CPK / CPSK – Geared up to Fit

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

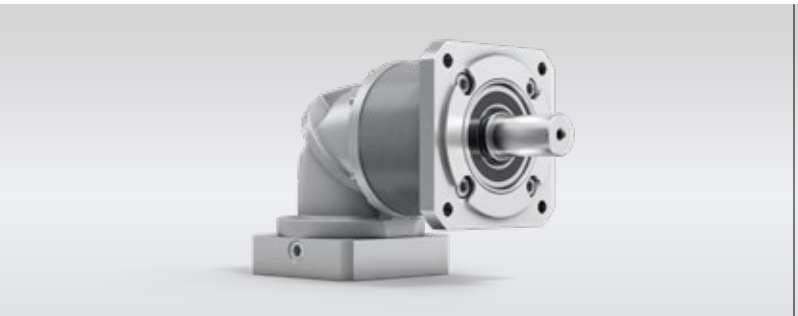
PRODUCT HIGHLIGHTS

High flexibility
Various output variants offer design freedom tailored to individual requirements.

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

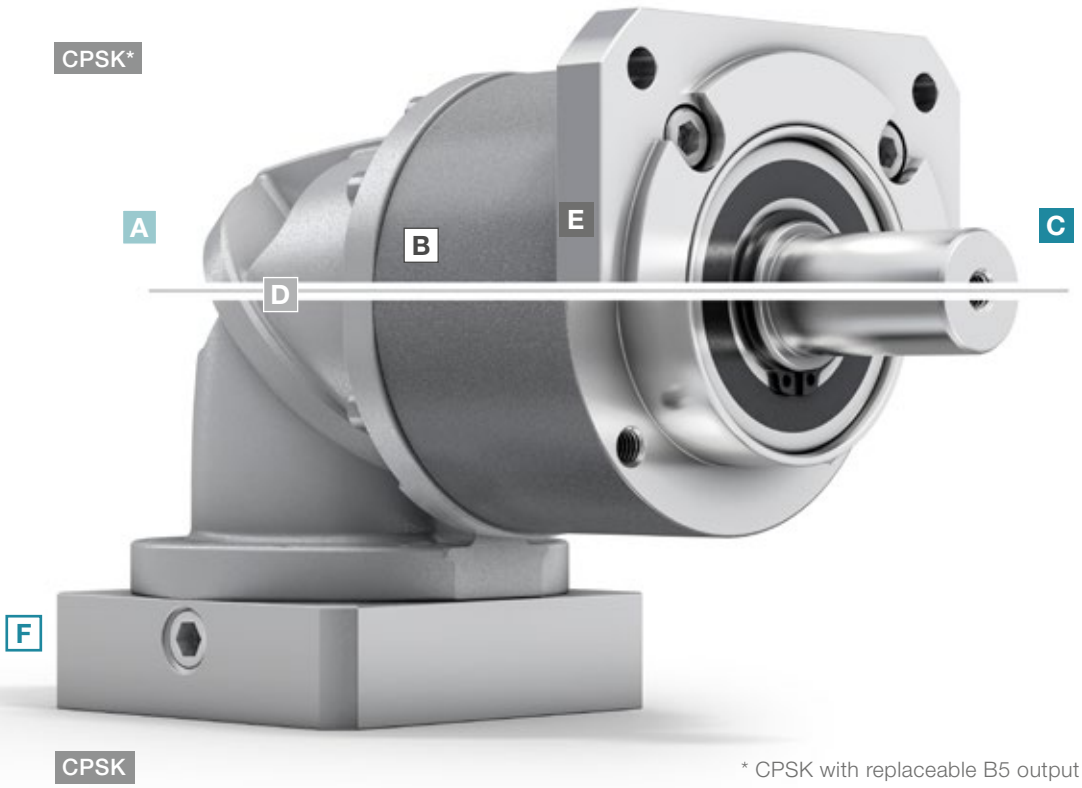
High power density
The gearboxes offer high power density in the smallest installation space.

Quick sizing
Efficient and innovative online sizing within seconds in cymex® select based on technical and economic suitability.



CPSK – bevel gearbox with replaceable B5 output flange

CPSK – bevel gearbox with long centering



* CPSK with replaceable B5 output flange

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

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

C **Available output types**
- Smooth shaft
- Shaft with key

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

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

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

CPK – bevel gearbox with elastomer coupling

cymex® select
BEST SOLUTION WITHIN SECONDS

Efficient gearbox sizing within seconds – online and without login
cymex-select.wittenstein-group.com

			2-stage				
Ratio	**i**		**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]	T_{2a}	*Nm*	14	17	21	20	20
		in.lb	124	150	186	177	177
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*	6.8	8.5	12	13	13
		in.lb	60	75	106	115	115
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*	17	21	26	26	26
		in.lb	150	186	230	230	230
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*	3800	3800	3800	3800	3800
Max. input speed	n_{1Max}	*rpm*	5000	5000	5000	5000	5000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	0.25	0.25	0.25	0.25	0.25
		in.lb	2.2	2.2	2.2	2.2	2.2
Max. backlash	j_t	*arcmin*	≤ 17				
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*	0.5	0.5	0.5	0.5	0.5
		in.lb/arcmin	4.4	4.4	4.4	4.4	4.4
Max. axial force [c)]	F_{2AMax}	*N*	240				
		lb_f	54				
Max. lateral force [c) f)]	F_{2QMax}	*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*	0.86				
		lb_m	1.9				
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*	≤ 68				
Max. permitted housing temperature		*°C*	+90				
		°F	+194				
Ambient temperature		*°C*	0 to +40				
		°F	+32 to +104				
Lubrication			Lubricated for life				
Direction of rotation			In- and output 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) **B 11** Clamping hub diameter [mm]	J_1	$kgcm^2$	0.13	0.13	0.13	0.13	0.13
		10^{-3} $in.lb.s^2$	0.12	0.12	0.12	0.12	0.12

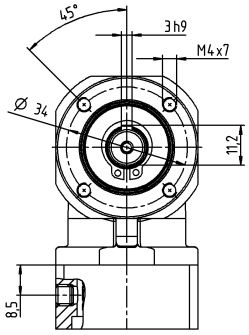
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**
Please consider the maximum permissible tilting moment caused by the motor M_{1KMot} – see sizing

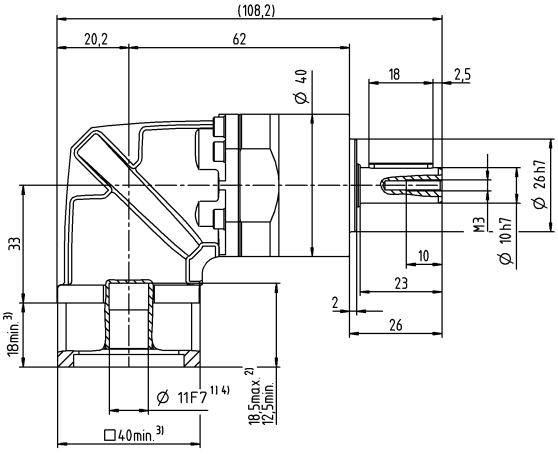
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft
[f)] At increased lateral forces – see glossary

Motor shaft diameter [mm]

2-stage

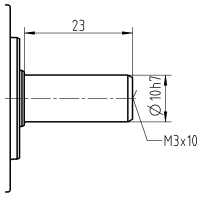
up to 11 [4] (B) [5]
clamping hub
diameter





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 wall thickness of 1 mm
[5] Standard clamping hub diameter

			3-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 [e)] (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_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*	3800	3800	3800	3800	3800	3800	3800	3800	3800
Max. input speed	n_{1Max}	*rpm*	5000	5000	5000	5000	5000	5000	5000	5000	5000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
		in.lb	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Max. backlash	j_t	*arcmin*	≤ 20								
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
		in.lb/arcmin	5	5	5	5	5	5	5	5	5
Max. axial force [c)]	F_{2AMax}	*N*	240								
		lb_f	54								
Max. lateral force [c) f)]	F_{2QMax}	*N*	170								
		lb_f	38								
Max. tilting moment	M_{2KMax}	*Nm*	4								
		in.lb	35								
Efficiency at full load	η	*%*	94								
Service life	L_h	*h*	> 20000								
Weight (incl. standard adapter plate)	*m*	*kg*	0.92								
		lb_m	2.0								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*	≤ 68								
Max. permitted housing temperature		*°C*	+90								
		°F	+194								
Ambient temperature		*°C*	0 to +40								
		°F	+32 to +104								
Lubrication			Lubricated for life								
Direction of rotation			In- and output 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) **B 11** Clamping hub diameter [mm]	J_1	$kgcm^2$	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
		10^{-3} $in.lb.s^2$	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12

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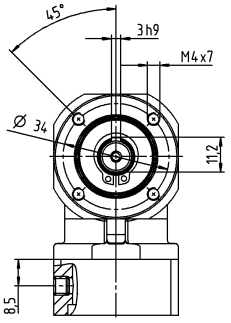
Please consider the maximum permissible tilting moment caused by the motor M_{1KMot} – see sizing

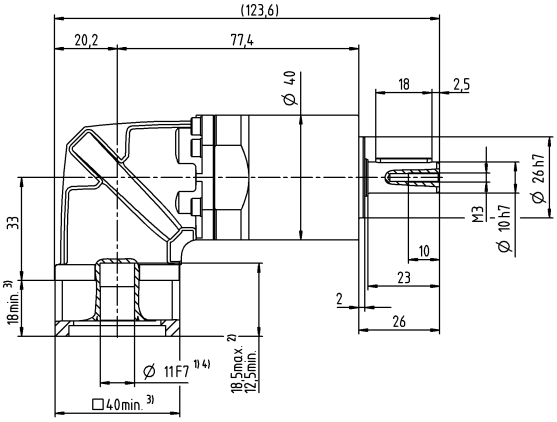
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft
[f)] At increased lateral forces – see glossary

Motor shaft diameter [mm]

3-stage

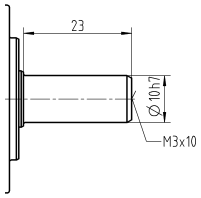
up to 11 [4] (B) [5]
clamping hub
diameter





Other output variants

Smooth shaft



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[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm
[5] Standard clamping hub diameter

			2-stage					
Ratio	**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]	T_{2a}	*Nm*	33	44	55	58	56	56
		in.lb	292	389	487	513	496	496
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*	16	21	27	37	35	35
		in.lb	142	186	239	327	310	310
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*	41	55	69	75	75	75
		in.lb	363	487	611	664	664	664
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*	3300	3300	3300	3300	3300	3300
Max. input speed	n_{1Max}	*rpm*	5000	5000	5000	5000	5000	5000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	0.55	0.55	0.55	0.55	0.55	0.55
		in.lb	4.9	4.9	4.9	4.9	4.9	4.9
Max. backlash	j_t	*arcmin*	≤ 17					
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*	1.7	1.7	1.7	1.7	1.7	1.7
		in.lb/arcmin	15	15	15	15	15	15
Max. axial force [c)]	F_{2AMax}	*N*	750					
		lb_f	169					
Max. lateral force [c) f)]	F_{2QMax}	*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*	1.6					
		lb_m	3.5					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*	≤ 70					
Max. permitted housing temperature		*°C*	+90					
		°F	+194					
Ambient temperature		*°C*	0 to +40					
		°F	+32 to +104					
Lubrication			Lubricated for life					
Direction of rotation			In- and output 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) C 14 Clamping hub diameter [mm]	J_1	$kgcm^2$	0.3	0.3	0.3	0.3	0.3	0.3
		10^{-3} $in.lb.s^2$	0.27	0.27	0.27	0.27	0.27	0.27

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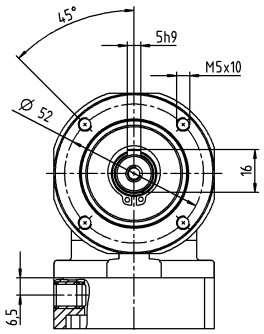
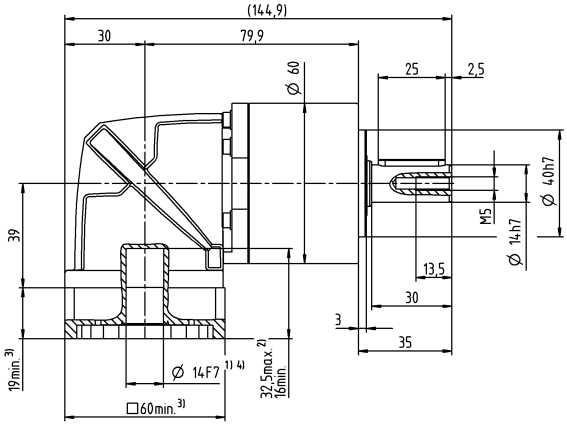
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft
[f)] At increased lateral forces – see glossary

Motor shaft diameter [mm]

2-stage

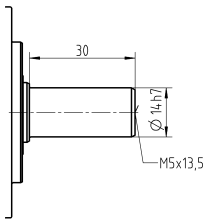
up to 14 [4] (C) [5]
clamping hub
diameter





Other output variants

Smooth shaft



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[5] Standard clamping hub diameter

			3-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 [e)] (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_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300
Max. input speed	n_{1Max}	*rpm*	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
		in.lb	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Max. backlash	j_t	*arcmin*	≤ 17												
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	2.1
		in.lb/arcmin	19	19	19	19	19	19	19	19	19	19	19	19	19
Max. axial force [c)]	F_{2AMax}	*N*	750												
		lb_f	169												
Max. lateral force [c) f)]	F_{2QMax}	*N*	500												
		lb_f	113												
Max. tilting moment	M_{2KMax}	*Nm*	17												
		in.lb	150												
Efficiency at full load	η	*%*	94												
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)*	≤ 70												
Max. permitted housing temperature		*°C*	+90												
		°F	+194												
Ambient temperature		*°C*	0 to +40												
		°F	+32 to +104												
Lubrication			Lubricated for life												
Direction of rotation			In- and output same direction												
Protection class			IP 64												
Elastomer coupling (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) C 14 Clamping hub diameter [mm]	J_1	*kgcm²*	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
		10^{-3} in.lb.s²	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27

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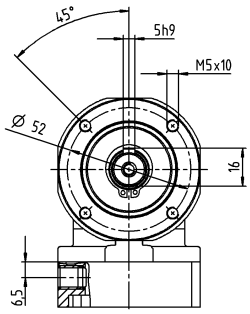
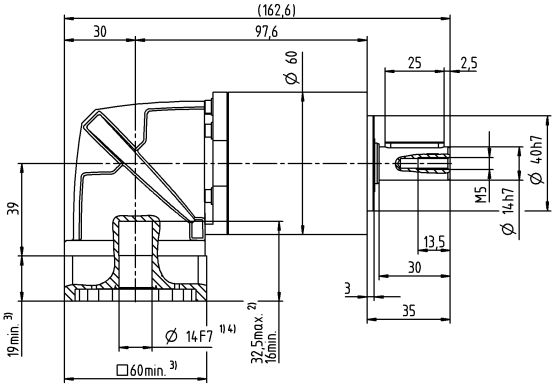
Motor shaft diameter [mm]

3-stage

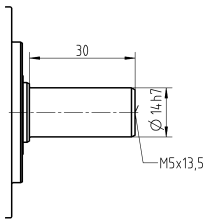
up to 14 [4] (C) [5]
clamping hub
diameter





Other output variants

Smooth shaft



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			2-stage					
Ratio	**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]	T_{2a}	*Nm*	60	80	100	140	144	144
		in.lb	531	708	885	1239	1275	1275
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*	35	47	58	82	90	90
		in.lb	310	416	513	726	797	797
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*	90	120	150	187	187	187
		in.lb	797	1062	1328	1655	1655	1655
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*	3000	3000	3000	3000	3000	3000
Max. input speed	n_{1Max}	*rpm*	5000	5000	5000	5000	5000	5000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	0.98	0.98	0.98	0.98	0.98	0.98
		in.lb	8.7	8.7	8.7	8.7	8.7	8.7
Max. backlash	j_t	*arcmin*	≤ 17					
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*	4.5	4.5	4.5	4.5	4.5	4.5
		in.lb/arcmin	40	40	40	40	40	40
Max. axial force [c)]	F_{2AMax}	*N*	1600					
		lb_f	360					
Max. lateral force [c)]	F_{2QMax}	*N*	1200					
		lb_f	270					
Max. tilting moment	M_{2KMax}	*Nm*	54					
		in.lb	478					
Efficiency at full load	η	*%*	95					
Service life	L_h	*h*	> 20000					
Weight (incl. standard adapter plate)	*m*	*kg*	4.2					
		lb_m	9.3					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*	≤ 73					
Max. permitted housing temperature		*°C*	+90					
		°F	+194					
Ambient temperature		*°C*	0 to +40					
		°F	+32 to +104					
Lubrication			Lubricated for life					
Direction of rotation			In- and output same direction					
Protection class			IP 64					
Elastomer coupling (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) E 19 Clamping hub diameter [mm]	J_1	$kgcm^2$	0.86	0.86	0.86	0.86	0.86	0.86
		10^{-3} $in.lb.s^2$	0.76	0.76	0.76	0.76	0.76	0.76

Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**
Please consider the maximum permissible tilting moment caused by the motor M_{1KMot} – see sizing

[a)] Valid for torque transmission only
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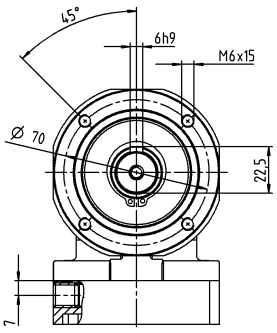
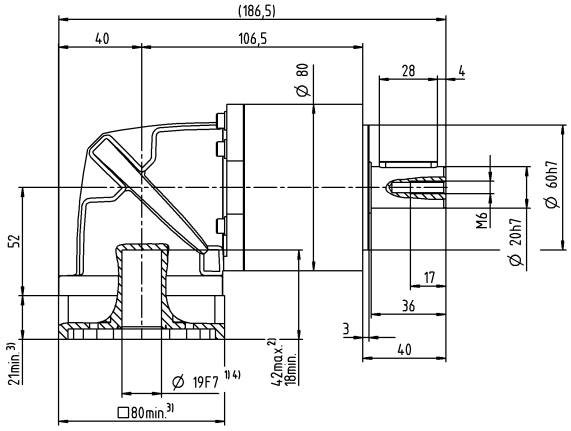
[e)] Valid for: Smooth shaft

Motor shaft diameter [mm]

2-stage

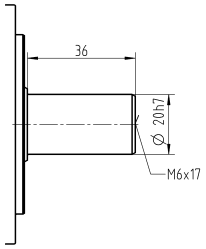
up to 19 [4] (E) [5]
clamping hub
diameter





Other output variants

Smooth shaft



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Longer motor shafts are possible, please contact alpha
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[4] Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm
[5] Standard clamping hub diameter

				3-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	1275
Max. acceleration torque [e)] (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_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
Max. input speed	n_{1Max}	*rpm*		5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
		in.lb		9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
Max. backlash	j_t	*arcmin*		≤ 18												
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
		in.lb/arcmin		52	52	52	52	52	52	52	52	52	52	52	52	52
Max. axial force [c)]	F_{2AMax}	*N*		1600												
		lb_f		360												
Max. lateral force [c)]	F_{2QMax}	*N*		1200												
		lb_f		270												
Max. tilting moment	M_{2KMax}	*Nm*		54												
		in.lb		478												
Efficiency at full load	η	*%*		94												
Service life	L_h	*h*		> 20000												
Weight (incl. standard adapter plate)	*m*	*kg*		4.5												
		lb_m		9.9												
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 73												
Max. permitted housing temperature		*°C*		+90												
		°F		+194												
Ambient temperature		*°C*		0 to +40												
		°F		+32 to +104												
Lubrication				Lubricated for life												
Direction of rotation				In- and output same direction												
Protection class				IP 64												
Elastomer coupling (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) **E** **19** Clamping hub diameter [mm]	J_1	*kgcm²*		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
		10^{-3} *in.lb.s²*		0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81

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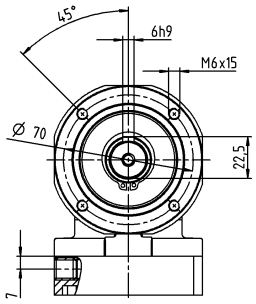
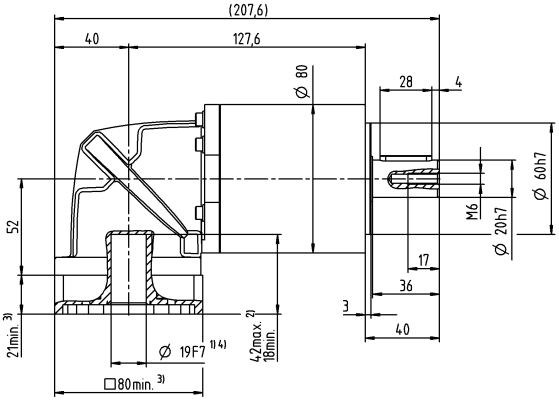
Motor shaft diameter [mm]

3-stage

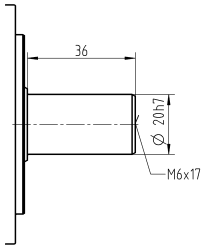
up to 19 [4] (E) [5]
clamping hub
diameter





Other output variants

Smooth shaft



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[5] Standard clamping hub diameter

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

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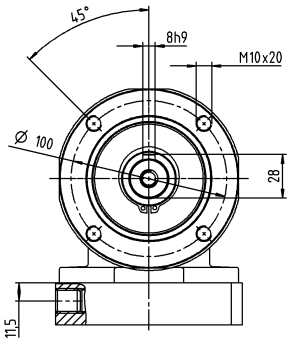
Please consider the maximum permissible tilting moment caused by the motor M_{1KMot} – see sizing

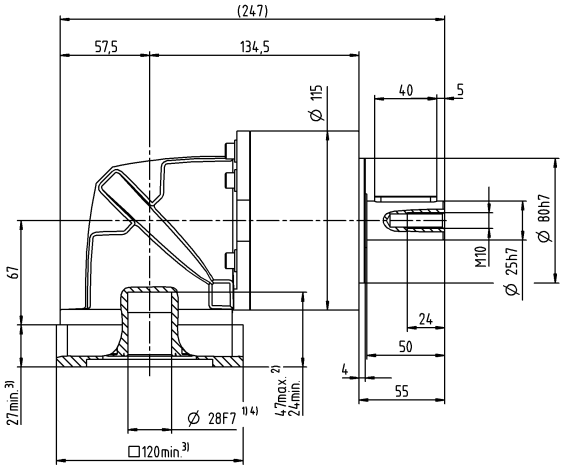
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

Motor shaft diameter [mm]

2-stage

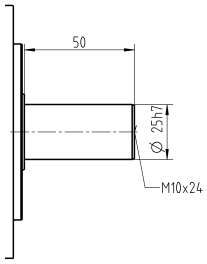
up to 28 [4] (H) [5]
clamping hub
diameter





Other output variants

Smooth shaft



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[5] Standard clamping hub diameter

			3-stage														
Ratio	**i**		**9**	**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272
		in.lb	2407	2407	2407	2407	2407	2407	2407	2407	2407	2407	2407	2407	2407	2407	2407
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*	175	175	175	255	255	250	255	175	255	250	255	250	220	250	220
		in.lb	1549	1549	1549	2257	2257	2213	2257	1549	2257	2213	2257	2213	1947	2213	1947
Emergency stop torque [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	477	480	480
		in.lb	4248	4248	4248	4248	4248	4248	4248	2788	4248	4248	4248	4248	4222	4248	4248
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Max. input speed	n_{1Max}	*rpm*	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
		in.lb	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
Max. backlash	j_t	*arcmin*	≤ 17														
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
		in.lb/arcmin	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142
Max. axial force [c)]	F_{2AMax}	*N*	2500														
		lb_f	563														
Max. lateral force [c)]	F_{2QMax}	*N*	1750														
		lb_f	394														
Max. tilting moment	M_{2KMax}	*Nm*	98														
		in.lb	867														
Efficiency at full load	η	*%*	94														
Service life	L_h	*h*	> 20000														
Weight (incl. standard adapter plate)	*m*	*kg*	10														
		lb_m	22														
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*	≤ 74														
Max. permitted housing temperature		*°C*	+90														
		°F	+194														
Ambient temperature		*°C*	0 to +40														
		°F	+32 to +104														
Lubrication			Lubricated for life														
Direction of rotation			In- and output same direction														
Protection class			IP 64														
Elastomer coupling (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) **H 28** Clamping hub diameter [mm]	J_1	$kgcm^2$	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
		10^{-3} *in.lb.s²*	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6

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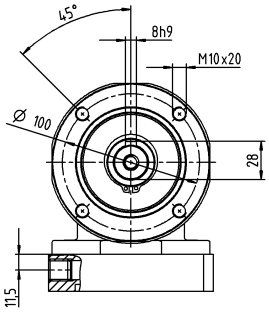
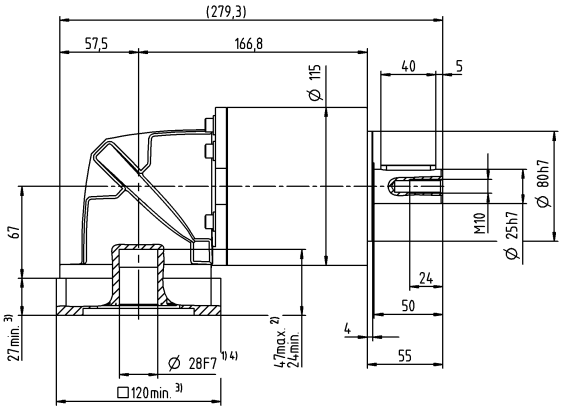
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

Motor shaft diameter [mm]

3-stage

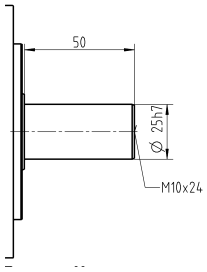
up to 28 [4] (H) [5]
clamping hub
diameter





Other output variants

Smooth shaft



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[5] Standard clamping hub diameter

				3-stage		
Ratio	**i**			**25**	**50**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*		700	700	640
		in.lb		6196	6196	5665
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		500	500	400
		in.lb		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
		in.lb		8851	8851	8851
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		2000	2000	2000
Max. input speed	n_{1Max}	*rpm*		4500	4500	4500
Mean no load running torque [b)] (at n_1=3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		3.6	3.6	3.6
		in.lb		32	32	32
Max. backlash	j_t	*arcmin*		≤ 16		
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		54	54	54
		in.lb/arcmin		478	478	478
Max. axial force [c)]	F_{2AMax}	*N*		6000		
		lb_f		1350		
Max. lateral force [c)]	F_{2QMax}	*N*		8000		
		lb_f		1800		
Max. tilting moment	M_{2KMax}	*Nm*		704		
		in.lb		6231		
Efficiency at full load	η	*%*		94		
Service life	L_h	*h*		> 20000		
Weight (incl. standard adapter plate)	*m*	*kg*		21		
		lb_m		46		
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 78		
Max. permitted housing temperature		*°C*		+90		
		°F		+194		
Ambient temperature		*°C*		0 to +40		
		°F		+32 to +104		
Lubrication				Lubricated for life		
Direction of rotation				In- and output same direction		
Protection class				IP 64		
Elastomer coupling (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)	J_1	*kgcm²*		6.8	6.8	6.8
Clamping hub diameter [mm]	**H**	**28**	*10^{-3} in.lb.s²*	6	6	6

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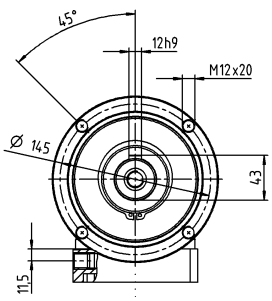
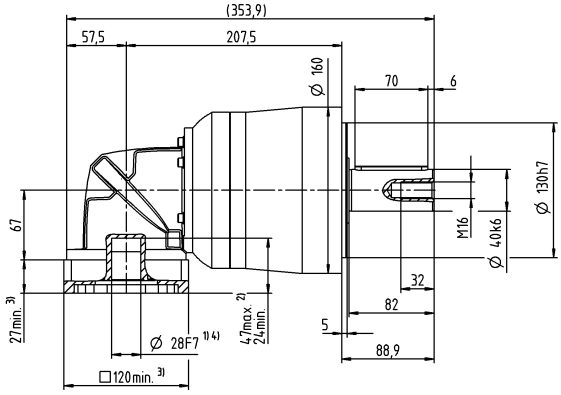
Motor shaft diameter [mm]

3-stage

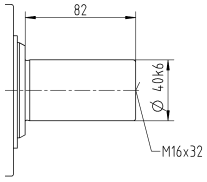
up to 28 [4] (H) [5]
clamping hub
diameter





Other output variants

Smooth shaft



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[5] Standard clamping hub diameter

			2-stage					
Ratio	**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]	T_{2a}	*Nm*	33	44	55	58	56	56
		in.lb	292	389	487	513	496	496
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*	16	21	27	37	35	35
		in.lb	142	186	239	327	310	310
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*	41	55	69	75	75	75
		in.lb	363	487	611	664	664	664
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*	3300	3300	3300	3300	3300	3300
Max. input speed	n_{1Max}	*rpm*	5000	5000	5000	5000	5000	5000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	0.55	0.55	0.55	0.55	0.55	0.55
		in.lb	4.9	4.9	4.9	4.9	4.9	4.9
Max. backlash	j_t	*arcmin*	≤ 17					
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*	1.7	1.7	1.7	1.7	1.7	1.7
		in.lb/arcmin	15	15	15	15	15	15
Max. axial force [c)]	F_{2AMax}	*N*	750					
		lb_f	169					
Max. lateral force [c)]	F_{2QMax}	*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*	1.6					
		lb_m	3.5					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*	≤ 70					
Max. permitted housing temperature		*°C*	+90					
		°F	+194					
Ambient temperature		*°C*	0 to +40					
		°F	+32 to +104					
Lubrication			Lubricated for life					
Direction of rotation			In- and output 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) C 14 Clamping hub diameter [mm]	J_1	$kgcm^2$	0.3	0.3	0.3	0.3	0.3	0.3
		10^{-3} $in.lb.s^2$	0.27	0.27	0.27	0.27	0.27	0.27

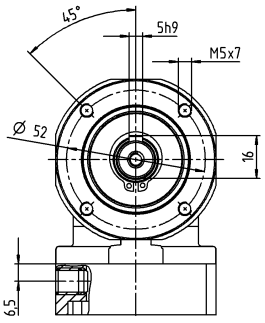
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**
Please consider the maximum permissible tilting moment caused by the motor M_{1KMot} – see sizing

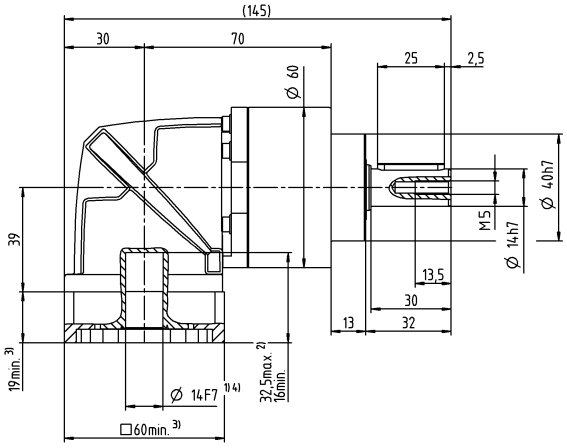
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

Motor shaft diameter [mm]

2-stage

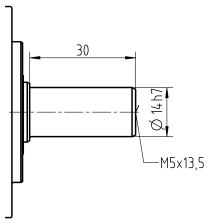
up to 14 [4] (C) [5]
clamping hub
diameter



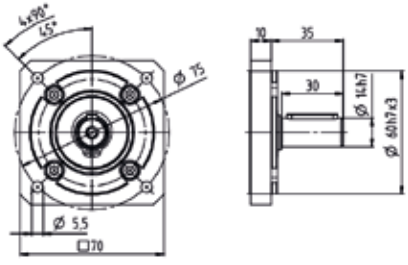


Other output variants

Smooth shaft



Replaceable B5 output flange



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Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm
[5] Standard clamping hub diameter

			3-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 [e)] (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_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300
Max. input speed	n_{1Max}	*rpm*	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
		in.lb	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Max. backlash	j_t	*arcmin*	≤ 17												
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	2.1
		in.lb/arcmin	19	19	19	19	19	19	19	19	19	19	19	19	19
Max. axial force [c)]	F_{2AMax}	*N*	750												
		lb_f	169												
Max. lateral force [c)]	F_{2QMax}	*N*	500												
		lb_f	113												
Max. tilting moment	M_{2KMax}	*Nm*	17												
		in.lb	150												
Efficiency at full load	η	*%*	94												
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)*	≤ 70												
Max. permitted housing temperature		*°C*	+90												
		°F	+194												
Ambient temperature		*°C*	0 to +40												
		°F	+32 to +104												
Lubrication			Lubricated for life												
Direction of rotation			In- and output same direction												
Protection class			IP 64												
Elastomer coupling (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) C 14 Clamping hub diameter [mm]	J_1	$kgcm^2$	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
		10^{-3} $in.lb.s^2$	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27

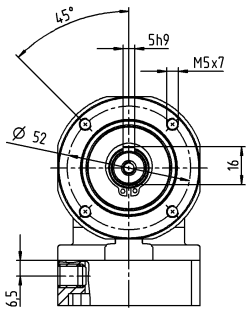
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**
Please consider the maximum permissible tilting moment caused by the motor M_{1KMot} – see sizing

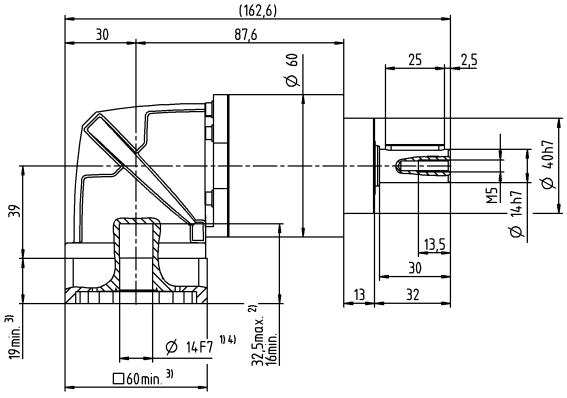
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

Motor shaft diameter [mm]

3-stage

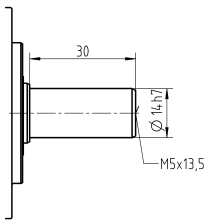
up to 14 [4] (C) [5]
clamping hub
diameter



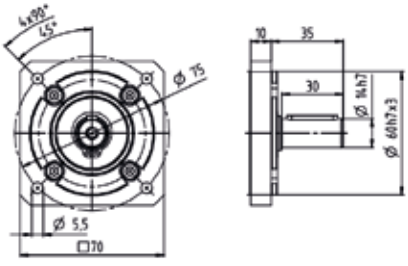


Other output variants

Smooth shaft



Replaceable B5 output flange



Non-tolerated dimensions are nominal dimensions
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Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm
[5] Standard clamping hub diameter

			2-stage					
Ratio	**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]	T_{2a}	*Nm*	60	80	100	140	144	144
		in.lb	531	708	885	1239	1275	1275
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*	35	47	58	82	90	90
		in.lb	310	416	513	726	797	797
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*	90	120	150	187	187	187
		in.lb	797	1062	1328	1655	1655	1655
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*	3000	3000	3000	3000	3000	3000
Max. input speed	n_{1Max}	*rpm*	5000	5000	5000	5000	5000	5000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	0.98	0.98	0.98	0.98	0.98	0.98
		in.lb	8.7	8.7	8.7	8.7	8.7	8.7
Max. backlash	j_t	*arcmin*	≤ 17					
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*	4.5	4.5	4.5	4.5	4.5	4.5
		in.lb/arcmin	40	40	40	40	40	40
Max. axial force [c)]	F_{2AMax}	*N*	1600					
		lb_f	360					
Max. lateral force [c)]	F_{2QMax}	*N*	1200					
		lb_f	270					
Max. tilting moment	M_{2KMax}	*Nm*	54					
		in.lb	478					
Efficiency at full load	η	*%*	95					
Service life	L_h	*h*	> 20000					
Weight (incl. standard adapter plate)	*m*	*kg*	4.2					
		lb_m	9.3					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*	≤ 73					
Max. permitted housing temperature		*°C*	+90					
		°F	+194					
Ambient temperature		*°C*	0 to +40					
		°F	+32 to +104					
Lubrication			Lubricated for life					
Direction of rotation			In- and output same direction					
Protection class			IP 64					
Elastomer coupling (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) E 19 Clamping hub diameter [mm]	J_1	$kgcm^2$	0.86	0.86	0.86	0.86	0.86	0.86
		10^{-3} $in.lb.s^2$	0.76	0.76	0.76	0.76	0.76	0.76

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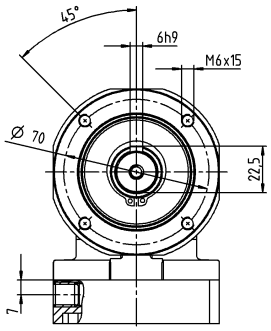
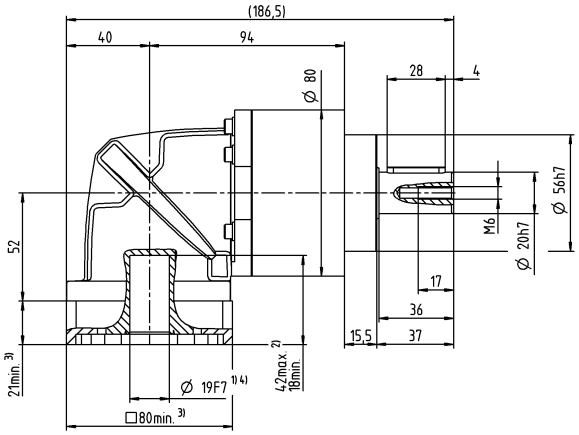
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

Motor shaft diameter [mm]

2-stage

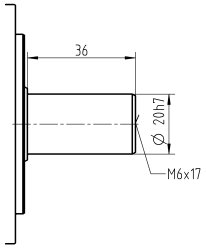
up to 19 [4] (E) [5]
clamping hub
diameter



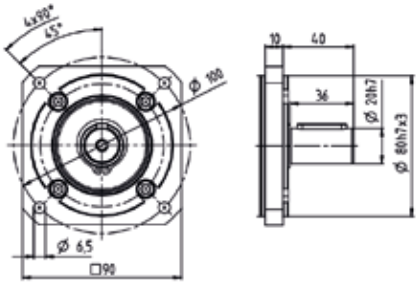


Other output variants

Smooth shaft



Replaceable B5 output flange



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[5] Standard clamping hub diameter

			3-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	1275
Max. acceleration torque [e)] (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_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
Max. input speed	n_{1Max}	*rpm*	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
		in.lb	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
Max. backlash	j_t	*arcmin*	≤ 18												
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
		in.lb/arcmin	52	52	52	52	52	52	52	52	52	52	52	52	52
Max. axial force [c)]	F_{2AMax}	*N*	1600												
		lb_f	360												
Max. lateral force [c)]	F_{2QMax}	*N*	1200												
		lb_f	270												
Max. tilting moment	M_{2KMax}	*Nm*	54												
		in.lb	478												
Efficiency at full load	η	*%*	94												
Service life	L_h	*h*	> 20000												
Weight (incl. standard adapter plate)	*m*	*kg*	4.5												
		lb_m	9.9												
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*	≤ 73												
Max. permitted housing temperature		*°C*	+90												
		°F	+194												
Ambient temperature		*°C*	0 to +40												
		°F	+32 to +104												
Lubrication			Lubricated for life												
Direction of rotation			In- and output same direction												
Protection class			IP 64												
Elastomer coupling (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) **E** **19** Clamping hub diameter [mm]	J_1	*kgcm²*	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
		10^{-3} *in.lb.s²*	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81

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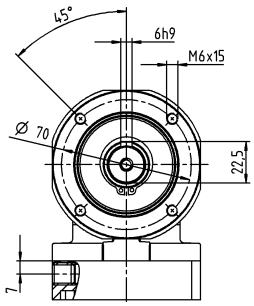
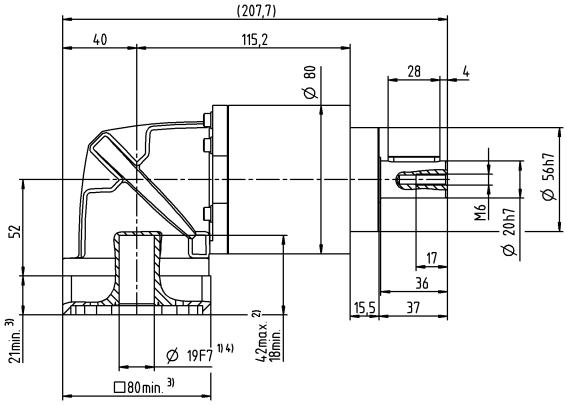
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

Motor shaft diameter [mm]

3-stage

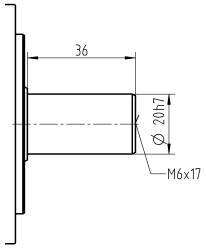
up to 19 [4] (E) [5]
clamping hub
diameter



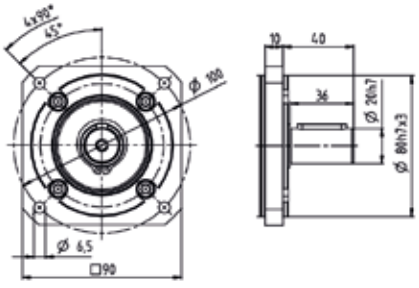


Other output variants

Smooth shaft



Replaceable B5 output flange



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[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm
[5] Standard clamping hub diameter

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

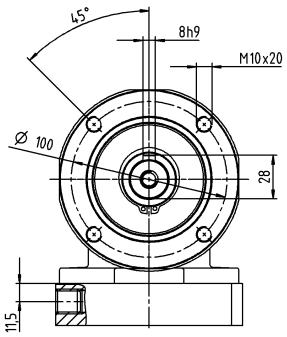
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**
Please consider the maximum permissible tilting moment caused by the motor M_{1KMot} – see sizing

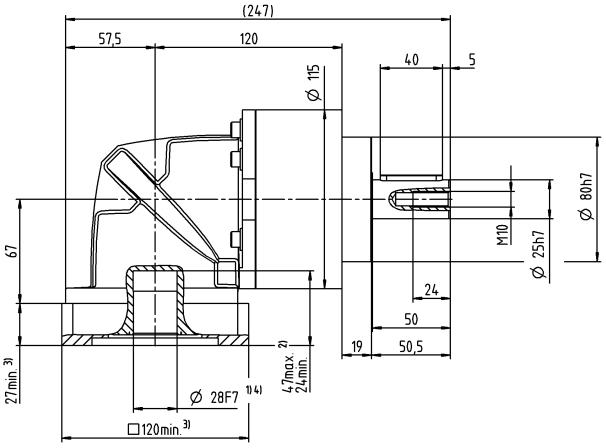
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

Motor shaft diameter [mm]

2-stage

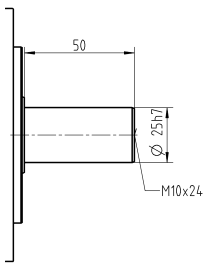
up to 28 [4] (H) [5]
clamping hub
diameter



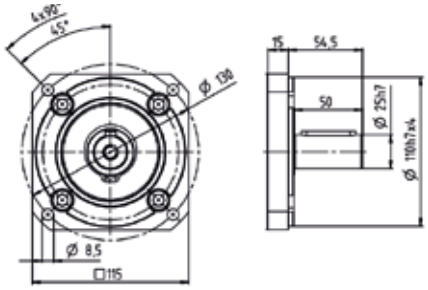


Other output variants

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 wall thickness of 1 mm
[5] Standard clamping hub diameter

			3-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
Max. acceleration torque [e)] (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_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Max. input speed	n_{1Max}	*rpm*	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
		in.lb	34	34	34	34	34	34	34	34	34	34	34	34	34
Max. backlash	j_t	*arcmin*	≤ 17												
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*	16	16	16	16	16	16	16	16	16	16	16	16	16
		in.lb/arcmin	142	142	142	142	142	142	142	142	142	142	142	142	142
Max. axial force [c)]	F_{2AMax}	*N*	2500												
		lb_f	563												
Max. lateral force [c)]	F_{2QMax}	*N*	1750												
		lb_f	394												
Max. tilting moment	M_{2KMax}	*Nm*	98												
		in.lb	867												
Efficiency at full load	η	*%*	94												
Service life	L_h	*h*	> 20000												
Weight (incl. standard adapter plate)	*m*	*kg*	10												
		lb_m	22												
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*	≤ 74												
Max. permitted housing temperature		*°C*	+90												
		°F	+194												
Ambient temperature		*°C*	0 to +40												
		°F	+32 to +104												
Lubrication			Lubricated for life												
Direction of rotation			In- and output same direction												
Protection class			IP 64												
Elastomer coupling (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) H 28 Clamping hub diameter [mm]	J_1	*kgcm²*	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
		10^{-3} in.lb.s²	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6

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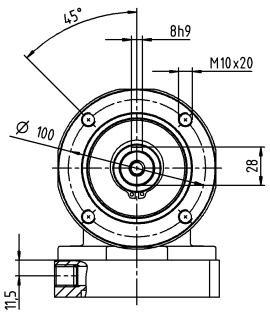
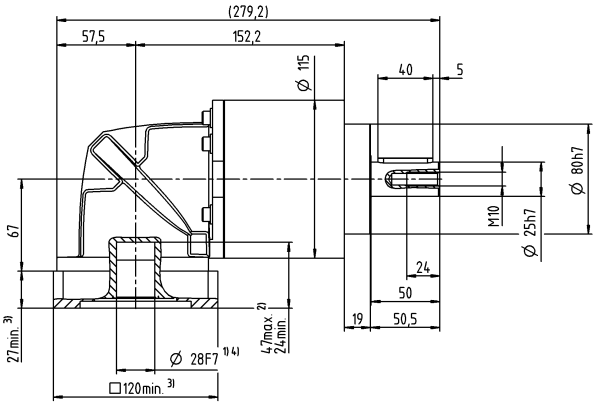
Motor shaft diameter [mm]

3-stage

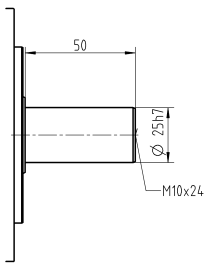
up to 28 [4] (H) [5]
clamping hub
diameter



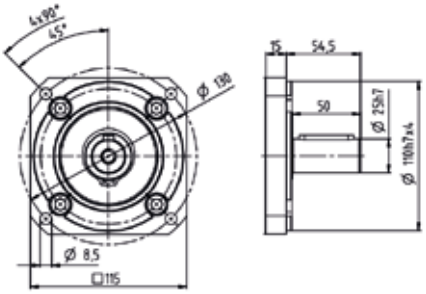


Other output variants

Smooth shaft



Replaceable B5 output flange



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