	124	97	124	124	115	
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	26	26	26	26	26	26	26	26	26	
		in.lb	230	230	230	230	230	230	230	230	230	
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1N}	rpm	3800	3800	3800	3800	4300	4300	4300	4300	4300	
Max. input speed	n_{1Max}	rpm	9000	9000	9000	9000	9000	9000	9000	9000	9000	
Mean no load running torque ^{b)} (at $n_1=3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.09	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.06	
		in.lb	0.8	0.71	0.71	0.71	0.62	0.62	0.62	0.53	0.53	
Max. backlash	j_t	arcmin	≤ 18									
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.52	
		in.lb/arcmin	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	4.6	
Max. axial force ^{c)}	F_{2AMax}	N	240									
		lb _f	54									
Max. lateral force ^{c) 9)}	F_{2OMax}	N	170									
		lb _f	38									
Max. tilting moment	M_{2KMax}	Nm	4									
		in.lb	35									
Efficiency at full load	η	%	95									
Service life	L_h	h	> 20000									
Weight (incl. standard adapter plate)	m	kg	0.7									
		lb _m	1.5									
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	dB(A)	≤ 59									
Max. permitted housing temperature		°C	+90									
		°F	+194									
Ambient temperature		°C	-15 to +40									
		°F	+5 to +104									
Lubrication			Lubricated for life									
Direction of rotation			In- and output same direction									
Protection class			IP 64									
Elastomer coupling (recommended product type – validate sizing with cymex®)			ELC-0005BA010.000-X									
Bore diameter of coupling on the application side		mm	X = 004.000 - 012.700									
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	B 11	J_t	kgcm ²	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03
			10 ⁻³ in.lb.s ²	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

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

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

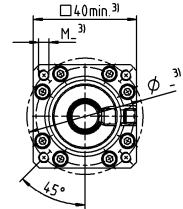
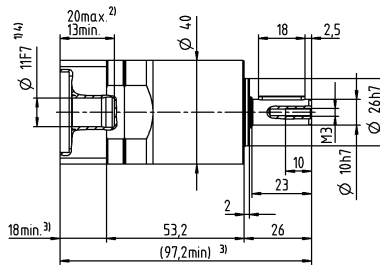
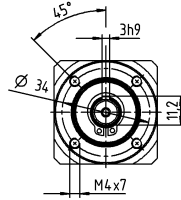
^{e)} Valid for: Smooth shaft

⁹⁾ At increased lateral forces – see glossary

Motor shaft diameter [mm]

2-stage

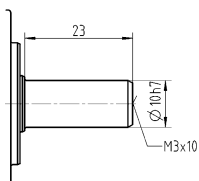
up to 11⁴⁾ (B)⁵⁾
clamping hub
diameter



Planetary Gearboxes
Basic Line

Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

⁵⁾ Standard clamping hub diameter

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

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

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

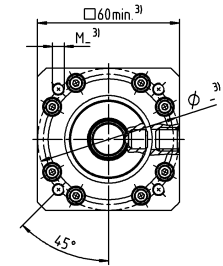
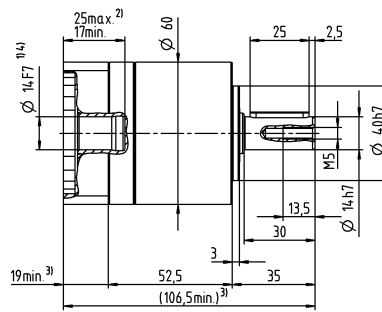
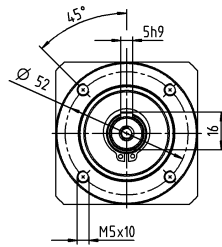
^{d)} Please reduce input speed at higher ambient temperatures

^{e)} Valid for: Smooth shaft

^{f)} At increased lateral forces – see classmate

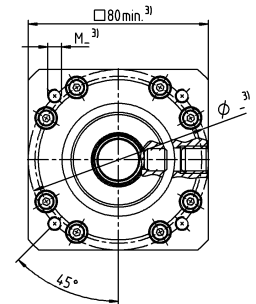
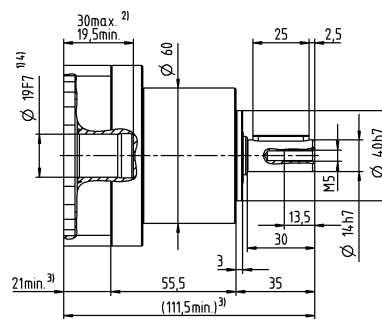
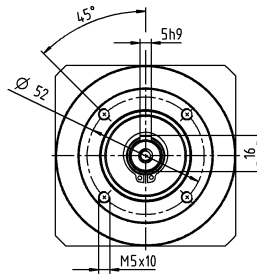
1-stage

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



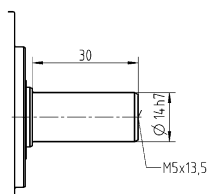
Motor shaft diameter [mm]

up to 19⁴⁾ (E)
clamping hub
diameter



Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

⁵⁾ Standard clamping hub diameter

			2-stage														
Ratio	i		9	12	15	16	20	25	28	30	35	40	50	70	100		
Max. torque ^{a) b) e)}	T_{2a}	Nm	48	48	48	56	56	58	56	48	58	56	58	58	56		
		in.lb	425	425	425	496	496	513	496	425	513	496	513	513	496		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	30	30	30	35	35	40	35	30	40	35	40	40	35		
		in.lb	266	266	266	310	310	354	310	266	354	310	354	354	310		
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	75	75	75	75	75	75	75	75	75	75	75	75	75		
		in.lb	664	664	664	664	664	664	664	664	664	664	664	664	664		
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1N}	rpm	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	4000	4000		
Max. input speed	n_{1Max}	rpm	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000		
Mean no load running torque ^{b)} (at $n_1=3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.33	0.28	0.26	0.25	0.22	0.21	0.2	0.21	0.18	0.17	0.16	0.15	0.14		
		in.lb	2.9	2.5	2.3	2.2	1.9	1.9	1.8	1.9	1.6	1.5	1.4	1.3	1.2		
Max. backlash	j_t	arcmin	≤ 15														
Torsional rigidity ^{b)}	C_{121}	Nm/arcmin	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.9		
		in.lb/arcmin	19	19	19	19	19	19	19	19	19	19	19	19	17		
Max. axial force ^{c)}	F_{2AMax}	N	750														
		lb _f	169														
Max. lateral force ^{c) f)}	F_{2OMax}	N	500														
		lb _f	113														
Max. tilting moment	M_{2KMax}	Nm	17														
		in.lb	150														
Efficiency at full load	η	%	95														
Service life	L_h	h	> 20000														
Weight (incl. standard adapter plate)	m	kg	1.8														
		lb _m	4														
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 64														
Elastomer coupling (recommended product type – validate sizing with cymex®) Bore diameter of coupling on the application side			ELC-0020BA014.000-X														
		mm	X = 008.000 - 025.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	kgcm ²	0.22	0.22	0.21	0.2	0.19	0.18	0.17	0.19	0.16	0.17	0.16	0.15	0.15
				10 ⁻³ in.lb.s ²	0.19	0.19	0.19	0.18	0.17	0.16	0.17	0.14	0.15	0.14	0.13	0.13	
	E	19	J_1	kgcm ²	0.43	0.42	0.42	0.4	0.4	0.39	0.39	0.41	0.39	0.39	0.38	0.38	0.37
				10 ⁻³ in.lb.s ²	0.38	0.37	0.37	0.35	0.35	0.35	0.35	0.36	0.35	0.35	0.34	0.34	0.33

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

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

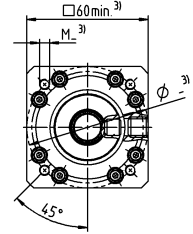
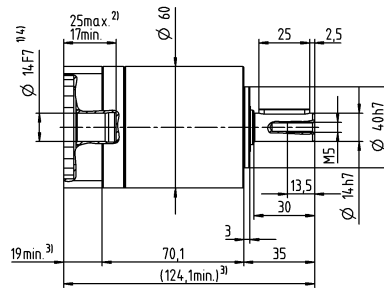
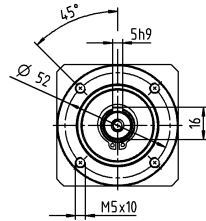
^{d)} Please reduce input speed at higher ambient temperatures

^{e)} Valid for: Smooth shaft

^{f)} At increased lateral forces – see classmate

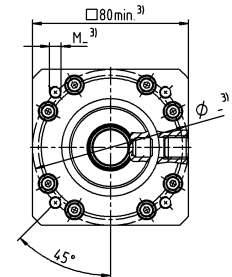
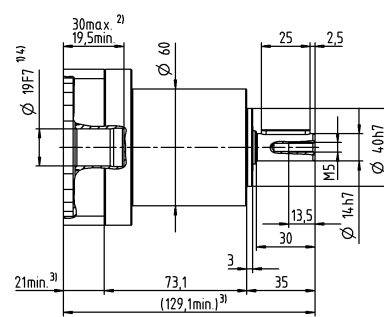
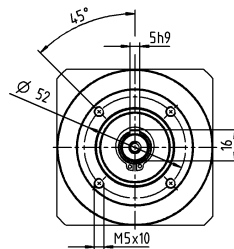
2-stage

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



Motor shaft diameter [mm]

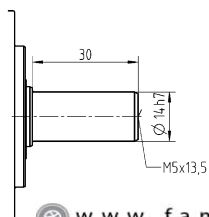
up to 19⁴⁾ (E)
clamping hub
diameter



Planetary Gearboxes
Basic Line

Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

⁵⁾ Standard clamping hub diameter

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

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

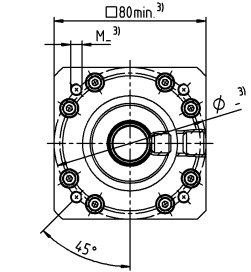
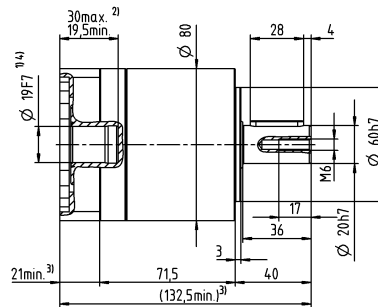
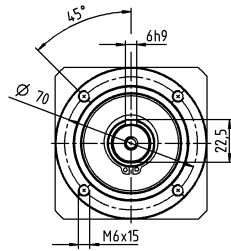
^{c)} Refers to center of the output shaft or flange

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

^{e)} Valid for: Smooth shaft

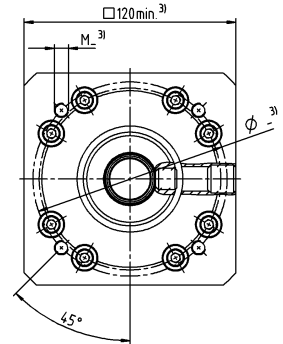
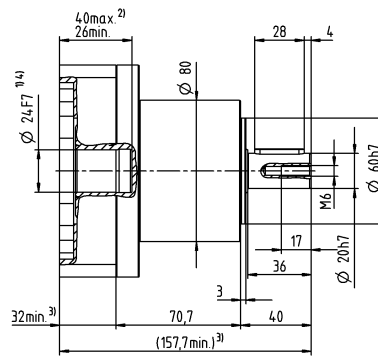
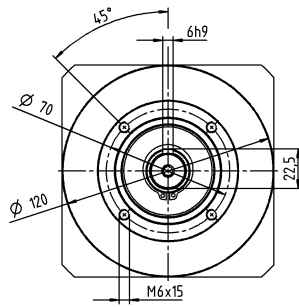
1-stage

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



Motor shaft diameter [mm]

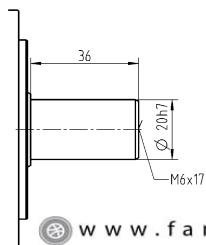
up to 24⁴⁾ (G)
clamping hub
diameter



Planetary Gearboxes
Basic Line

Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

⁵⁾ Standard clamping hub diameter

			2-stage														
Ratio	i		9	12	15	16	20	25	28	30	35	40	50	70	100		
Max. torque ^{a) b) e)}	T_{2a}	Nm	112	112	112	150	150	150	150	112	150	150	150	150	144		
		in.lb	991	991	991	1328	1328	1328	1328	991	1328	1328	1328	1328	1328	1275	
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	70	70	70	95	95	95	95	70	100	95	100	100	90		
		in.lb	620	620	620	841	841	841	841	620	885	841	885	885	797		
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	187	187	187	187	187	187	187	187	187	187	187	187	187		
		in.lb	1655	1655	1655	1655	1655	1655	1655	1655	1655	1655	1655	1655	1655		
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1N}	rpm	3100	3100	3100	3100	3100	3100	3100	3100	3100	3100	3100	3600	3600		
Max. input speed	n_{1Max}	rpm	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000		
Mean no load running torque ^{b)} (at $n_1=3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.5	0.43	0.39	0.38	0.34	0.32	0.3	0.31	0.28	0.26	0.24	0.22	0.21		
		in.lb	4.4	3.8	3.5	3.4	3	2.8	2.7	2.7	2.5	2.3	2.1	1.9	1.9		
Max. backlash	j_t	arcmin	≤ 15														
Torsional rigidity ^{b)}	C_{121}	Nm/arcmin	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	5.5		
		in.lb/arcmin	54	54	54	54	54	54	54	54	54	54	54	54	49		
Max. axial force ^{c)}	F_{2AMax}	N	1600														
		lb _f	360														
Max. lateral force ^{c)}	F_{2OMax}	N	1200														
		lb _f	270														
Max. tilting moment	M_{2KMMax}	Nm	54														
		in.lb	478														
Efficiency at full load	η	%	95														
Service life	L_h	h	> 20000														
Weight (incl. standard adapter plate)	m	kg	3.7														
		lb _m	8.2														
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	dB(A)	≤ 62														
Max. permitted housing temperature		°C	+90														
		°F	+194														
Ambient temperature		°C	-15 to +40														
		°F	+5 to +104														
Lubrication			Lubricated for life														
Direction of rotation			In- and output same direction														
Protection class			IP 64														
Elastomer coupling (recommended product type – validate sizing with cymex®)			ELC-0060BA020.000-X														
Bore diameter of coupling on the application side		mm	X = 012.000 - 032.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	kgcm ²	0.66	1.4	1.6	0.98	1.1	0.82	1.2	2.1	0.88	1.4	1	0.71	0.54
				10 ⁻³ in.lb.s ²	0.58	1.2	1.4	0.87	0.97	0.73	1.1	1.9	0.78	1.2	0.89	0.63	0.48
	G	24	J_1	kgcm ²	1.5	2.3	2.4	1.8	1.9	1.7	2	3	1.7	2.2	1.9	1.6	1.4
				10 ⁻³ in.lb.s ²	1.3	2	2.1	1.6	1.7	1.5	1.8	2.7	1.5	1.9	1.7	1.4	1.2

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

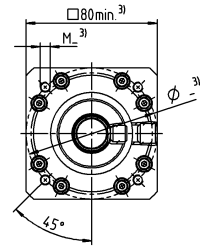
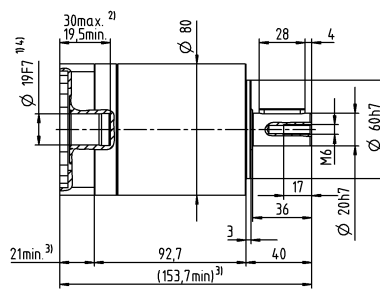
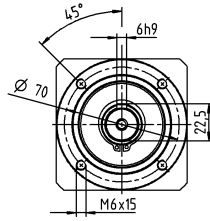
^{c)} Refers to center of the output shaft or flange

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

^{e)} Valid for: Smooth shaft

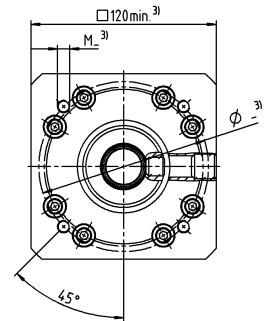
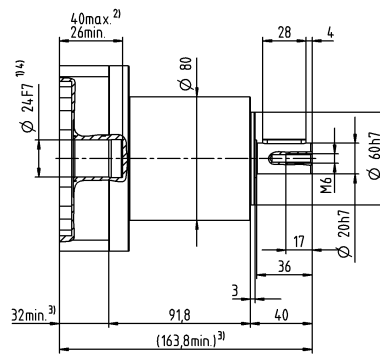
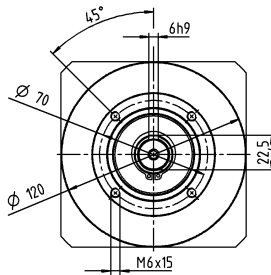
2-stage

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



Motor shaft diameter [mm]

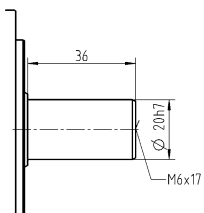
up to 24⁴⁾ (G)
clamping hub
diameter



Planetary Gearboxes
Basic Line

Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

⁵⁾ Standard clamping hub diameter

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

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

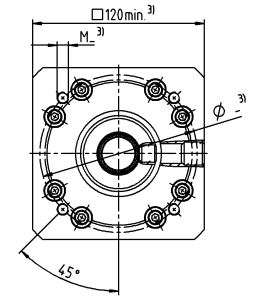
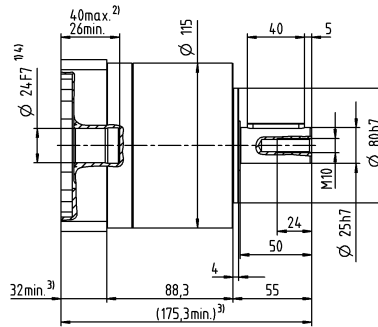
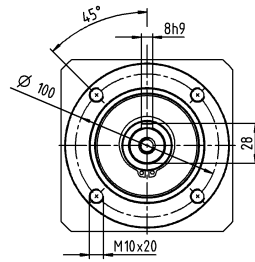
^{c)} Refers to center of the output shaft or flange

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

^{e)} Valid for: Smooth shaft

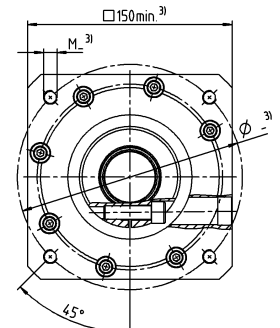
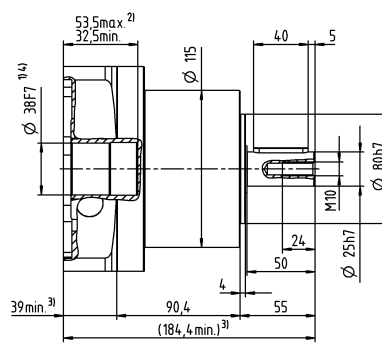
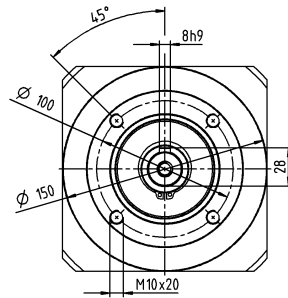
1-stage

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



Motor shaft diameter [mm]

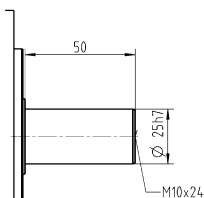
up to 38⁴⁾ (K)
clamping hub
diameter



Planetary Gearboxes
Basic Line

Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

⁵⁾ Standard clamping hub diameter

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

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

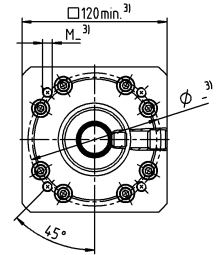
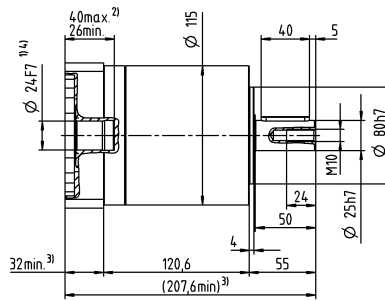
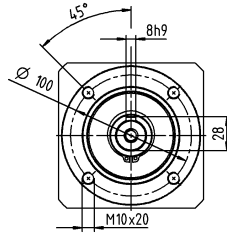
^{c)} Refers to center of the output shaft or flange

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

^{e)} Valid for: Smooth shaft

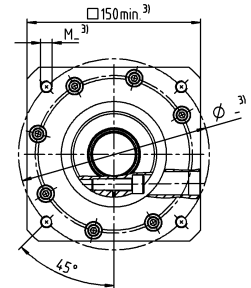
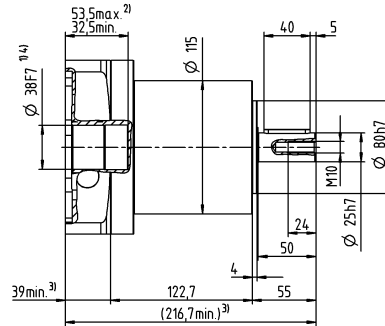
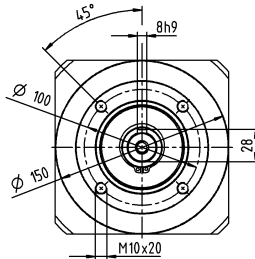
2-stage

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



Motor shaft diameter [mm]

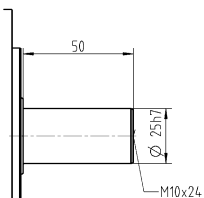
up to 38⁴⁾ (K)
clamping hub
diameter



Planetary Gearboxes
Basic Line

Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

⁵⁾ Standard clamping hub diameter

			1-stage			2-stage				
Ratio	i		5	8	10	25	50	100		
Max. torque ^{a) b) e)}	T_{2a}	Nm	800	640	640	700	700	640		
		in.lb	7081	5665	5665	6196	6196	5665		
Max. acceleration torque ^{a)} (max. 1000 cycles per hour)	T_{2B}	Nm	500	400	400	500	500	400		
		in.lb	4425	3540	3540	4425	4425	3540		
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	1000	1000	1000	1000	1000	1000		
		in.lb	8851	8851	8851	8851	8851	8851		
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1N}	rpm	2000	2200	2300	2600	3000	3000		
Max. input speed	n_{1Max}	rpm	4000	4000	4000	6000	6000	6000		
Mean no load running torque ^{b)} (at $n_1=3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	2.4	2	1.9	0.8	0.6	0.55		
		in.lb	21	18	17	7.1	5.3	4.9		
Max. backlash	j_t	arcmin	≤ 12			≤ 15				
Torsional rigidity ^{b)}	C_{121}	Nm/arcmin	55	44	44	55	55	44		
		in.lb/arcmin	487	389	389	487	487	389		
Max. axial force ^{c)}	F_{2AMax}	N	6000			6000				
		lb _f								
Max. lateral force ^{c)}	F_{2OMax}	N	8000			8000				
		lb _f								
Max. tilting moment	M_{2KMax}	Nm	704			704				
		in.lb	6231			6231				
Efficiency at full load	η	%	97			95				
Service life	L_n	h	> 20000			> 20000				
Weight (incl. standard adapter plate)	m	kg	20			21				
		lb _m	44			46				
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	dB(A)	≤ 68			≤ 65				
Max. permitted housing temperature		°C	+90			+90				
		°F	+194			+194				
Ambient temperature		°C	-15 to +40			-15 to +40				
		°F	+5 to +104			+5 to +104				
Lubrication			Lubricated for life							
Direction of rotation			In- and output same direction							
Protection class			IP 64							
Elastomer coupling (recommended product type – validate sizing with cymex®)			ELC-0300BA040.000-X							
Bore diameter of coupling on the application side		mm	X = 020.000 - 045.000							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	kgcm ²	-	-	-	1.2	1.1	0.82
				10 ⁻³ in.lb.s ²	-	-	-	1,1	0,97	0,73
	G	24	J_1	kgcm ²	-	-	-	2	1,8	1,6
				10 ⁻³ in.lb.s ²	-	-	-	1,8	1,6	1,4
	H	28	J_1	kgcm ²	-	-	-	1,7	1,5	1,3
				10 ⁻³ in.lb.s ²	-	-	-	1,5	1,3	1,2
	I	32	J_1	kgcm ²	-	-	-	5,8	5,6	5,4
				10 ⁻³ in.lb.s ²	-	-	-	5,1	5	4,8
	K	38	J_1	kgcm ²	8.8	7.4	7.2	7	6,8	6,5
				10 ⁻³ in.lb.s ²	7.8	6.5	6.4	6,2	6	5,8

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

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

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

^{e)} Valid for: Smooth shaft

			1-stage							
Ratio	i		3	4	5	7	8	10		
Max. torque ^{a) b) e)}	T_{2a}	Nm	48	56	58	58	56	56		
		in.lb	425	496	513	513	496	496		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	30	35	40	40	35	35		
		in.lb	266	310	354	354	310	310		
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	75	75	75	75	75	75		
		in.lb	664	664	664	664	664	664		
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1N}	rpm	3300	3300	3300	4000	4000	4000		
Max. input speed	n_{1Max}	rpm	7000	7000	7000	7000	7000	7000		
Mean no load running torque ^{b)} (at $n_1=3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.25	0.2	0.17	0.15	0.14	0.13		
		in.lb	2.2	1.8	1.5	1.3	1.2	1.2		
Max. backlash	j_t	arcmin	≤ 12							
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	2.1	2.1	2.1	2.1	1.9	1.9		
		in.lb/arcmin	19	19	19	19	17	17		
Max. axial force ^{c)}	F_{2AMax}	N	750							
		lb _f	169							
Max. lateral force ^{c)}	F_{2OMax}	N	500							
		lb _f	113							
Max. tilting moment	M_{2KMMax}	Nm	17							
		in.lb	150							
Efficiency at full load	η	%	97							
Service life	L_h	h	> 20000							
Weight (incl. standard adapter plate)	m	kg	1.4							
		lb _m	3.1							
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 64							
Elastomer coupling (recommended product type – validate sizing with cymex®)			ELC-0020BA014.000-X							
Bore diameter of coupling on the application side		mm	X = 008.000 - 025.000							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	kgcm ²	0.23	0.2	0.18	0.15	0.15	0.15
				10 ⁻³ in.lb.s ²	0.2	0.18	0.16	0.13	0.13	0.13
	E	19	J_1	kgcm ²	0.43	0.4	0.39	0.38	0.38	0.37
				10 ⁻³ in.lb.s ²	0.38	0.35	0.35	0.34	0.34	0.33

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

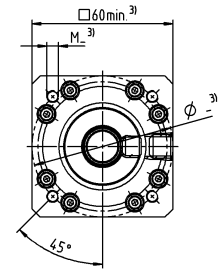
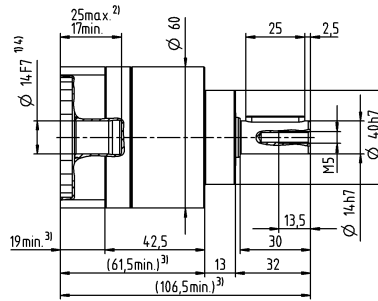
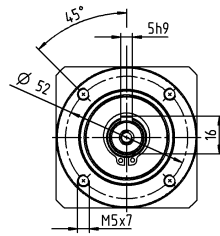
^{c)} Refers to center of the output shaft or flange

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

^{e)} Valid for: Smooth shaft

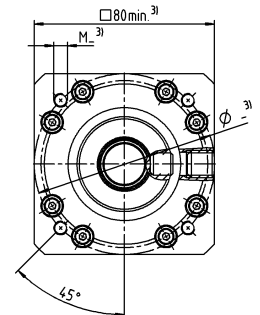
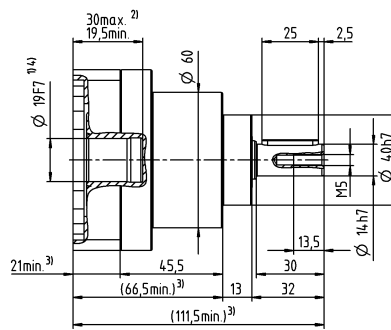
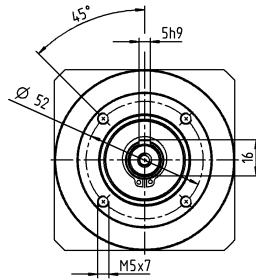
1-stage

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



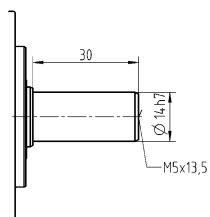
Motor shaft diameter [mm]

up to 19⁴⁾ (E)
clamping hub
diameter

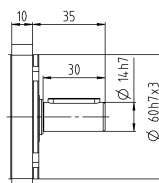
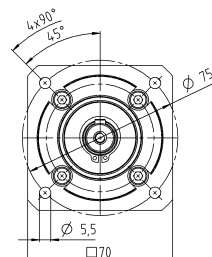


Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

⁵⁾ Standard clamping hub diameter

			2-stage														
Ratio	i		9	12	15	16	20	25	28	30	35	40	50	70	100		
Max. torque ^{a) b) e)}	T_{2a}	Nm	48	48	48	56	56	58	56	48	58	56	58	58	56		
		in.lb	425	425	425	496	496	513	496	425	513	496	513	513	496		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	30	30	30	35	35	40	35	30	40	35	40	40	35		
		in.lb	266	266	266	310	310	354	310	266	354	310	354	354	310		
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	75	75	75	75	75	75	75	75	75	75	75	75	75		
		in.lb	664	664	664	664	664	664	664	664	664	664	664	664	664		
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1N}	rpm	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	4000	4000		
Max. input speed	n_{1Max}	rpm	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000		
Mean no load running torque ^{b)} (at $n_1=3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.33	0.28	0.26	0.25	0.22	0.21	0.2	0.21	0.18	0.17	0.16	0.15	0.14		
		in.lb	2.9	2.5	2.3	2.2	1.9	1.9	1.8	1.9	1.6	1.5	1.4	1.3	1.2		
Max. backlash	j_t	arcmin	≤ 15														
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.9		
		in.lb/arcmin	19	19	19	19	19	19	19	19	19	19	19	19	17		
Max. axial force ^{c)}	F_{2AMax}	N	750														
		lb _f	169														
Max. lateral force ^{c)}	F_{2OMax}	N	500														
		lb _f	113														
Max. tilting moment	M_{2KMax}	Nm	17														
		in.lb	150														
Efficiency at full load	η	%	95														
Service life	L_h	h	> 20000														
Weight (incl. standard adapter plate)	m	kg	1.8														
		lb _m	4														
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 64														
Elastomer coupling (recommended product type – validate sizing with cymex®)			ELC-0020BA014.000-X														
Bore diameter of coupling on the application side		mm	X = 008.000 - 025.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	kgcm ²	0.22	0.22	0.21	0.2	0.19	0.18	0.17	0.19	0.16	0.17	0.16	0.15	0.15
				10 ⁻³ in.lb.s ²	0.19	0.19	0.19	0.18	0.17	0.16	0.17	0.14	0.15	0.14	0.13	0.13	
	E	19	J_1	kgcm ²	0.43	0.42	0.42	0.4	0.4	0.39	0.39	0.41	0.39	0.39	0.38	0.38	0.37
				10 ⁻³ in.lb.s ²	0.38	0.37	0.37	0.35	0.35	0.35	0.35	0.36	0.35	0.35	0.34	0.34	0.33

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

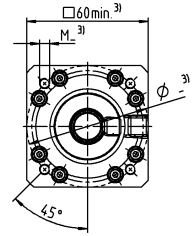
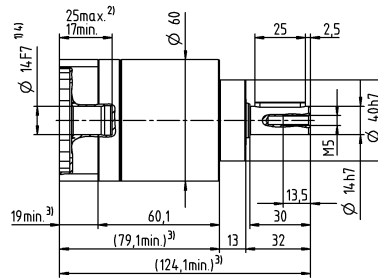
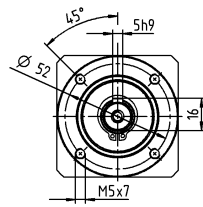
^{c)} Refers to center of the output shaft or flange

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

^{e)} Valid for: Smooth shaft

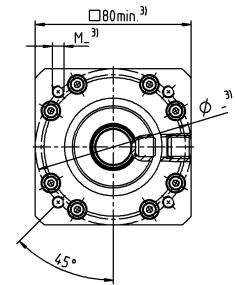
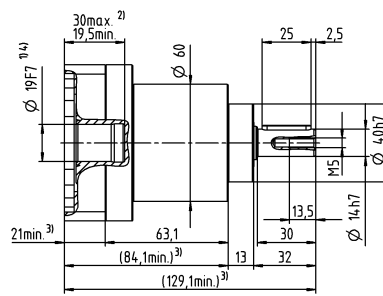
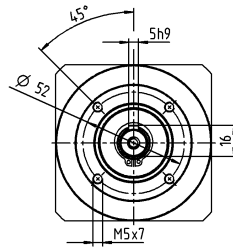
2-stage

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



Motor shaft diameter [mm]

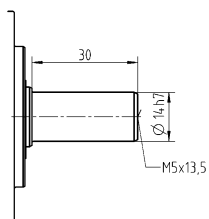
up to 19⁴⁾ (E)
clamping hub
diameter



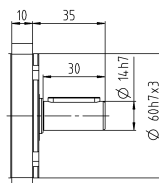
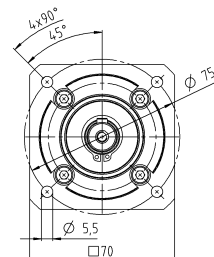
Planetary Gearboxes
Basic Line

Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

⁵⁾ Standard clamping hub diameter

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

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

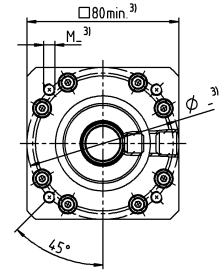
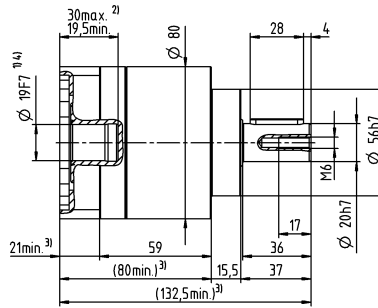
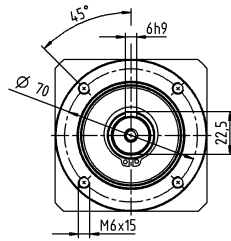
^{c)} Refers to center of the output shaft or flange

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

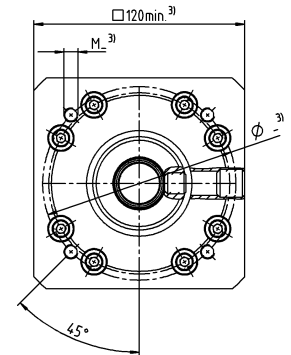
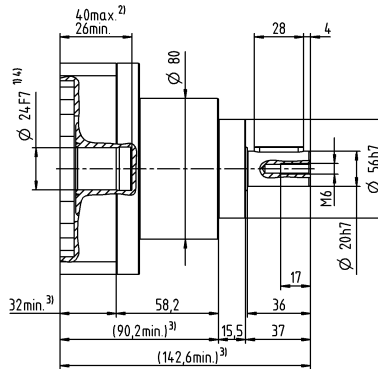
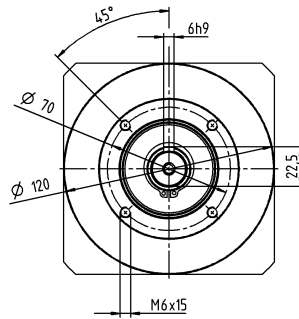
^{e)} Valid for: Smooth shaft

1-stage

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



up to 24⁴⁾ (G)
clamping hub
diameter

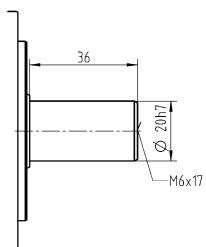


Motor shaft diameter [mm]

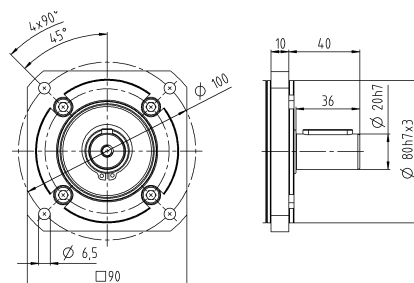
Planetary Gearboxes
Basic Line

Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

⁵⁾ Standard clamping hub diameter

			2-stage														
Ratio	i		9	12	15	16	20	25	28	30	35	40	50	70	100		
Max. torque ^{a) b) e)}	T_{2a}	Nm	112	112	112	150	150	150	150	112	150	150	150	150	144		
		in.lb	991	991	991	1328	1328	1328	1328	991	1328	1328	1328	1328	1328	1275	
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	70	70	70	95	95	95	95	70	100	95	100	100	90		
		in.lb	620	620	620	841	841	841	841	620	885	841	885	885	797		
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	187	187	187	187	187	187	187	187	187	187	187	187	187		
		in.lb	1655	1655	1655	1655	1655	1655	1655	1655	1655	1655	1655	1655	1655		
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1N}	rpm	3100	3100	3100	3100	3100	3100	3100	3100	3100	3100	3100	3600	3600		
Max. input speed	n_{1Max}	rpm	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000		
Mean no load running torque ^{b)} (at $n_1=3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.5	0.43	0.39	0.38	0.34	0.32	0.3	0.31	0.28	0.26	0.24	0.22	0.21		
		in.lb	4.4	3.8	3.5	3.4	3	2.8	2.7	2.7	2.5	2.3	2.1	1.9	1.9		
Max. backlash	j_t	arcmin	≤ 15														
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	5.5		
		in.lb/arcmin	54	54	54	54	54	54	54	54	54	54	54	54	49		
Max. axial force ^{c)}	F_{2AMax}	N	1600														
		lb _f	360														
Max. lateral force ^{c)}	F_{2OMax}	N	1200														
		lb _f	270														
Max. tilting moment	M_{2KMMax}	Nm	54														
		in.lb	478														
Efficiency at full load	η	%	95														
Service life	L_h	h	> 20000														
Weight (incl. standard adapter plate)	m	kg	3.7														
		lb _m	8.2														
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	dB(A)	≤ 62														
Max. permitted housing temperature		°C	+90														
		°F	+194														
Ambient temperature		°C	-15 to +40														
		°F	+5 to +104														
Lubrication			Lubricated for life														
Direction of rotation			In- and output same direction														
Protection class			IP 64														
Elastomer coupling (recommended product type – validate sizing with cymex®)			ELC-0060BA020.000-X														
Bore diameter of coupling on the application side		mm	X = 012.000 - 032.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	kgcm ²	0.66	1.4	1.6	0.98	1.1	0.82	1.2	2.1	0.88	1.4	1	0.71	0.54
				10 ⁻³ in.lb.s ²	0.58	1.2	1.4	0.87	0.97	0.73	1.1	1.9	0.78	1.2	0.89	0.63	0.48
	G	24	J_1	kgcm ²	1.5	2.3	2.4	1.8	1.9	1.7	2	3	1.7	2.2	1.9	1.6	1.4
				10 ⁻³ in.lb.s ²	1.3	2	2.1	1.6	1.7	1.5	1.8	2.7	1.5	1.9	1.7	1.4	1.2

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

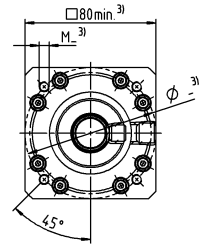
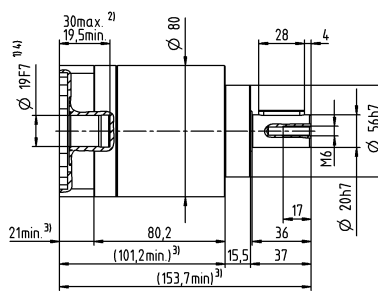
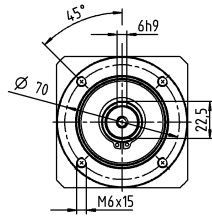
^{c)} Refers to center of the output shaft or flange

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

^{e)} Valid for: Smooth shaft

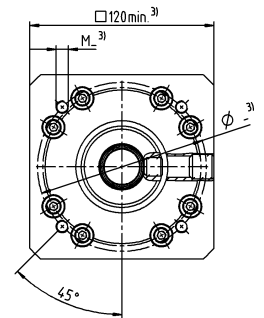
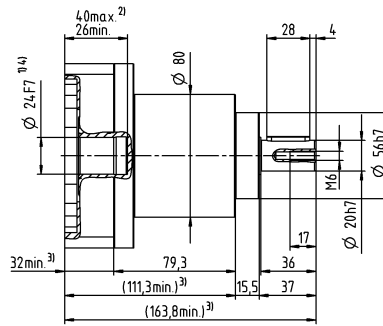
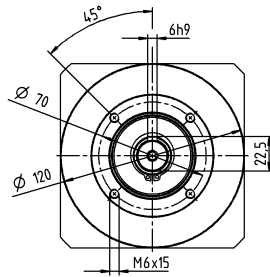
2-stage

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



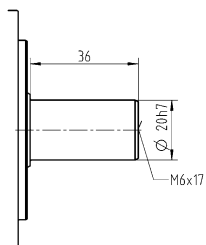
Motor shaft diameter [mm]

up to 24⁴⁾ (G)
clamping hub
diameter

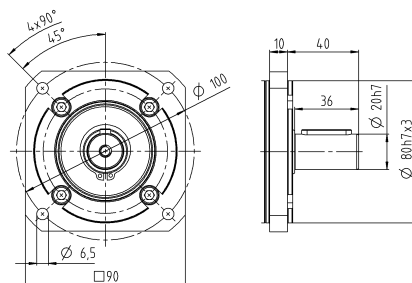


Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

⁵⁾ Standard clamping hub diameter

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

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

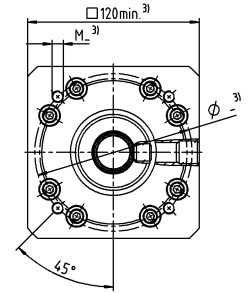
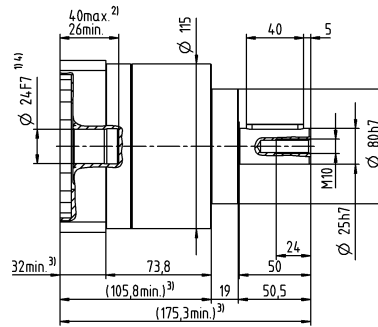
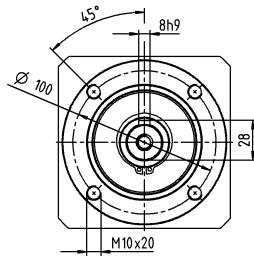
^{c)} Refers to center of the output shaft or flange

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

^{e)} Valid for: Smooth shaft

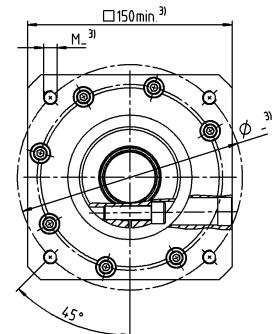
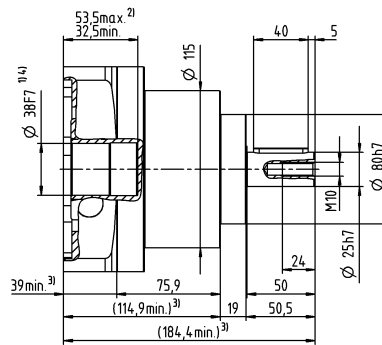
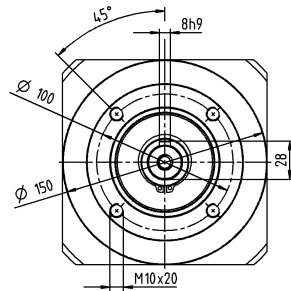
1-stage

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



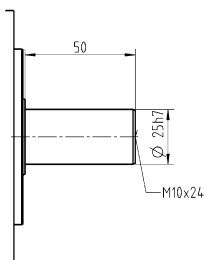
Motor shaft diameter [mm]

up to 38⁴⁾ (K)
clamping hub
diameter

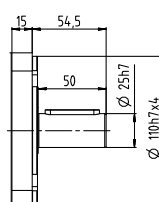
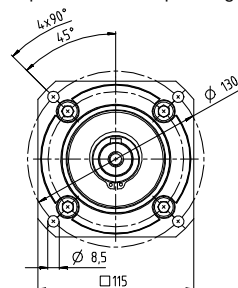


Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

⁵⁾ Standard clamping hub diameter

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

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

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

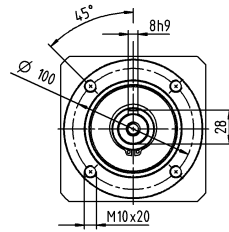
^{d)} Please reduce input speed at higher ambient temperatures

^{e)} Valid for: Smooth shaft

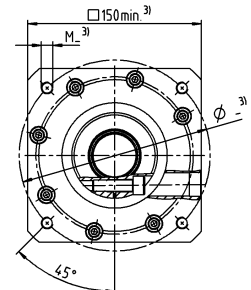
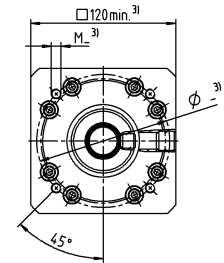
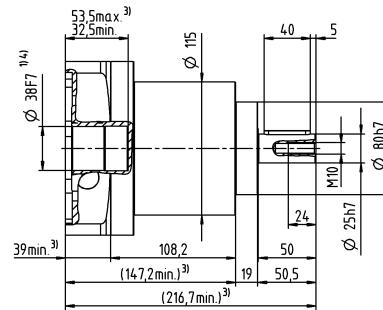
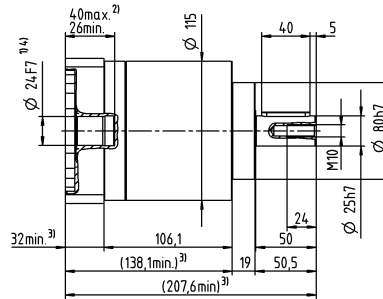
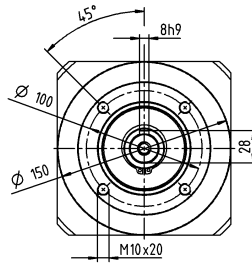
2-stage

Motor shaft diameter [mm]

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



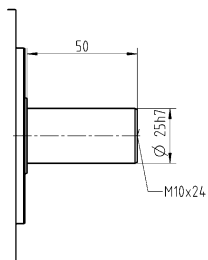
up to 38⁴⁾ (K)
clamping hub diameter



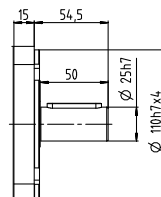
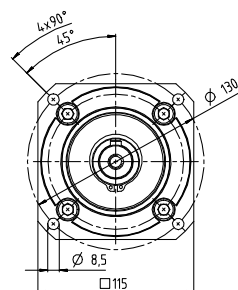
Planetary Gearboxes
Basic Line

Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated

by a bushing with a minimum thickness of 1 mm

⁵⁾ Standard clamping hub diameter

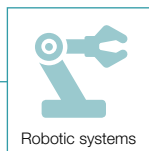
Application-specific solutions

HYGIENIC DESIGN HDV

Our Hygienic Design products are specially developed for unusual fields of application in food processing. They are made with highly resistant stainless steel and ideally suited for cleaning with aggressive cleaning agents and disinfectants. Direct process integration allows new design freedom and an open machine concept without encasings.



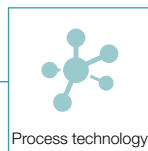
The world's first
EHEDG-certified
planetary gearbox



Robotic systems



Food and drinks industry



Process technology



Cosmetics



Pharmaceuticals

AREAS OF APPLICATION

HDV – Reliably Clean



HDV

Aseptic, highly dynamic, and outstanding positioning accuracy: the HDV is the world's first planetary gearbox with EHEDG certification and meets the strict hygiene requirements of production and packaging facilities. The gearbox in hygienic design not only offers you maximum safety against contamination-related product and process risks, but also guarantees maximum plant availability and productivity of the equipment.

PRODUCT HIGHLIGHTS



New design freedom

Direct process integration opens up new design options.



Resistance

Resistant against chemical cleaning agents and disinfectants.



Cleaning

Fast, efficient, and safe cleaning, also suitable for CIP processes.



Max. achievable impermeability

IP69X (max. 30 bar).
Relating to DIN 60529:2014-09



The world's first
EHEDG-certified
planetary gearbox



Pharmaceuticals – bottling plant for liquid pharmaceutical products



Cosmetics – bottling plant for creams



- A Certification**
- World's first EHEDG-certified planetary gearbox
 - FDA certified
 - NSF certified

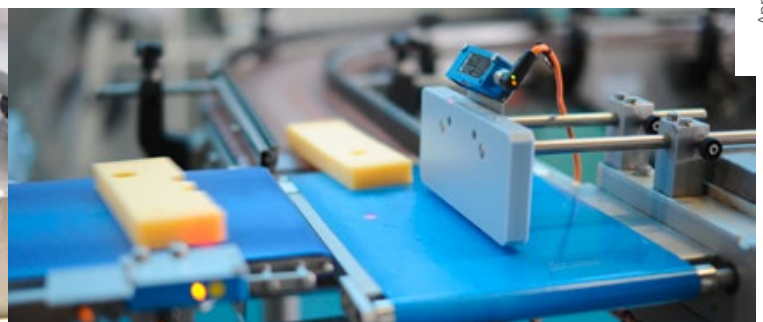
- B Surface texture**
- Smooth-rolled surface made of hygienic steel 1.4404
 - Electropolished surface also optionally possible

- C Cavity-free housing design**
- No undercuts
 - Large radii
 - No horizontal surfaces

- D Maximum safety**
- Triple sealing concept
 - Seals resistant to cleaning agents
 - IP69X (max. 30 bar)



Sweet goods – packaging plant for cookies



Milk products – cheese processing plant

			1-stage				2-stage							
Ratio	i		4	5	7	10	16	20	25	35	50	70	100	
Max. torque ^{a) b) e)}	T_{2a}	Nm	51	51	51	46	51	51	51	51	51	51	46	
		in.lb	451	451	451	407	451	451	451	451	451	451	407	
Max. acceleration torque ^{e)} (max. 1000 cycles per hour)	T_{2B}	Nm	32	32	32	29	32	32	32	32	32	32	29	
		in.lb	283	283	283	257	283	283	283	283	283	283	257	
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	75	75	75	75	75	75	75	75	75	75	75	
		in.lb	664	664	664	664	664	664	664	664	664	664	664	
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1N}	rpm	3000	3000	3000	3000	3700	3700	3700	3700	3700	3700	3700	
Max. input speed	n_{1Max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
Mean no load running torque ^{b)} (at $n_1=3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	
		in.lb	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	
Max. backlash	j_t	arcmin	≤ 10				≤ 15							
Torsional rigidity ^{b)}	C_{121}	Nm/arcmin	2.3	2.3	2.3	2	2.3	2.3	2.3	2.3	2.3	2.3	2	
		in.lb/arcmin	20	20	20	18	20	20	20	20	20	20	18	
Max. axial force ^{c)} (Standard / HIGH FORCES)	F_{2AMax}	N	500 / 1000				500 / 1000							
		lb _f	113 / 225				113 / 225							
Max. lateral force ^{c)} (Standard / HIGH FORCES)	F_{2QMax}	N	350 / 1600				350 / 1600							
		lb _f	79 / 360				79 / 360							
Max. tilting moment (Standard / HIGH FORCES)	M_{2KMax}	Nm	20 / 105				20 / 105							
		in.lb	177 / 929				177 / 929							
Efficiency at full load	η	%	97				95							
Service life	L_n	h	> 20000				> 20000							
Weight (incl. standard adapter plate)	m	kg	3.2				3.8							
		lb _m	7.1				8.4							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	dB(A)	≤ 60				≤ 60							
Max. permitted housing temperature		°C	+90				+90							
		°F	+194				+194							
Ambient temperature		°C	-25 to +40				-25 to +40							
		°F	-13 to +104				-13 to +104							
Lubrication			Lubricated for life											
Direction of rotation			In- and output same direction											
Protection class			IP 69X											
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	kgcm ²	0.18	0.17	0.15	0.15	0.17	0.16	0.16	0.15	0.15	0.15
				10 ⁻³ in.lb.s ²	0.16	0.15	0.13	0.13	0.15	0.14	0.14	0.13	0.13	0.13

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

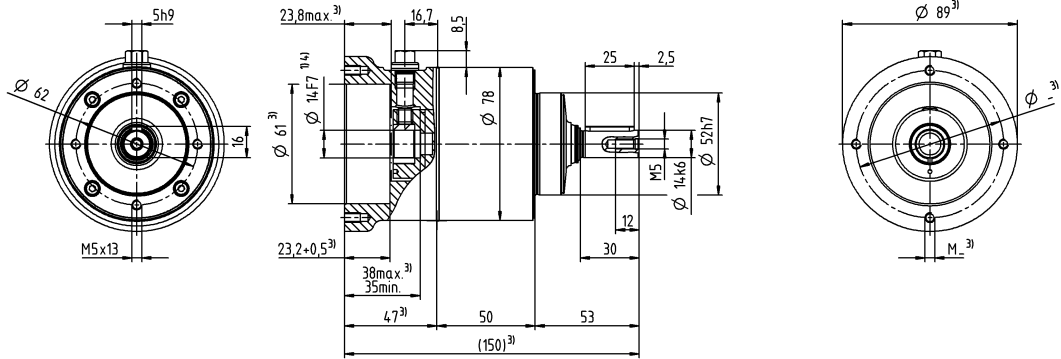
^{c)} Refers to center of the output shaft or flange

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

^{e)} Valid for: Smooth shaft

1-stage

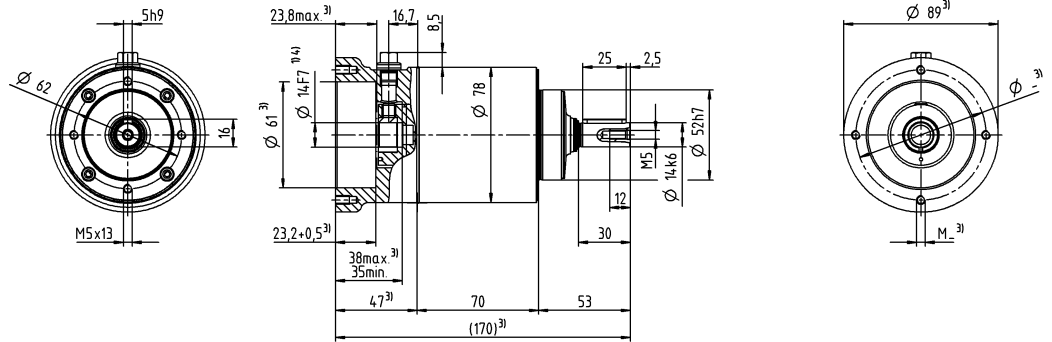
up to 14⁴⁾ (C)⁵⁾
clamping hub
diameter



2-stage

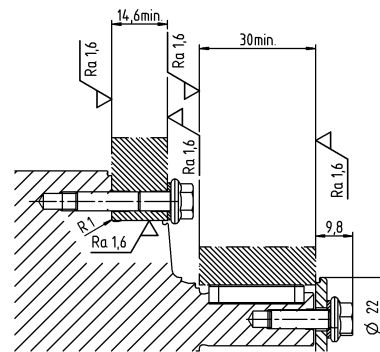
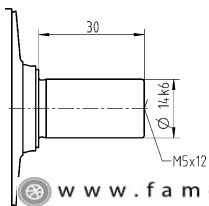
Motor shaft diameter [mm]

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



Other output variants

Smooth shaft



Mounting accessories:

Mounting kit comprising stainless steel screws, washers, seals and O-rings available as an option.

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

			1-stage				2-stage							
Ratio	i		4	5	7	10	16	20	25	35	50	70	100	
Max. torque ^{a) b) e)}	T_{2a}	Nm	128	128	128	115	128	128	128	128	128	128	115	
		in.lb	1133	1133	1133	1018	1133	1133	1133	1133	1133	1133	1018	
Max. acceleration torque ^{e)} (max. 1000 cycles per hour)	T_{2B}	Nm	80	80	80	72	80	80	80	80	80	80	72	
		in.lb	708	708	708	637	708	708	708	708	708	708	637	
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	190	190	190	190	190	190	190	190	190	190	190	
		in.lb	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1N}	rpm	2700	2700	2700	2700	3400	3400	3400	3400	3400	3400	3400	
Max. input speed	n_{1Max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
Mean no load running torque ^{b)} (at $n_i=3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
		in.lb	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	
Max. backlash	j_i	arcmin	≤ 10				≤ 15							
Torsional rigidity ^{b)}	C_{121}	Nm/arcmin	7.5	7.5	7.5	5.5	7.5	7.5	7.5	7.5	7.5	7.5	5.5	
		in.lb/arcmin	66	66	66	49	66	66	66	66	66	66	49	
Max. axial force ^{c)} (Standard / HIGH FORCES)	F_{2AMax}	N	500 / 1500				500 / 1500							
		lb _f	113 / 338				113 / 338							
Max. lateral force ^{c)} (Standard / HIGH FORCES)	F_{2QMax}	N	500 / 2500				500 / 2500							
		lb _f	113 / 563				113 / 563							
Max. tilting moment (Standard / HIGH FORCES)	M_{2KMax}	Nm	31 / 185				31 / 185							
		in.lb	274 / 1637				274 / 1637							
Efficiency at full load	η	%	97				95							
Service life	L_n	h	> 20000				> 20000							
Weight (incl. standard adapter plate)	m	kg	5.2				6.5							
		lb _m	11				14							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	dB(A)	≤ 63				≤ 63							
Max. permitted housing temperature		°C	+90				+90							
		°F	+194				+194							
Ambient temperature		°C	-25 to +40				-25 to +40							
		°F	-13 to +104				-13 to +104							
Lubrication			Lubricated for life											
Direction of rotation			In- and output same direction											
Protection class			IP 69X											
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E 19	J_i	kgcm ²	0.63	0.54	0.52	0.46	0.6	0.52	0.54	0.5	0.52	0.52	0.46
			10 ⁻³ in.lb.s ²	0.56	0.48	0.46	0.41	0.53	0.46	0.48	0.44	0.46	0.46	0.41

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

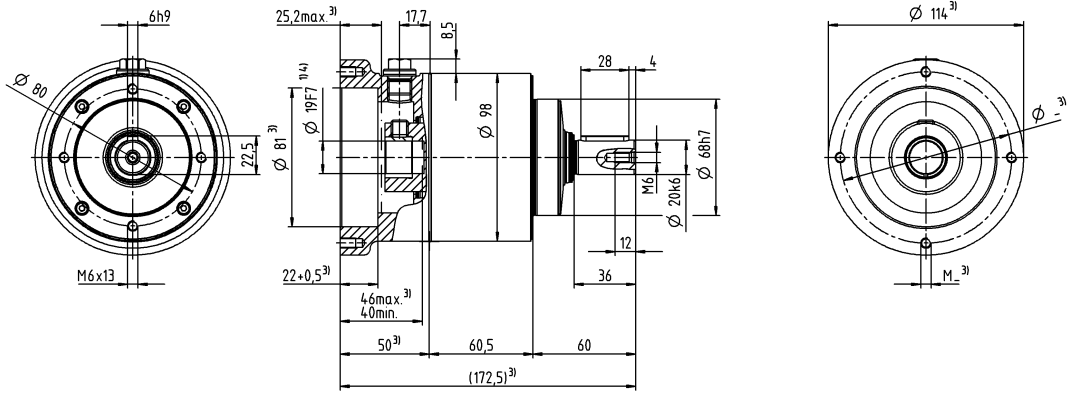
^{c)} Refers to center of the output shaft or flange

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

^{e)} Valid for: Smooth shaft

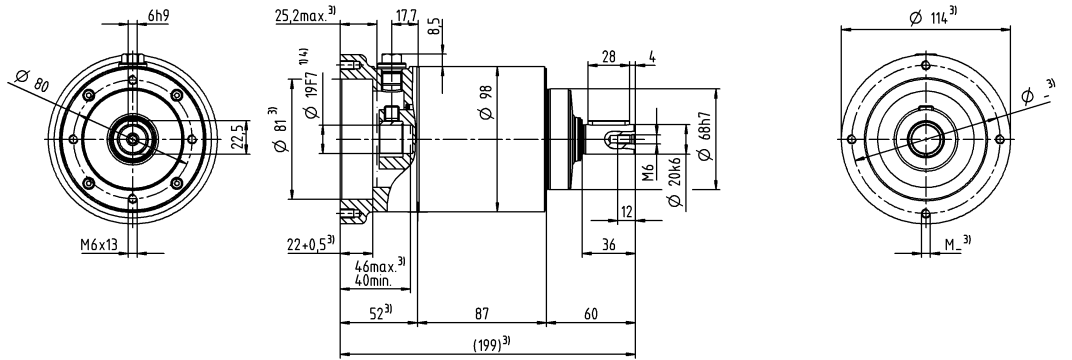
1-stage

up to 19⁴⁾ (E⁵⁾
clamping hub
diameter



2-stage

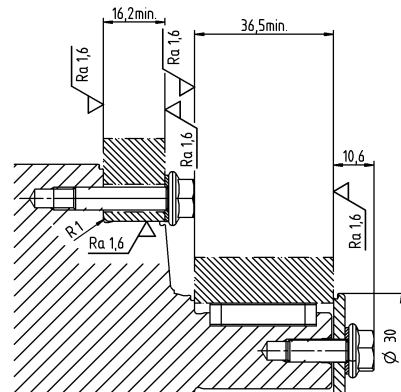
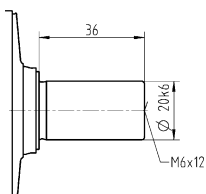
up to 19⁴⁾ (E⁵⁾
clamping hub
diameter



Motor shaft diameter [mm]

Other output variants

Smooth shaft



Mounting accessories:

Mounting kit comprising stainless steel screws, washers, seals and O-rings available as an option.

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

			1-stage				2-stage								
Ratio	i		4	5	7	10	16	20	25	35	50	70	100		
Max. torque ^{a) b) e)}	T_{2a}	Nm	320	320	320	288	320	320	320	320	320	320	288		
		in.lb	2832	2832	2832	2549	2832	2832	2832	2832	2832	2832	2832	2549	
Max. acceleration torque ^{e)} (max. 1000 cycles per hour)	T_{2B}	Nm	200	200	200	180	200	200	200	200	200	200	180		
		in.lb	1770	1770	1770	1593	1770	1770	1770	1770	1770	1770	1770	1593	
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	480	480	480	480	480	480	480	480	480	480	480		
		in.lb	4248	4248	4248	4248	4248	4248	4248	4248	4248	4248	4248	4248	
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1N}	rpm	2000	2000	2000	2000	2600	2600	2600	2600	2600	2600	2600		
Max. input speed	n_{1Max}	rpm	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800		
Mean no load running torque ^{b)} (at $n_1=3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		
		in.lb	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	
Max. backlash	j_t	arcmin	≤ 10				≤ 15								
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	24	24	24	24	24	24	24	24	24	24	24		
		in.lb/arcmin	212	212	212	212	212	212	212	212	212	212	212	212	
Max. axial force ^{c)} (Standard / HIGH FORCES)	F_{2AMax}	N	1700 / 3000				1700 / 3000								
		lb _f	383 / 675				383 / 675								
Max. lateral force ^{c)} (Standard / HIGH FORCES)	F_{2QMax}	N	1200 / 4250				1200 / 4250								
		lb _f	270 / 956				270 / 956								
Max. tilting moment (Standard / HIGH FORCES)	M_{2KMax}	Nm	95 / 407				95 / 407								
		in.lb	841 / 3602				841 / 3602								
Efficiency at full load	η	%	97				95								
Service life	L_n	h	> 20000				> 20000								
Weight (incl. standard adapter plate)	m	kg	13.6				16.6								
		lb _m	30				37								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	dB(A)	≤ 68				≤ 68								
Max. permitted housing temperature		°C	+90				+90								
		°F	+194				+194								
Ambient temperature		°C	-25 to +40				-25 to +40								
		°F	-13 to +104				-13 to +104								
Lubrication			Lubricated for life												
Direction of rotation			In- and output same direction												
Protection class			IP 69X												
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	G	24	J_1	kgcm ²	2.6	2.3	2	1.8	2.3	2.1	2.1	1.9	1.8	1.8	1.8
				10 ⁻³ in.lb.s ²	2.3	2	1.8	1.6	2	1.9	1.9	1.7	1.6	1.6	1.6

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

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

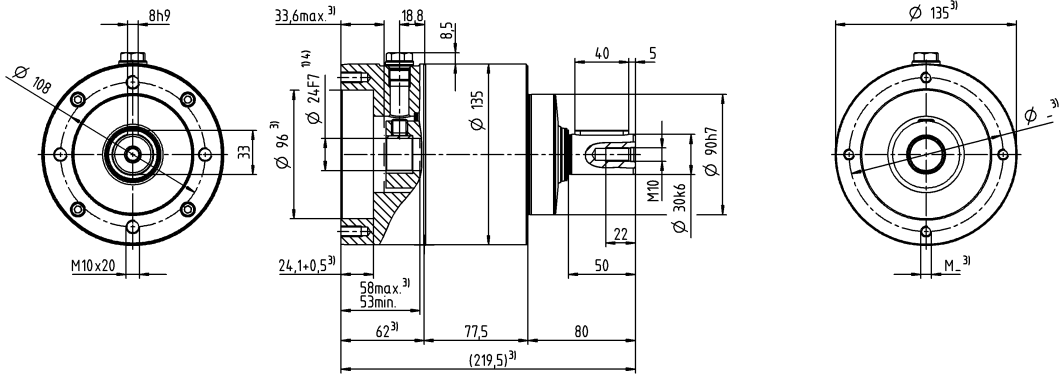
^{c)} Refers to center of the output shaft or flange

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

^{e)} Valid for: Smooth shaft

1-stage

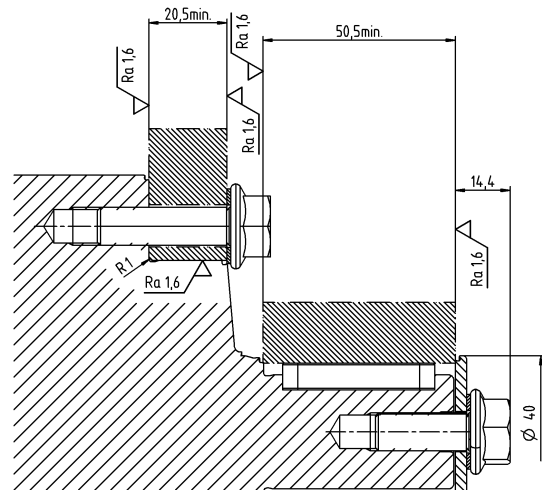
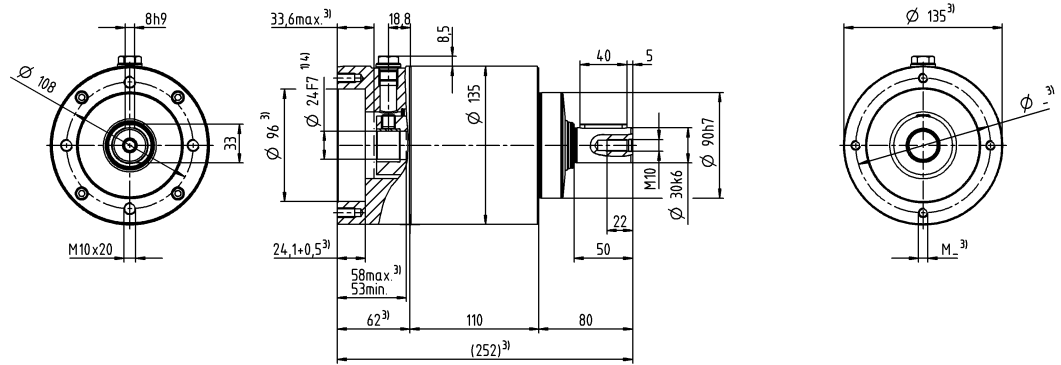
up to 24⁴⁾ (G)⁵⁾
clamping hub
diameter



2-stage

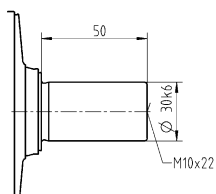
Motor shaft diameter [mm]

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



Other output variants

Smooth shaft



Mounting accessories:

Mounting kit comprising stainless steel screws, washers, seals and O-rings available as an option.

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

DP+ – The right solution for all requirements

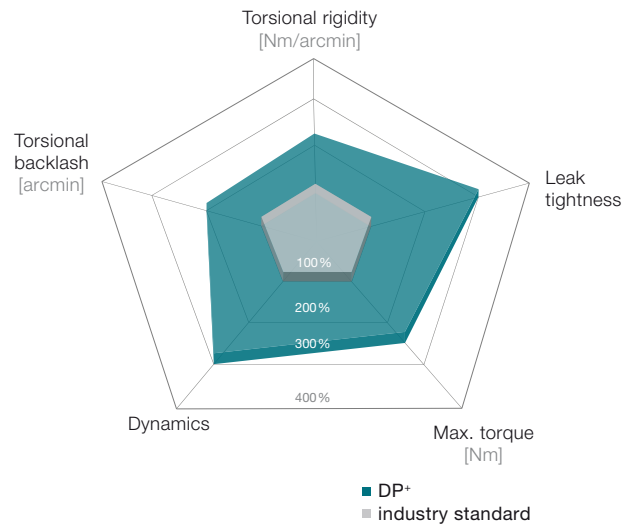


The DP+ planetary gearbox was specially developed for use in Delta robotics applications. Various characteristics allow use of the gearbox in dry, spray and wet areas (HDP+). In addition to an optimized sealing system, this drive solution includes advantages such as improved dynamics due to the optimized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

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

The DP+ compared to the industry standard



Dry area

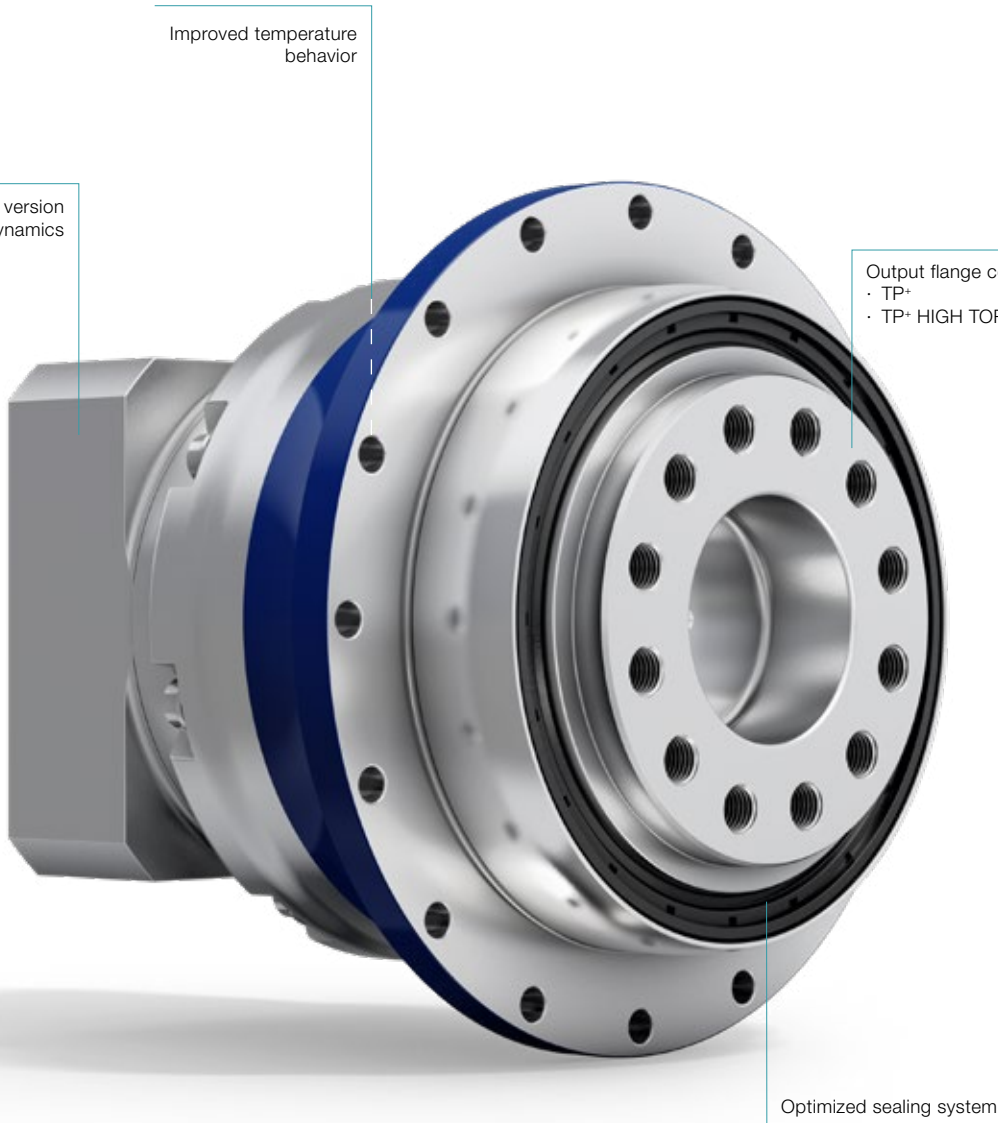


Fields of application: Secondary packaging, Handling, Mounting, Intralogistics ...

Spray area (close to the process)



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



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

			2-stage											
Ratio	<i>i</i>		16	20	21	25	28	31	32	35	40	50		
Max. torque ^{a) b)}	T_{2a}	Nm	57	57	60	72	57	50	57	72	57	72		
		in.lb	507	507	533	634	507	442	507	634	507	634		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	57	57	48	66	57	48	57	66	57	66		
		in.lb	507	507	425	584	507	425	507	584	507	584		
Nominal torque (at n_n)	T_{2N}	Nm	39	41	32	41	45	36	39	45	46	48		
		in.lb	342	365	286	361	403	320	343	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	100		
		in.lb	885	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	4000	4800		
Max. input speed	n_{1Max}	rpm	7500	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	0.21	0.17	0.18	0.17		
		in.lb	2.5	2.0	2.1	1.9	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	12	11	12		
		in.lb/arcmin	106	106	89	106	106	80	106	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	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	0.062	0.061	0.057	0.057
				10 ⁻³ in.lb.s ²	0.069	0.062	0.065	0.060	0.055	0.064	0.055	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	0.16	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	0.14

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

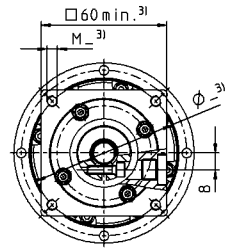
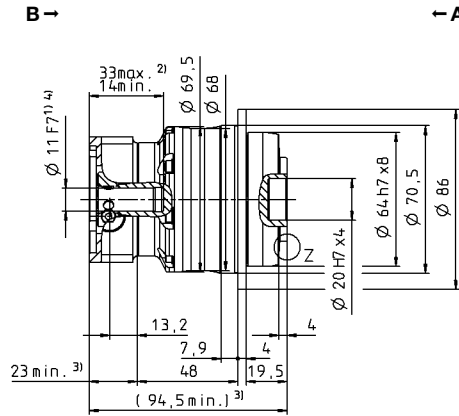
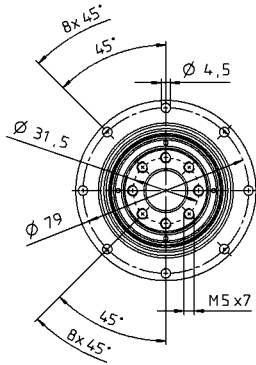
^{a)} At max. 10 % M_{2KMax}
^{b)} Valid for standard clamping hub diameter
^{c)} Refers to center of the output shaft or flange
^{d)} Please reduce input speed at higher ambient temperatures

View A

View B

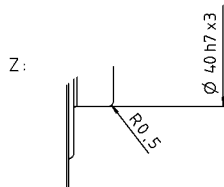
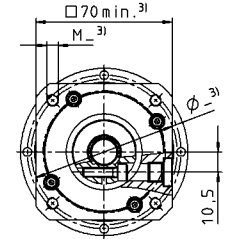
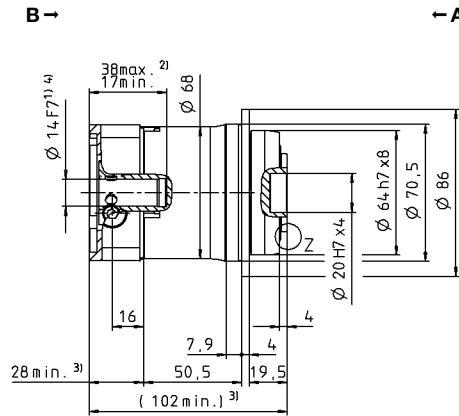
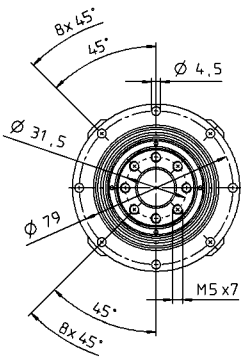
2-stage

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 thickness of 1 mm

⁵⁾ Standard clamping hub diameter

			2-stage											
Ratio	<i>i</i>		16	20	21	25	28	31	32	35	40	50		
Max. torque ^{a) b)}	T_{2a}	Nm	157	126	133	158	157	121	157	158	154	158		
		in.lb	1392	1118	1174	1398	1392	1071	1392	1398	1363	1398		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	157	126	120	158	157	121	157	158	154	158		
		in.lb	1392	1113	1062	1398	1392	1071	1392	1398	1363	1398		
Nominal torque (at n_n)	T_{2N}	Nm	106	101	96	124	107	87	119	126	112	126		
		in.lb	935	895	850	1097	945	770	1053	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	251		
		in.lb	2222	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	3500	3800		
Max. input speed	n_{1Max}	rpm	7500	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	0.56	0.48	0.47	0.44	0.40	0.40	0.40	0.40	0.28	0.32	0.32	
		in.lb	5.0	4.2	4.2	3.9	3.5	3.5	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	31	32	30	30		
		in.lb/arcmin	283	283	230	283	274	212	274	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	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	0.11	0.10	0.09	0.09
				10 ⁻³ in.lb.s ²	0.15	0.12	0.13	0.12	0.10	0.12	0.10	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	0.18	0.17	0.17
				10 ⁻³ in.lb.s ²	0.21	0.19	0.20	0.18	0.16	0.18	0.16	0.16	0.15	0.15
	E	19	J_1	kgcm ²	0.56	0.53	0.55	0.53	0.51	0.53	0.51	0.50	0.49	0.49
				10 ⁻³ in.lb.s ²	0.50	0.47	0.48	0.47	0.45	0.47	0.45	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

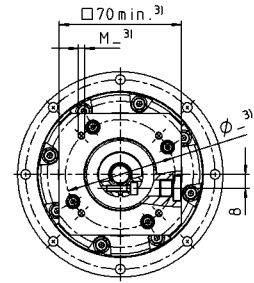
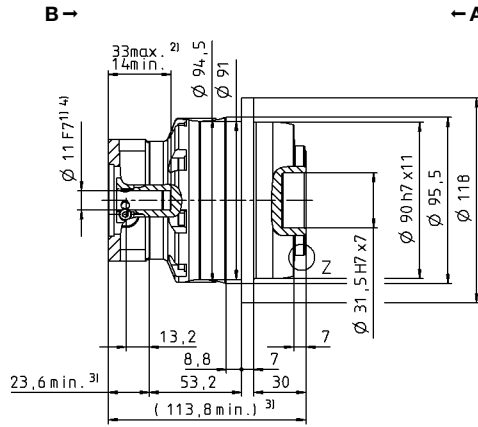
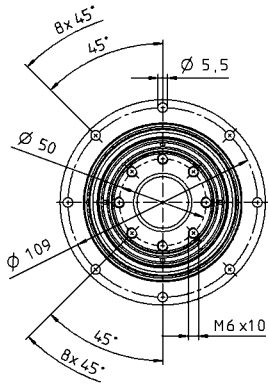
^{d)} Please reduce input speed at higher ambient temperatures

View A

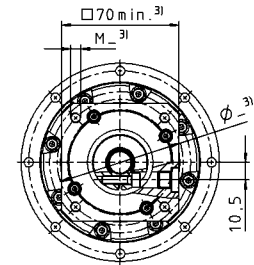
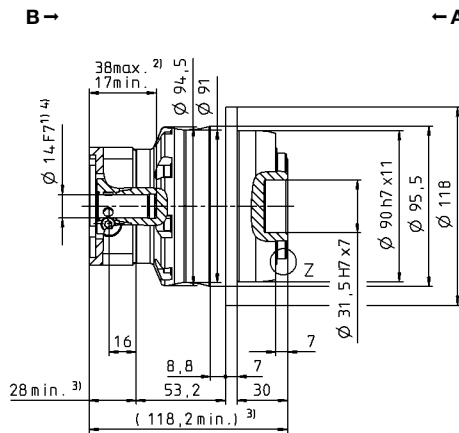
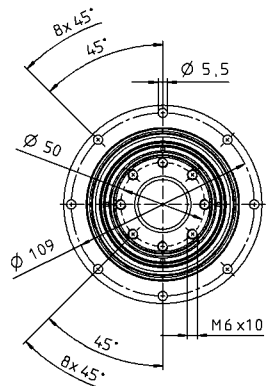
View B

2-stage

up to 11⁴⁾ (B)
clamping hub diameter

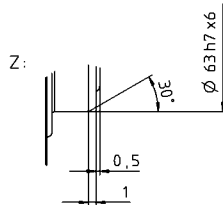
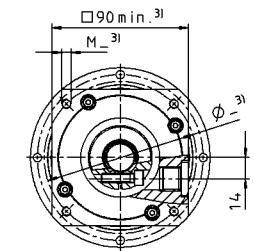
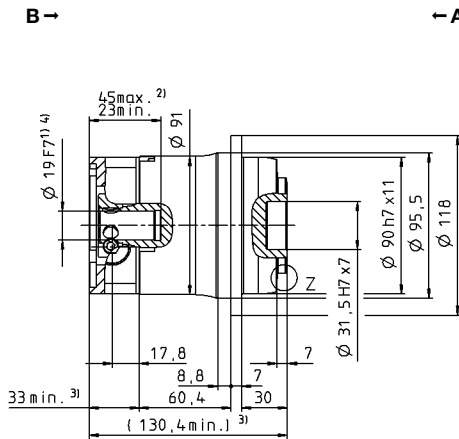
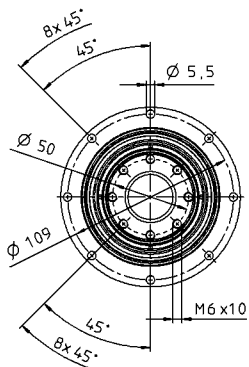


up to 14⁴⁾ (C)⁵⁾
clamping hub diameter



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 thickness of 1 mm

⁵⁾ Standard clamping hub diameter

			2-stage											
Ratio	<i>i</i>		16	20	21	25	28	31	32	35	40	50		
Max. torque ^{a) b)}	T_{2a}	Nm	352	352	352	380	352	352	352	380	352	380		
		in.lb	3115	3115	3115	3363	3115	3115	3115	3115	3363	3115	3363	
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	352	352	330	380	352	330	352	380	352	380		
		in.lb	3115	3115	2921	3363	3115	2921	3115	3363	3115	3363		
Nominal torque (at n_n)	T_{2N}	Nm	250	267	211	265	282	231	251	294	282	304		
		in.lb	2213	2366	1872	2348	2492	2047	2220	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	625		
		in.lb	5532	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	2800	3100		
Max. input speed	n_{1Max}	rpm	7500	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	0.80	0.60	0.59	0.50		
		in.lb	10	8.9	9.9	8.0	7.1	7.4	7.1	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	80	82	76	80		
		in.lb/arcmin	717	717	620	735	708	478	708	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	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	0.44	0.43	0.38	0.38
				10 ⁻³ in.lb.s ²	0.58	0.48	0.53	0.47	0.39	0.49	0.39	0.38	0.34	0.33
	E	19	J_1	kgcm ²	0.83	0.71	0.77	0.70	0.61	0.72	0.61	0.60	0.55	0.55
				10 ⁻³ in.lb.s ²	0.73	0.63	0.68	0.62	0.54	0.64	0.54	0.53	0.49	0.48
	G	24	J_1	kgcm ²	2.20	2.08	2.14	2.07	1.98	2.09	1.98	1.97	1.92	1.92
				10 ⁻³ in.lb.s ²	1.95	1.84	1.89	1.83	1.75	1.85	1.75	1.74	1.70	1.70
	H	28	J_1	kgcm ²	2.00	1.91	1.96	1.89	1.82	1.85	1.89	1.81	1.76	1.76
				10 ⁻³ in.lb.s ²	1.77	1.69	1.73	1.67	1.61	1.64	1.67	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

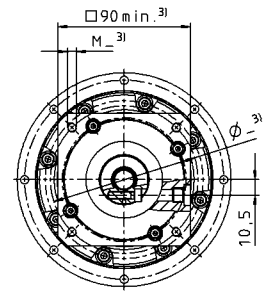
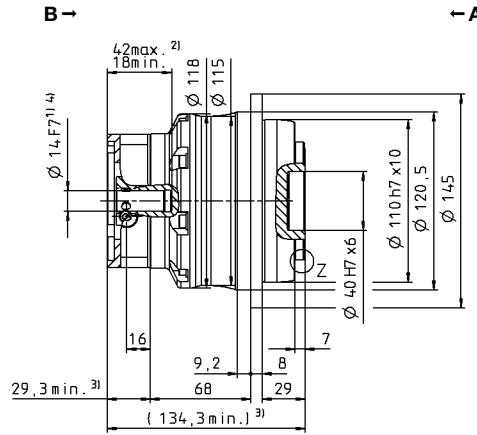
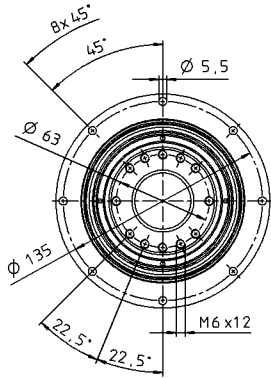
atures

View A

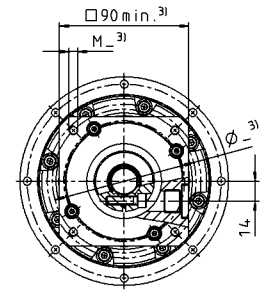
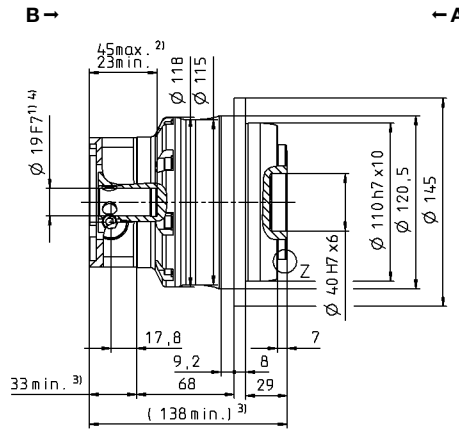
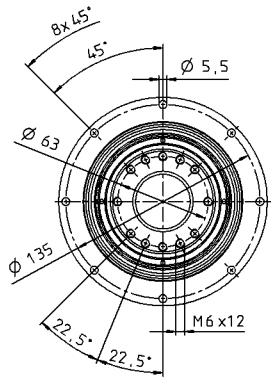
View B

2-stage

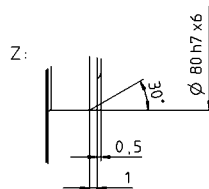
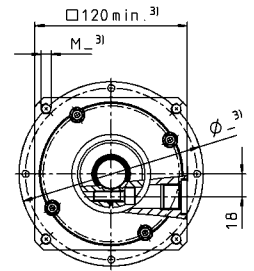
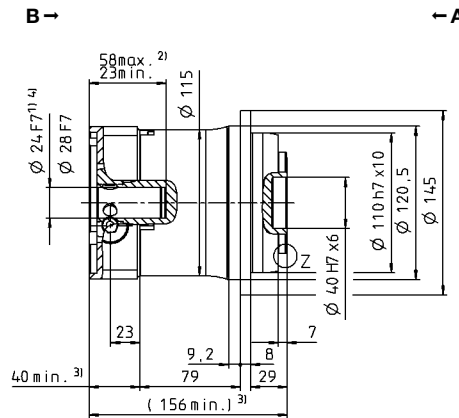
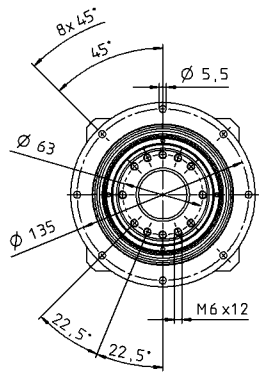
up to 14⁴⁾ (C)
clamping hub diameter



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



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 thickness of 1 mm

⁵⁾ Standard clamping hub diameter

Motor shaft diameter [mm]

Application-spec.
solutions

DP+

MF

			2-stage											
Ratio	<i>i</i>		16	20	21	25	28	31	32	35	40	50		
Max. torque ^{a) b)}	T_{2a}	Nm	825	825	660	825	825	682	825	825	825	825		
		in.lb	7302	7302	5842	7302	7302	6036	7302	7302	7302	7302		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	825	825	660	825	825	682	825	825	825	825		
		in.lb	7302	7302	5842	7302	7302	6036	7302	7302	7302	7302		
Nominal torque (at n_n)	T_{2N}	Nm	461	493	393	489	545	431	464	541	607	585		
		in.lb	4078	4361	2476	4332	4824	3812	4104	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	1250		
		in.lb	11064	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	2900	3200		
Max. input speed	n_{1Max}	rpm	6250	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	2.0	1.5	1.5	1.2		
		in.lb	25	22	20	23	17	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	180	175	175	175		
		in.lb/arcmin	1593	1637	1283	1593	1593	1151	1593	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	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											
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	2.53	2.08	2.30	2.01	1.67	2.12	1.67	1.64	1.44	1.42
				10 ⁻³ in.lb.s ²	2.24	1.84	2.04	1.78	1.48	1.88	1.48	1.45	1.27	1.26
	G	24	J_1	kgcm ²	3.22	2.77	2.99	2.70	2.37	2.81	2.37	2.33	2.13	2.12
				10 ⁻³ in.lb.s ²	2.85	2.45	2.65	2.39	2.10	2.49	2.10	2.06	1.89	1.88
	K	38	J_1	kgcm ²	10.3	9.83	10.1	9.77	9.43	9.88	9.43	9.40	9.20	9.18
				10 ⁻³ in.lb.s ²	9.12	8.70	8.94	8.65	8.35	8.74	8.35	8.32	8.14	8.12

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

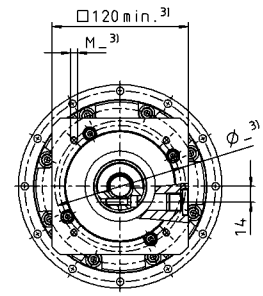
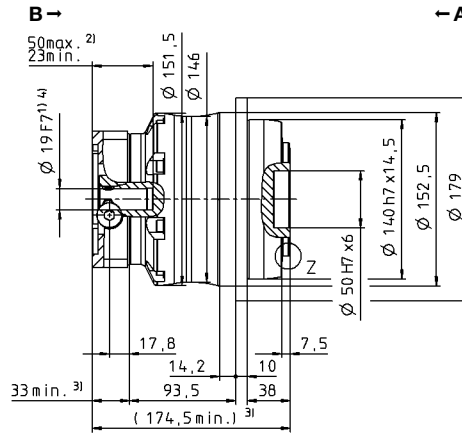
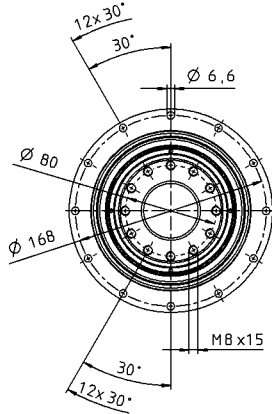
^{a)} At max. 10 % M_{2KMax}
^{b)} Valid for standard clamping hub diameter
^{c)} Refers to center of the output shaft or flange
^{d)} Please reduce input speed at higher ambient temperatures

View A

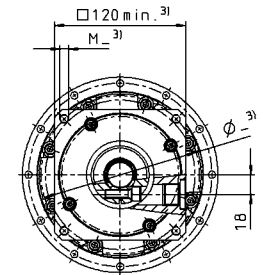
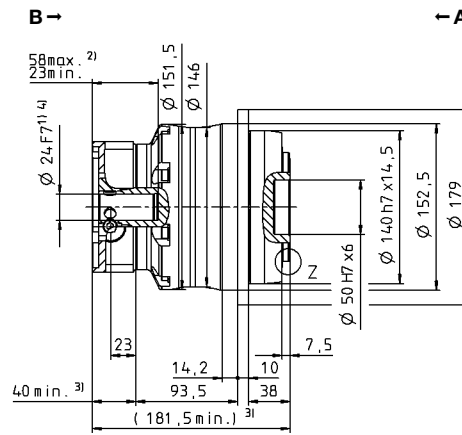
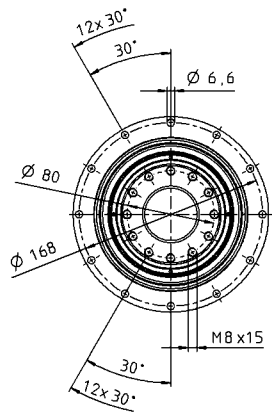
View B

2-stage

up to 19⁴⁾ (E)
clamping hub diameter

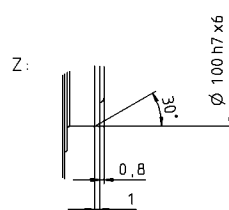
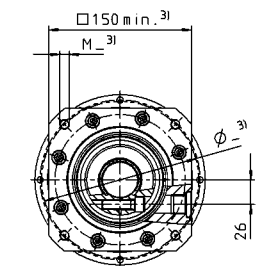
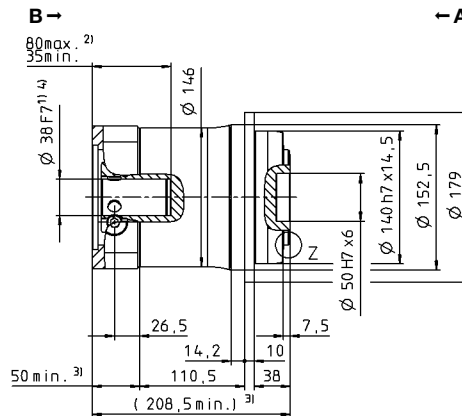
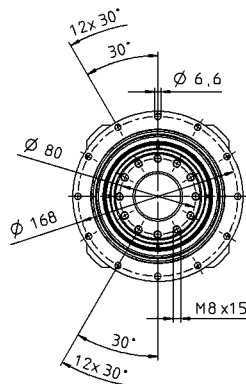


up to 24⁴⁾ (G)⁵⁾
clamping hub diameter



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 thickness of 1 mm

⁵⁾ Standard clamping hub diameter

Application-spec.
solutions

DP+

MF

			2-stage					
Ratio	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	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					
		°C	+90					
Max. permitted housing temperature	F	°C	+90					
		F	194					
Ambient temperature	F	°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

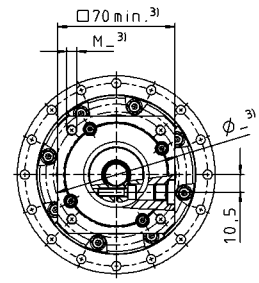
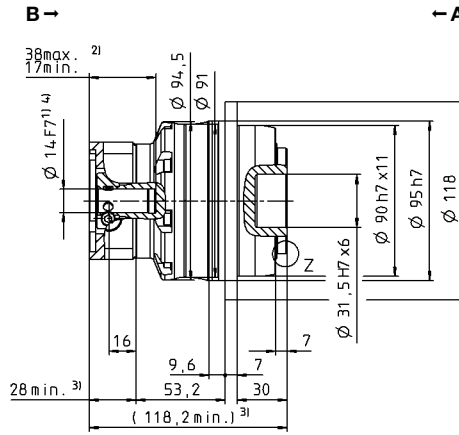
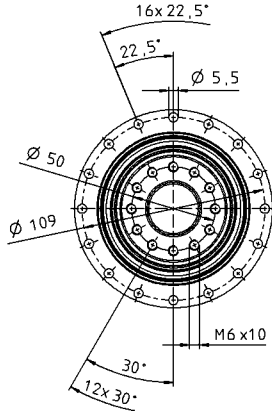
^{d)} Please reduce input speed at higher ambient temperatures

View A

View B

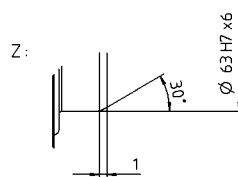
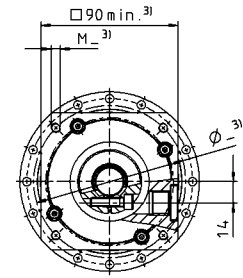
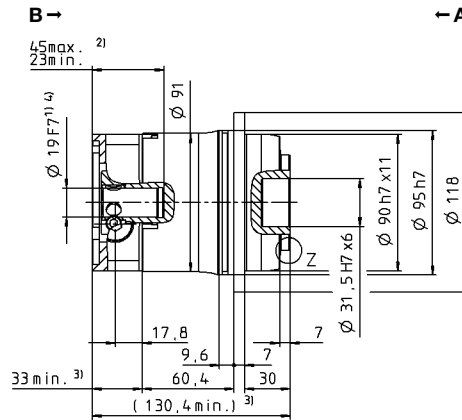
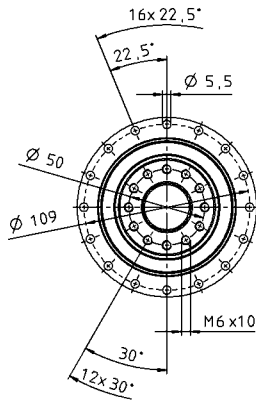
2-stage

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 thickness of 1 mm

⁵⁾ Standard clamping hub diameter

			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	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)	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
Clamping hub diameter [mm] Optimized mass inertia version available on request	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

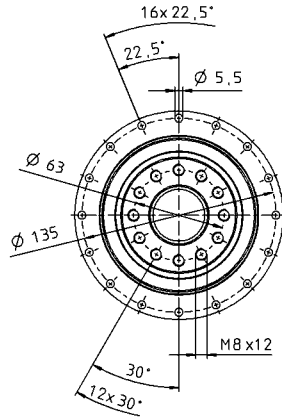
^{d)} Please reduce input speed at higher ambient temperatures

View A

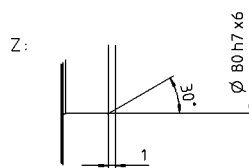
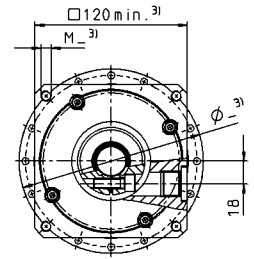
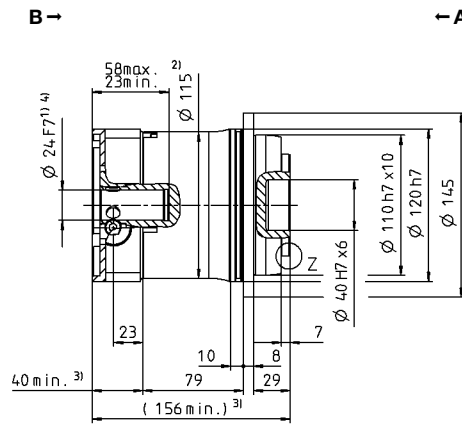
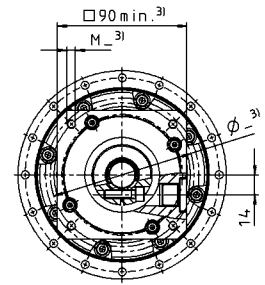
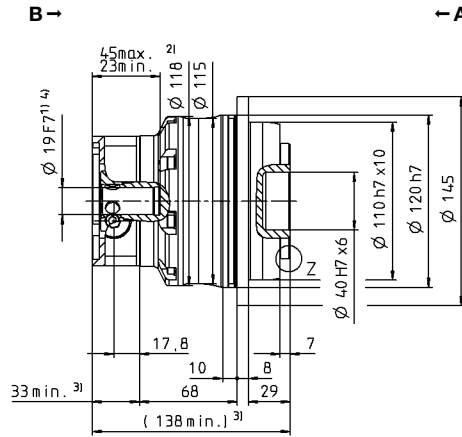
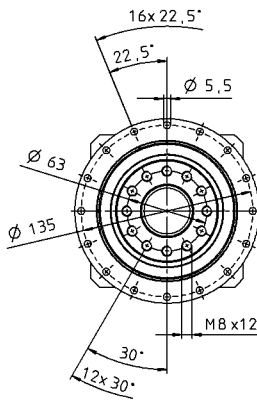
View B

2-stage

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



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 thickness of 1 mm

⁵⁾ Standard clamping hub diameter

Motor shaft diameter [mm]

			2-stage					
Ratio	<i>i</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	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					
		°C	+90					
Max. permitted housing temperature	F	°C	+90					
		F	194					
Ambient temperature	F	°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

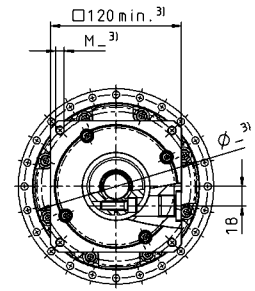
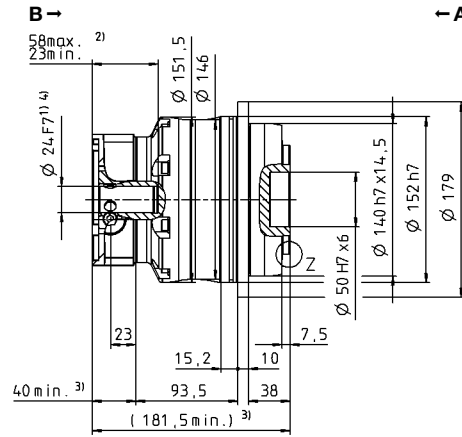
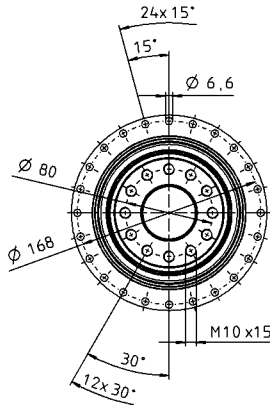
^{d)} Please reduce input speed at higher ambient temperatures

View A

View B

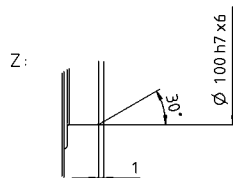
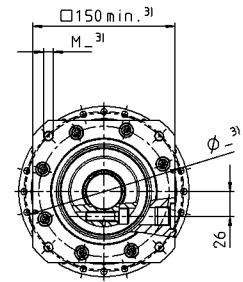
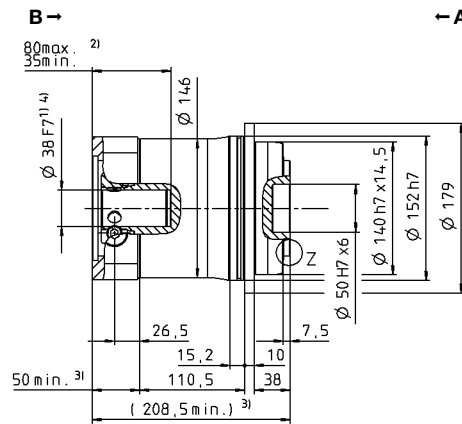
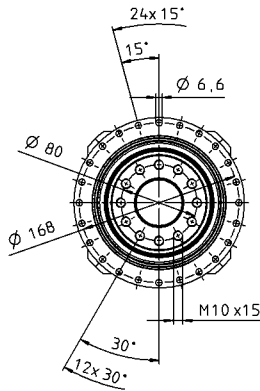
2-stage

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 thickness of 1 mm

⁵⁾ Standard clamping hub diameter

XP+ – Perfection in a new dimension



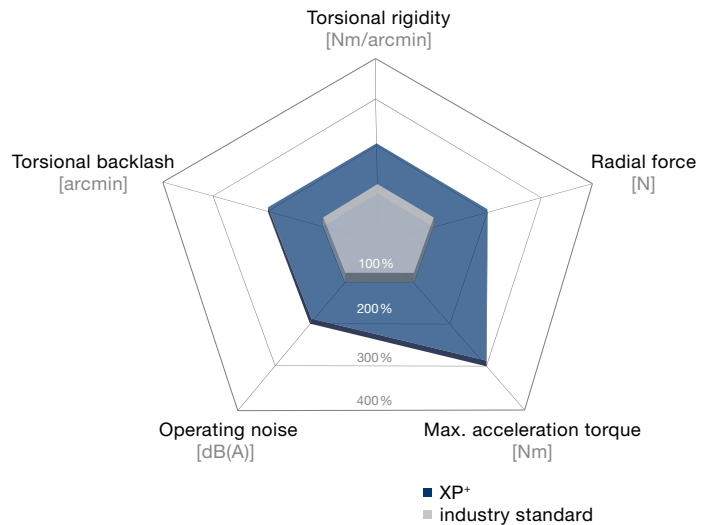
XP+

The XP+ with specially designed output and extremely compact design offers new dimensions in power transmission that far exceed industry standards. The optimized interfaces on the output can generate much higher torques that directly benefit your application.

The XP+ impresses with maximum power density

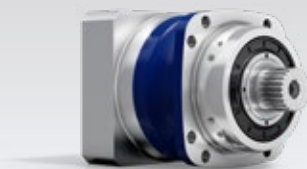
- if you require an even more compact drive
- if you wish to enhance the performance of your machine
- if you require high-performance linear systems

The XP+ compared to the industry standard



Product highlights

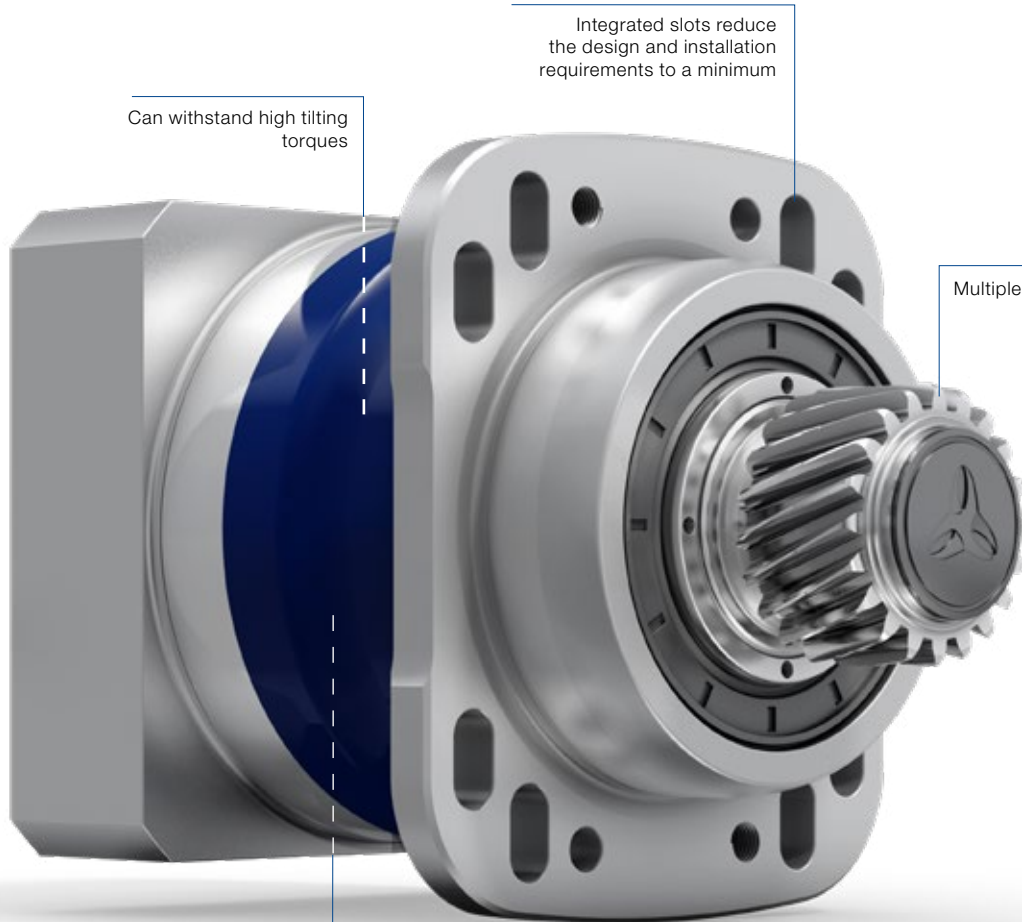
- Max. torsional backlash [arcmin] $\leq 1 - 4$**
- Maximum power density**
- High axial and radial forces**



XP+ with splined shaft



XP+ with pinion and slots



Can withstand high tilting torques

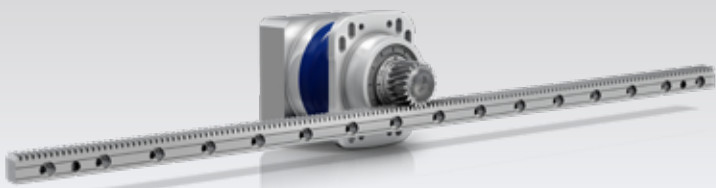
Integrated slots reduce the design and installation requirements to a minimum

Multiple output option

XP⁺ with pinion and slots

Outstanding tooting quality minimizes torsional backlash

Planetary gearboxes



XP⁺ with pinion, slots and rack



premo® XP Line with pinion

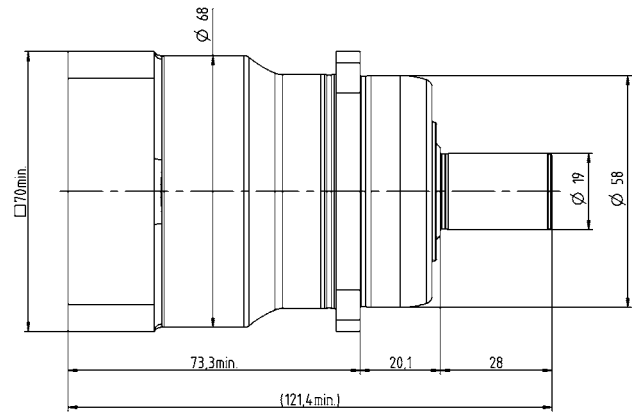
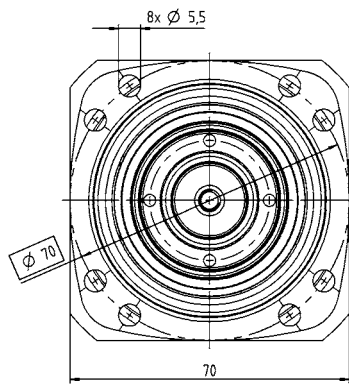
			1-stage	2-stage
Ratio	i		3 / 4 / 5 / 7 / 8 / 10	16 / 20 / 25 / 28 / 32 / 35 / 40 / 50 / 64 / 70 / 100
Max. torque ^{a)}	T_{2a}	Nm	56 – 128	50 – 119
		$in.lb$	496 – 1133	446 – 1051
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	42 – 108	42 – 99
		$in.lb$	372 – 956	372 – 876
Nominal torque (at n_n)	T_{2N}	Nm	21 – 27	34 – 53
		$in.lb$	190 – 239	297 – 467
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	110 – 165	110 – 165
		$in.lb$	974 – 1458	974 – 1458
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{IT}	rpm	3300 – 4000	4400 – 5500
Max. input speed	n_{1Max}	rpm	7500	8500
Max. torsional backlash	j_t	$arcmin$	Standard ≤ 4 / Reduced ≤ 2	Standard ≤ 5 / Reduced ≤ 3
Torsional rigidity	C_{t21}	$Nm/arcmin$	5 – 6.5	5 – 6.5
		$in.lb/arcmin$	44 – 58	44 – 58
Max. tilting moment	M_{2KMax}	Nm	339	339
		$in.lb$	3000	3000
Operating noise ^{c)}	L_{PA}	$dB(A)$	≤ 55	≤ 53
Lubrication			Lubricated for life	Lubricated for life
Clamping hub diameter		mm	11 – 19	11 – 14

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

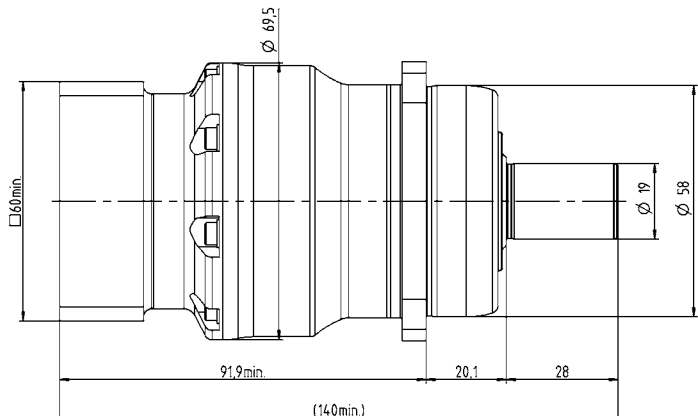
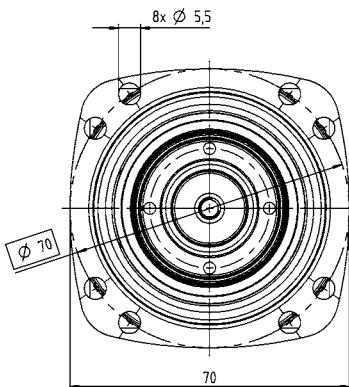
^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

1-stage



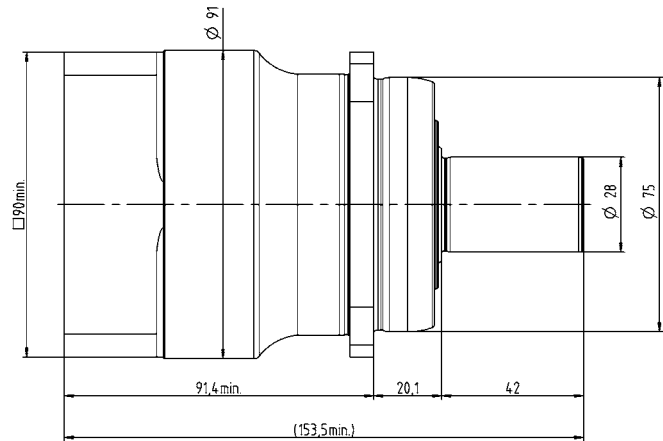
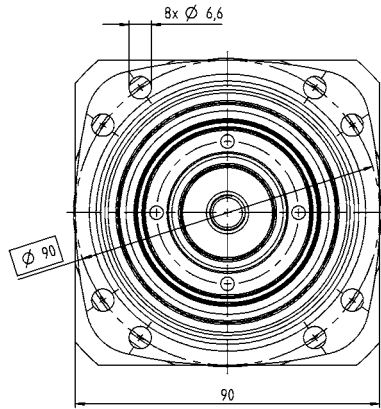
2-stage



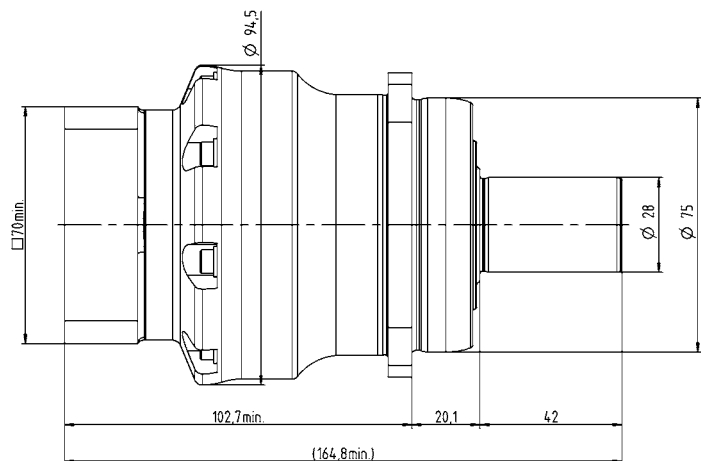
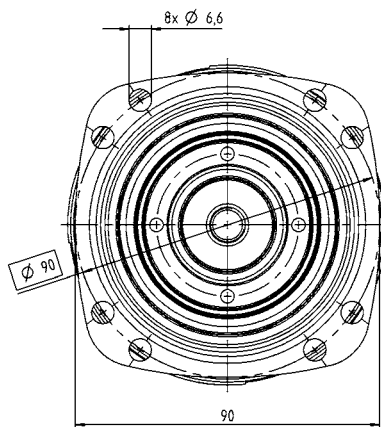
			1-stage	2-stage
Ratio	i		3 / 4 / 5 / 7 / 8 / 10	16 / 20 / 25 / 28 / 32 / 35 / 40 / 50 / 64 / 70 / 100
Max. torque ^{a)}	T_{2a}	Nm	168 – 330	139 – 348
		in.lb	1487 – 2921	1227 – 3080
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	126 – 275	126 – 303
		in.lb	1115 – 2434	1115 – 2682
Nominal torque (at n_n)	T_{2N}	Nm	63 – 81	101 – 145
		in.lb	558 – 720	101 – 145
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	325 – 390	325 – 418
		in.lb	2877 – 3452	2877 – 3696
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{1T}	rpm	2900 – 3100	3500 – 4500
Max. input speed	n_{1Max}	rpm	7500	8500
Max. torsional backlash	j_t	arcmin	Standard ≤ 3 / Reduced ≤ 1	Standard ≤ 4 / Reduced ≤ 2
Torsional rigidity	C_{t21}	Nm/arcmin	14 – 17	15 – 20
		in.lb/arcmin	124 – 150	133 – 173
Max. tilting moment	M_{2KMax}	Nm	675	675
		in.lb	5974	5974
Operating noise ^{c)}	L_{PA}	dB(A)	≤ 56	≤ 53
Lubrication			Lubricated for life	Lubricated for life
Clamping hub diameter		mm	14 – 24	11 – 19

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com
^{b)} For higher ambient temperatures, please reduce input speed
^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

1-stage



2-stage



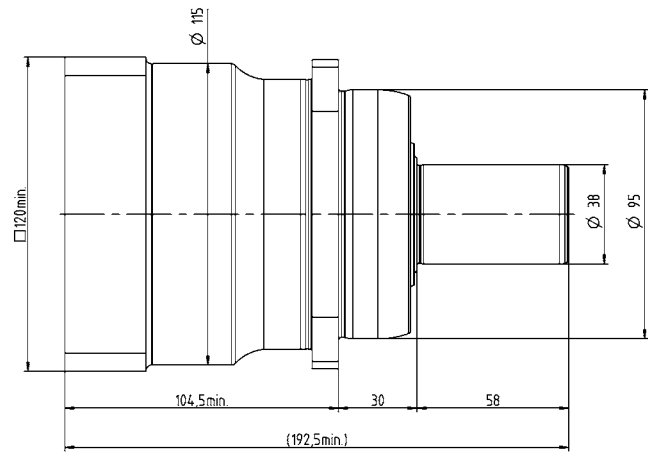
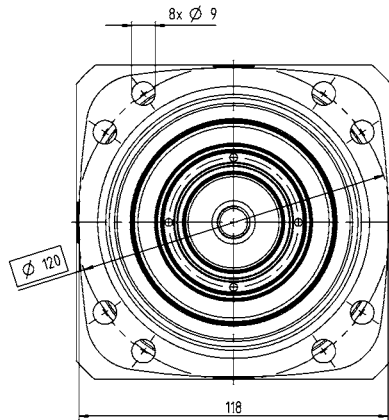
			1-stage	2-stage
Ratio	i		3 / 4 / 5 / 7 / 8 / 10	16 / 20 / 25 / 28 / 32 / 35 / 40 / 50 / 64 / 70 / 100
Max. torque ^{a)}	T_{2a}	Nm	388 – 600	363 – 660
		in.lb	3434 – 5310	3213 – 5842
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	320 – 550	303 – 550
		in.lb	2832 – 4868	2682 – 4868
Nominal torque (at n_n)	T_{2N}	Nm	131 – 174	242 – 319
		in.lb	1157 – 1538	2142 – 2826
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	650 – 900	750 – 1125
		in.lb	5753 – 7966	6638 – 9957
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{IT}	rpm	2500 – 2800	3100 – 4200
Max. input speed	n_{IMax}	rpm	5500	6500
Max. torsional backlash	j_t	arcmin	Standard ≤ 3 / Reduced ≤ 1	Standard ≤ 4 / Reduced ≤ 2
Torsional rigidity	C_{t21}	Nm/arcmin	32 – 40	35 – 45
		in.lb/arcmin	283 – 354	310 – 398
Max. tilting moment	M_{2KMax}	Nm	1296	1296
		in.lb	11471	11471
Operating noise ^{c)}	L_{PA}	dB(A)	≤ 59	≤ 56
Lubrication			Lubricated for life	Lubricated for life
Clamping hub diameter		mm	19 – 38	14 – 28

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

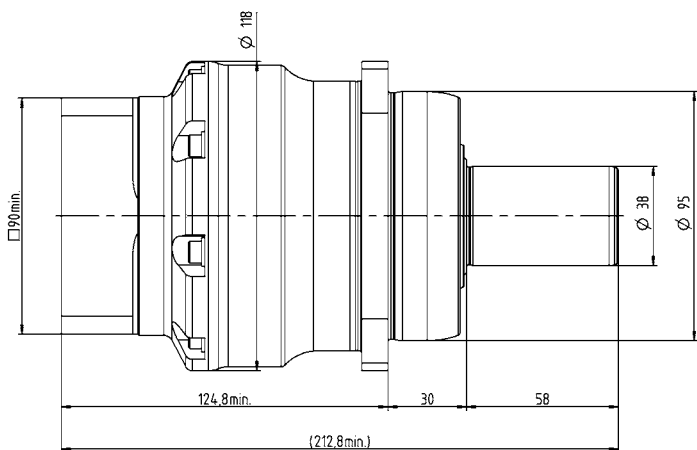
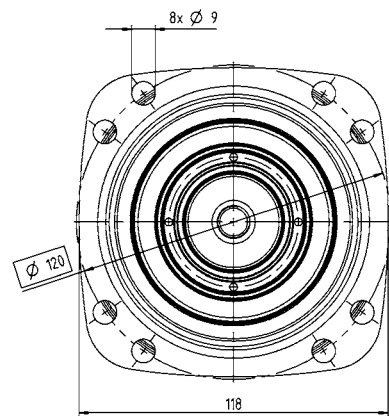
^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

1-stage



2-stage



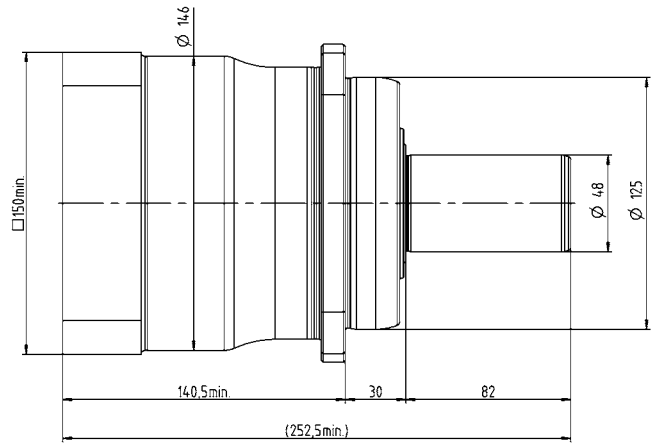
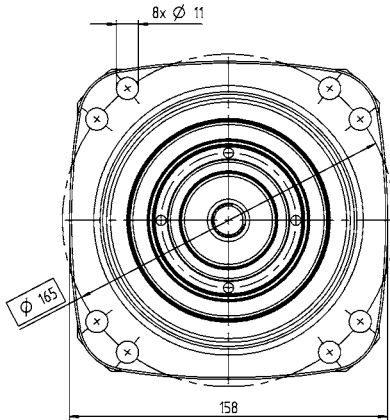
			1-stage	2-stage
Ratio	i		3 / 4 / 5 / 7 / 8 / 10	16 / 20 / 25 / 28 / 32 / 35 / 40 / 50 / 64 / 70 / 100
Max. torque ^{a)}	T_{2a}	<i>Nm</i>	792 – 1312	792 – 1188
		<i>in.lb</i>	7010 – 11612	7010 – 10515
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>	710 – 1080	660 – 990
		<i>in.lb</i>	6284 – 9559	5842 – 8762
Nominal torque (at n_{2N})	T_{2N}	<i>Nm</i>	202 – 335	461 – 607
		<i>in.lb</i>	1786 – 2962	4078 – 5370
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>	1375 – 2310	1375 – 2310
		<i>in.lb</i>	12170 – 20449	12170 – 20449
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{1T}	<i>rpm</i>	2100 – 2600	2900 – 3900
Max. input speed	n_{1Max}	<i>rpm</i>	5000	6000
Max. torsional backlash	j_t	<i>arcmin</i>	Standard ≤ 3 / Reduced ≤ 1	Standard ≤ 4 / Reduced ≤ 2
Torsional rigidity	C_{t21}	<i>Nm/arcmin</i>	62 – 85	75 – 95
		<i>in.lb/arcmin</i>	549 – 752	664 – 841
Max. tilting moment	M_{2KMax}	<i>Nm</i>	1635	1635
		<i>in.lb</i>	14471	14471
Operating noise ^{c)}	L_{PA}	<i>dB(A)</i>	≤ 60	≤ 57
Lubrication			Lubricated for life	Lubricated for life
Clamping hub diameter		<i>mm</i>	24 – 48	19 – 38

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

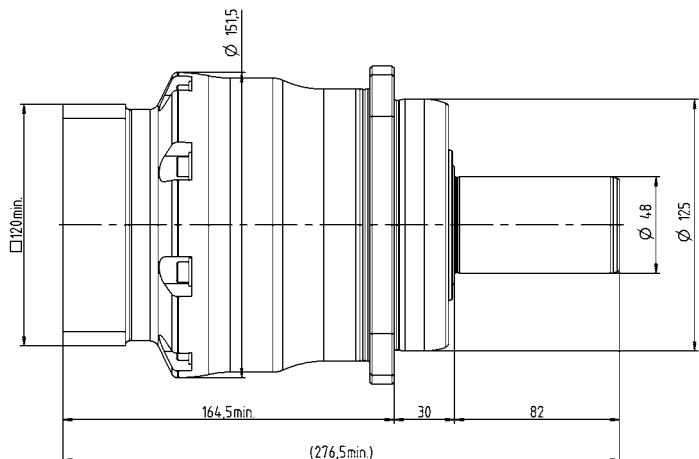
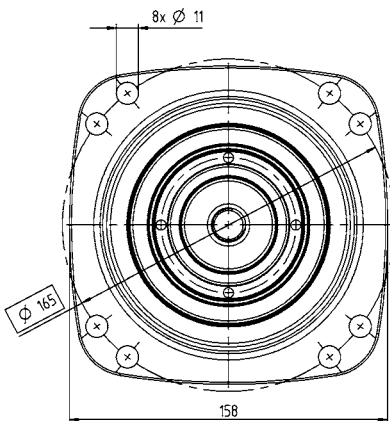
^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

1-stage



2-stage



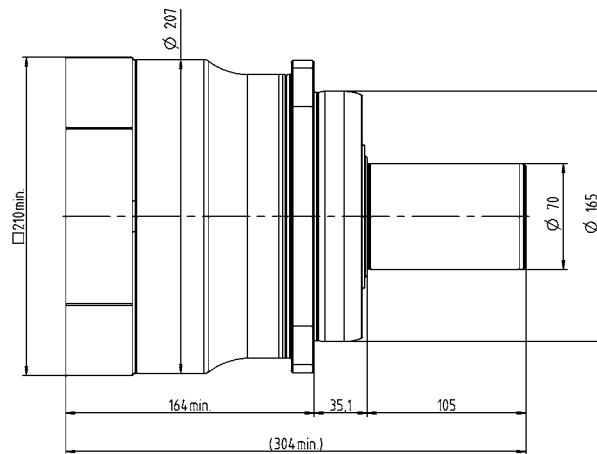
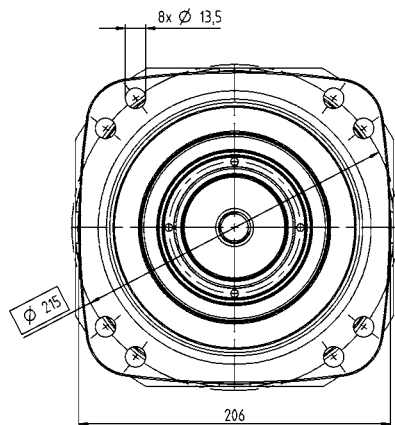
			1-stage	2-stage
Ratio	i		3 / 4 / 5 / 7 / 8 / 10	16 / 20 / 25 / 28 / 32 / 35 / 40 / 50 / 64 / 70 / 100
Max. torque ^{a)}	T_{2a}	Nm	2400 – 3840	1980 – 3696
		in.lb	21242 – 33987	17525 – 32713
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	1800 – 3360	1650 – 3080
		in.lb	15931 – 29739	14604 – 27260
Nominal torque (at n_n)	T_{2N}	Nm	513 – 927	1179 – 1505
		in.lb	4544 – 8203	10426 – 13323
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	3445 – 5000	3505 – 5000
		in.lb	30493 – 44254	31022 – 44254
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{IT}	rpm	1500 – 2300	2700 – 3400
Max. input speed	n_{IMax}	rpm	4500	5000
Max. torsional backlash	j_t	arcmin	Standard ≤ 3 / Reduced ≤ 1	Standard ≤ 4 / Reduced ≤ 2
Torsional rigidity	C_{t21}	Nm/arcmin	160 – 250	240 – 290
		in.lb/arcmin	1416 – 2213	2124 – 2567
Max. tilting moment	M_{2KMax}	Nm	3256	3256
		in.lb	28818	28818
Operating noise ^{c)}	L_{PA}	dB(A)	≤ 64	≤ 58
Lubrication			Lubricated for life	Lubricated for life
Clamping hub diameter		mm	38 – 55	24 – 48

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

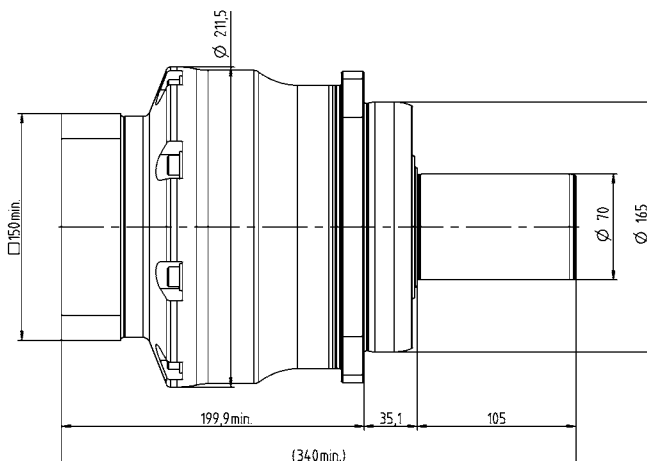
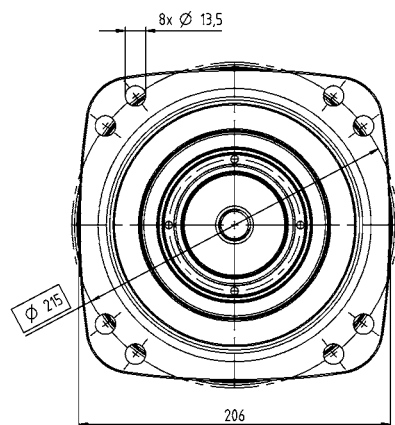
^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

1-stage



2-stage



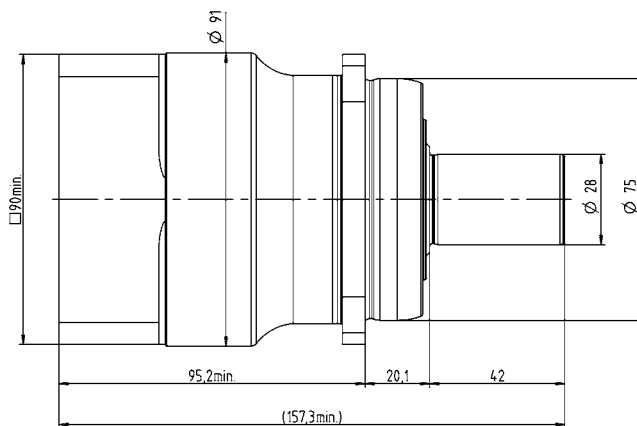
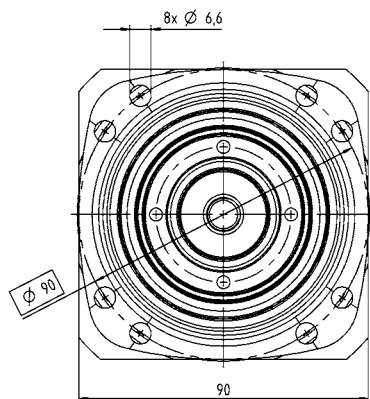
			1-stage	2-stage
Ratio	i		3 / 4 / 5 / 7 / 8 / 10	16 / 20 / 25 / 28 / 32 / 35 / 40 / 50 / 64 / 70 / 100
Max. torque ^{a)}	T_{2a}	Nm	68 – 90	70 – 90
		in.lb	602 – 797	620 – 797
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	68 – 90	70 – 90
		in.lb	602 – 797	620 – 797
Nominal torque (at n_n)	T_{2N}	Nm	41 – 53	56 – 72
		in.lb	362 – 468	496 – 637
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	325 – 390	325 – 418
		in.lb	2877 – 3452	2877 – 3696
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{TT}	rpm	4500	4500
Max. input speed	n_{1Max}	rpm	6000	6000
Max. torsional backlash	j_t	arcmin	Standard ≤ 6 / Reduced ≤ 4	Standard ≤ 8 / Reduced ≤ 6
Torsional rigidity	C_{t21}	Nm/arcmin	14 – 17	15 – 20
		in.lb/arcmin	124 – 150	133 – 177
Max. tilting moment	M_{2KMax}	Nm	675	675
		in.lb	5974	5974
Operating noise ^{c)}	L_{PA}	dB(A)	≤ 56	≤ 53
Lubrication			Lubricated for life	Lubricated for life
Clamping hub diameter		mm	19 – 24	14 – 19

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

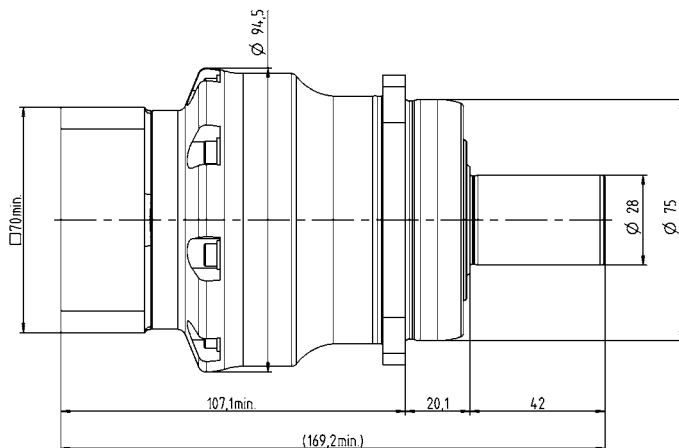
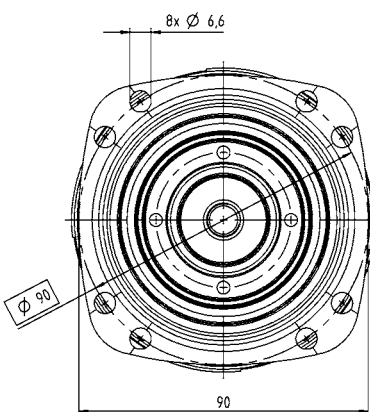
^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

1-stage



2-stage



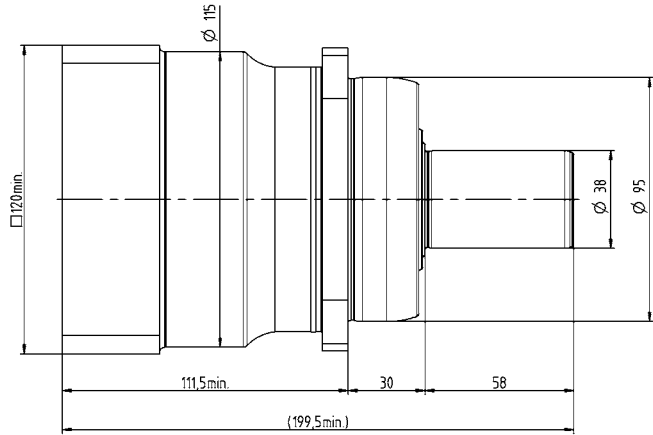
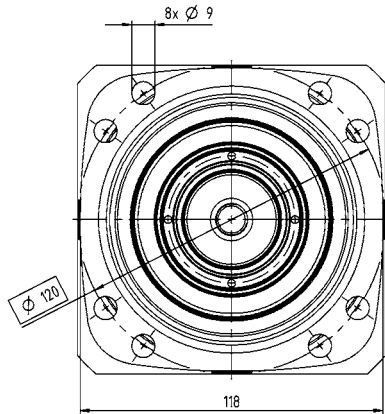
			1-stage	2-stage
Ratio	i		3 / 4 / 5 / 7 / 8 / 10	16 / 20 / 25 / 28 / 32 / 35 / 40 / 50 / 64 / 70 / 100
Max. torque ^{a)}	T_{2a}	Nm	180 – 240	180 – 240
		in.lb	1593 – 2124	1593 – 2124
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	180 – 240	180 – 240
		in.lb	1593 – 2124	1593 – 2124
Nominal torque (at n_n)	T_{2N}	Nm	76 – 97	138 – 189
		in.lb	677 – 861	1221 – 1673
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	650 – 900	750 – 1125
		in.lb	5753 – 7966	6638 – 9957
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{IT}	rpm	3500 – 4500	4500
Max. input speed	n_{IMax}	rpm	6000	6000
Max. torsional backlash	j_t	arcmin	Standard ≤ 4 / Reduced ≤ 2	Standard ≤ 6 / Reduced ≤ 4
Torsional rigidity	C_{t21}	Nm/arcmin	32 – 40	35 – 45
		in.lb/arcmin	283 – 354	310 – 398
Max. tilting moment	M_{2KMax}	Nm	1296	1296
		in.lb	11471	11471
Operating noise ^{c)}	L_{PA}	dB(A)	≤ 59	≤ 56
Lubrication			Lubricated for life	Lubricated for life
Clamping hub diameter		mm	24 – 38	19 – 24

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

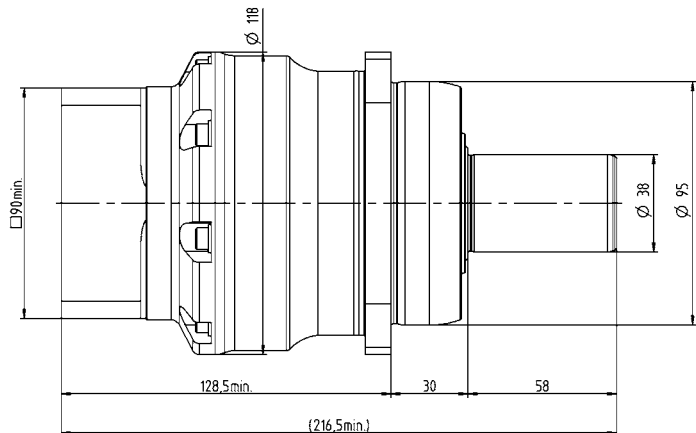
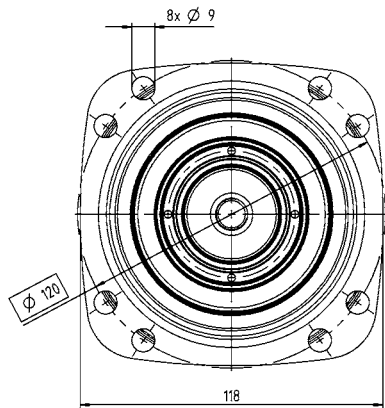
^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

1-stage



2-stage



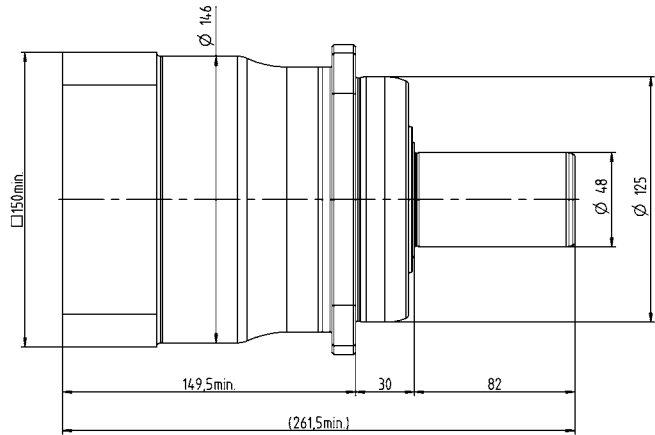
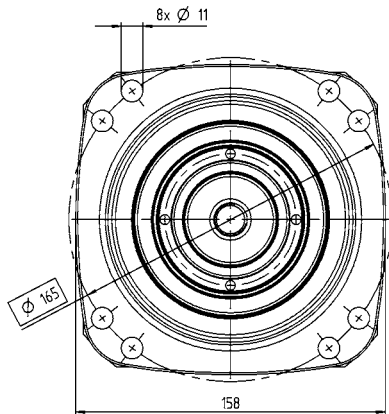
				1-stage	2-stage
Ratio	i			3 / 4 / 5 / 7 / 8 / 10	16 / 20 / 25 / 28 / 32 / 35 / 40 / 50 / 64 / 70 / 100
Max. torque ^{a)}	T_{2a}	Nm		310 – 480	380 – 480
		$in.lb$		2744 – 4248	3363 – 4248
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm		310 – 480	380 – 480
		$in.lb$		2744 – 4248	3363 – 4248
Nominal torque (at n_{2N})	T_{2N}	Nm		127 – 195	277 – 367
		$in.lb$		1122 – 1730	2447 – 3250
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm		1375 – 2310	1375 – 2310
		$in.lb$		12170 – 20445	12170 – 20445
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{1T}	rpm		3000 – 4500	4500
Max. input speed	n_{1Max}	rpm		6000	6000
Max. torsional backlash	j_t	$arcmin$		Standard ≤ 4 / Reduced ≤ 2	Standard ≤ 6 / Reduced ≤ 4
Torsional rigidity	C_{t21}	$Nm/arcmin$		62 – 85	75 – 95
		$in.lb/arcmin$		549 – 752	664 – 841
Max. tilting moment	M_{2KMax}	Nm		1635	1635
		$in.lb$		14471	14471
Operating noise ^{c)}	L_{PA}	$dB(A)$		≤ 60	≤ 57
Lubrication				Lubricated for life	Lubricated for life
Clamping hub diameter		mm		38 – 48	24 – 38

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

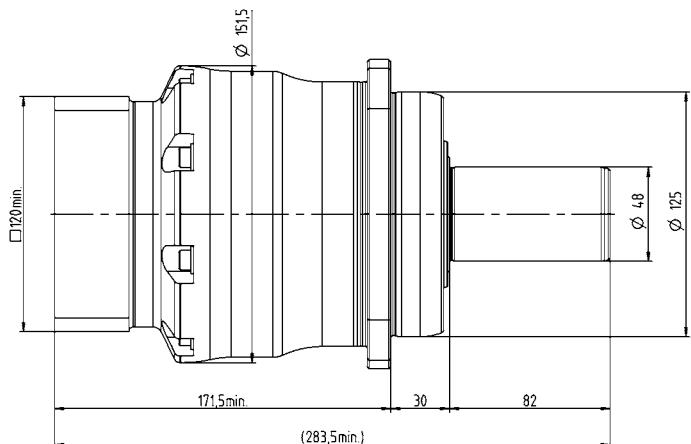
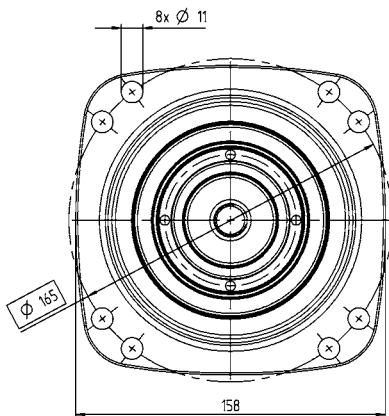
^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

1-stage



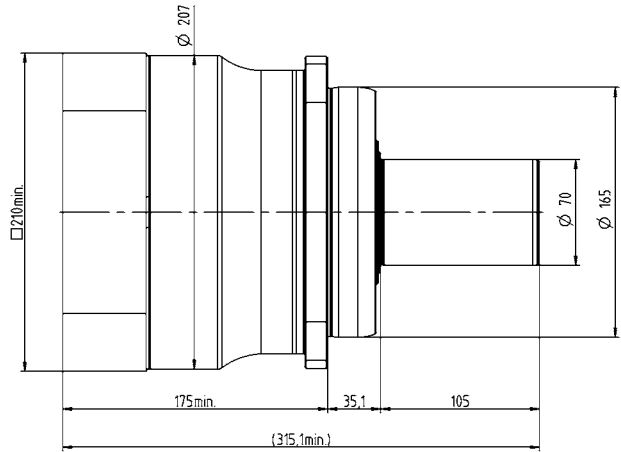
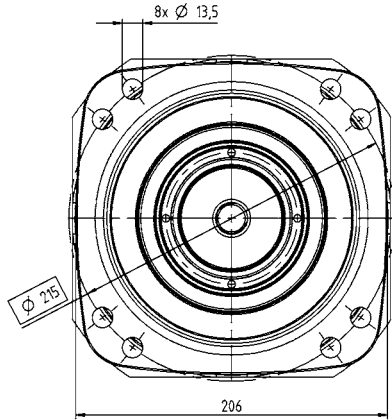
2-stage



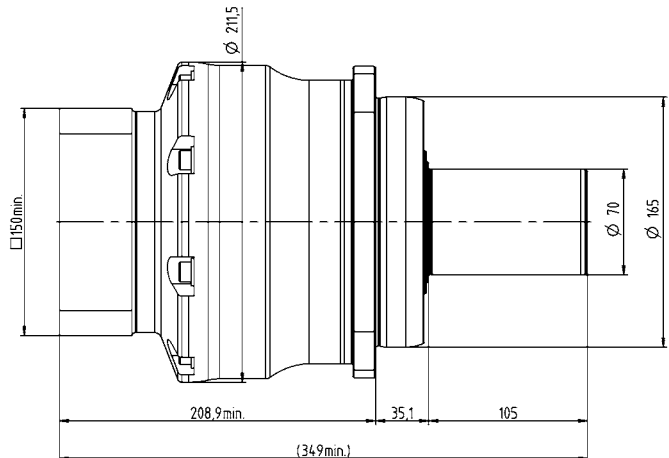
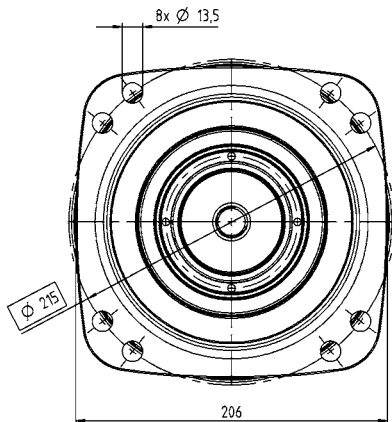
			1-stage	2-stage
Ratio	i		3 / 4 / 5 / 7 / 8 / 10	16 / 20 / 25 / 28 / 32 / 35 / 40 / 50 / 64 / 70 / 100
Max. torque ^{a)}	T_{2a}	Nm	700 – 880	700 – 880
		in.lb	6196 – 7789	6196 – 7789
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	700 – 880	700 – 880
		in.lb	6196 – 7789	6196 – 7789
Nominal torque (at n_n)	T_{2N}	Nm	289 – 492	560 – 704
		in.lb	2554 – 4355	4956 – 6231
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	3445 – 5000	3505 – 5000
		in.lb	30493 – 44254	31022 – 44254
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{IT}	rpm	3000 – 4500	4500
Max. input speed	n_{1Max}	rpm	4500 – 6000	6000
Max. torsional backlash	j_t	arcmin	Standard ≤ 4 / Reduced ≤ 2	Standard ≤ 6 / Reduced ≤ 4
Torsional rigidity	C_{t21}	Nm/arcmin	160 – 250	240 – 290
		in.lb/arcmin	1416 – 2213	2124 – 2567
Max. tilting moment	M_{2KMax}	Nm	3256	3256
		in.lb	28818	28818
Operating noise ^{c)}	L_{PA}	dB(A)	≤ 64	≤ 58
Lubrication			Lubricated for life	Lubricated for life
Clamping hub diameter		mm	48	38

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com
^{b)} For higher ambient temperatures, please reduce input speed
^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

1-stage



2-stage





Planetary gearboxes