SP+ / SP+ HIGH SPEED – The classic all-rounder

SP+

The standard version of these low-backlash planetary gearboxes with output shaft is ideally suited for high positioning accuracy and highly dynamic cyclic operation. The SP+ HIGH SPEED is particularly appropriate for applications with maximum speeds during continuous operation.

Product highlights

Max. torsional backlash [arcmin] ≤ 1 – 6

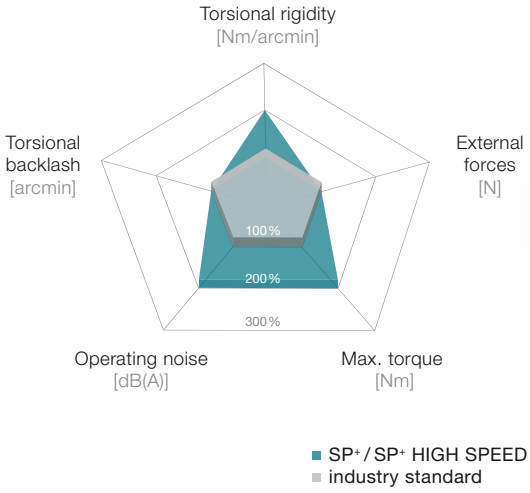
Various output configurations
Smooth shaft, shaft with key, splined shaft (DIN 5480), blind hollow shaft

High nominal speeds
SP+ HIGH SPEED version for applications in continuous operation

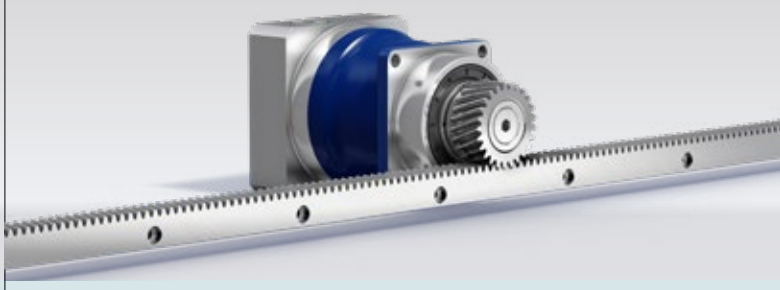
Flexible drive options
Clamping hub socket, coupling, optimized mass inertia, keyed clamping hub socket

Other gearbox models
Corrosion resistant design, ATEX, food-grade lubrication, low friction version

The SP+ compared to the industry standard



SP+ planetary gearbox in corrosion resistant design

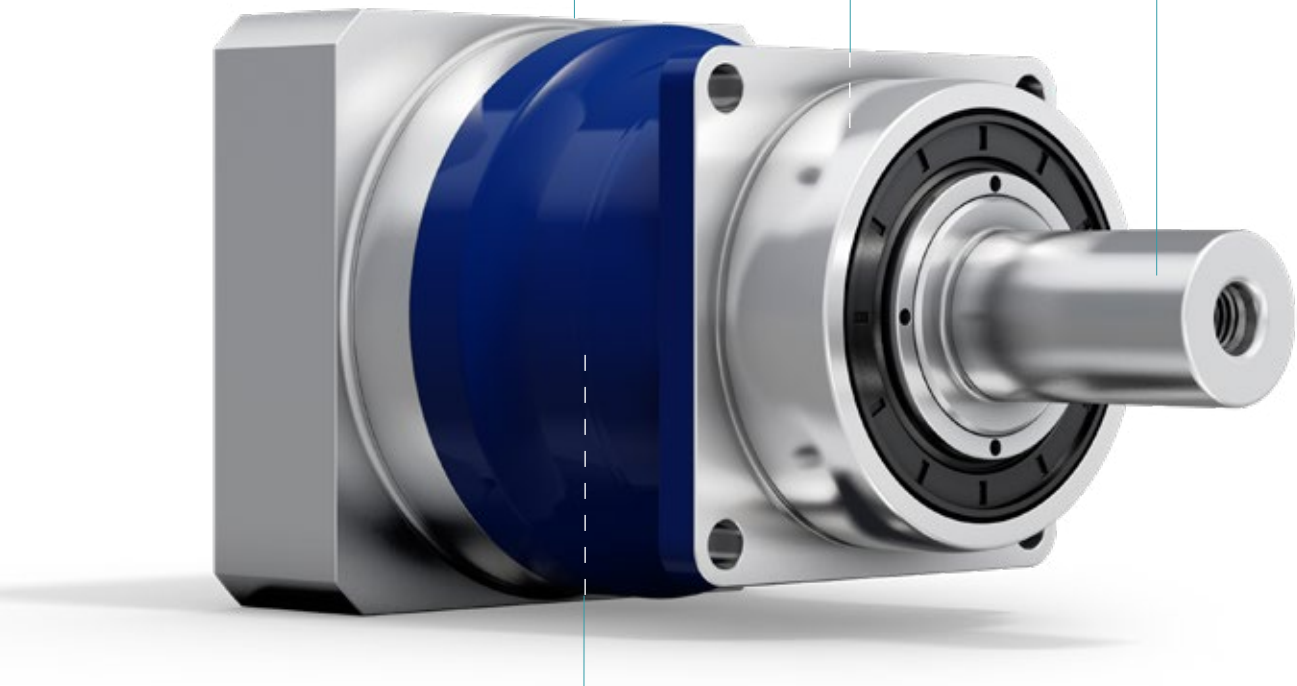


SP+ with rack and pinion

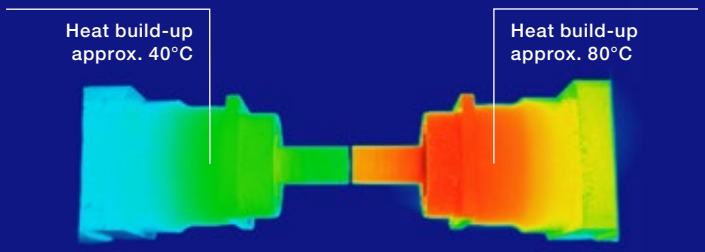
Connectivity of the motor shafts due to the large number of clamping hub diameters

Tapered roller bearing for absorbing axial and radial forces

Various output configurations



Extremely smooth running due to helical toothing



SP⁺ HIGH SPEED MC version

Industry standard

SP⁺ with metal bellows coupling

					1-stage					
Ratio			i		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]			T_{2a}	*Nm*	48	67	67	67	51	51
				in.lb	425	595	595	595	453	453
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	36	50	50	50	38	38
				in.lb	319	443	443	443	336	336
Nominal torque (at n_{1N})			T_{2N}	*Nm*	21	27	27	26	26	27
				in.lb	190	239	236	226	230	237
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	96	109	109	109	100	100
				in.lb	850	965	965	965	885	885
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]			n_{1N}	*rpm*	3300	3300	3300	4000	4000	4000
Max. input speed			n_{1Max}	*rpm*	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*	0.68	0.52	0.48	0.34	0.32	0.32
				in.lb	6.0	4.6	4.2	3.0	2.8	2.8
Max. backlash			j_t	*arcmin*	Standard ≤ 4 / Reduced ≤ 2					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	3.5					
				in.lb/arcmin	31					
Max. axial force [c)]			F_{2AMax}	*N*	2400					
				lb_f	540					
Max. lateral force [c)]			F_{2QMax}	*N*	2800					
				lb_f	630					
Max. tilting moment			M_{2KMax}	*Nm*	152					
				in.lb	1345					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			m	*kg*	1.9					
				lb_m	4.2					
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®)					BC2-00060AA016.000-X					
Bore diameter of coupling on the application side				*mm*	X = 012.000 - 035.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	B	11	J_1	*kgcm²*	0.21	0.15	0.12	0.10	0.10	0.09
				10^{-3} in.lb.s²	0.19	0.13	0.11	0.09	0.09	0.08
	C	14	J_1	*kgcm²*	0.28	0.22	0.20	0.18	0.16	0.16
				10^{-3} in.lb.s²	0.25	0.19	0.18	0.16	0.14	0.14
	E	19	J_1	*kgcm²*	0.61	0.55	0.52	0.50	0.49	0.49
				10^{-3} in.lb.s²	0.54	0.49	0.46	0.44	0.43	0.43

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

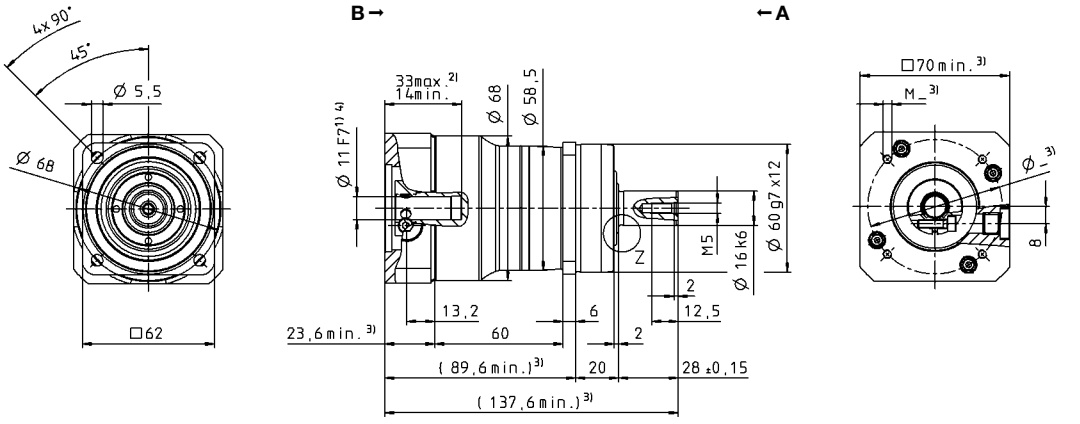
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

View A View B

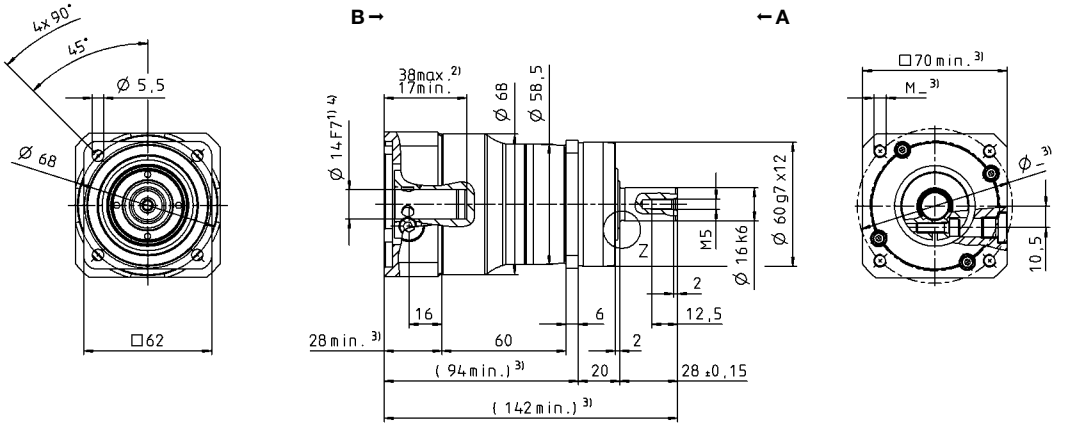
1-stage

Motor shaft diameter [mm]

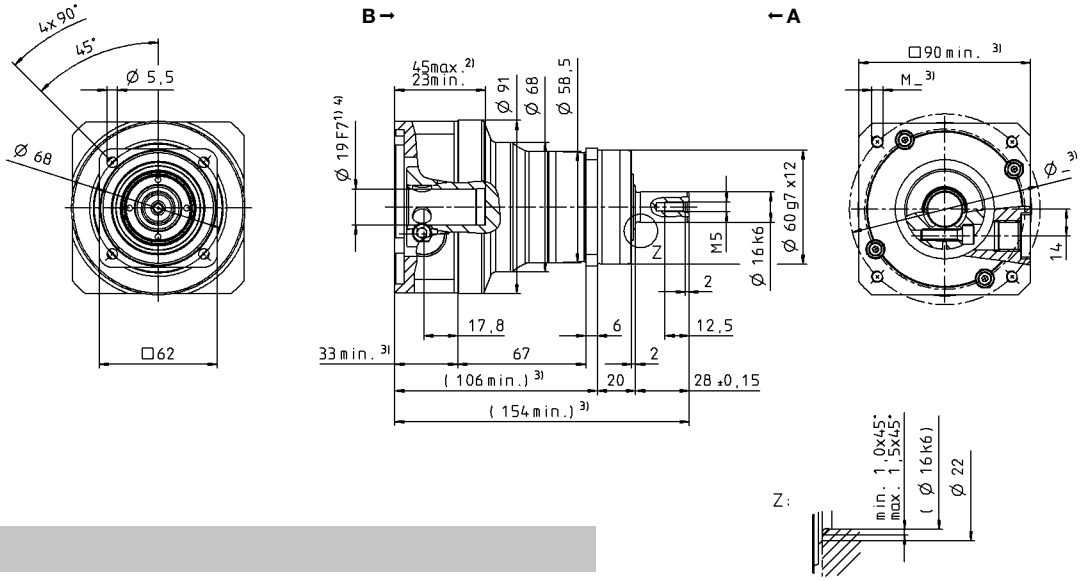
up to 11 [4] (B) clamping hub diameter



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

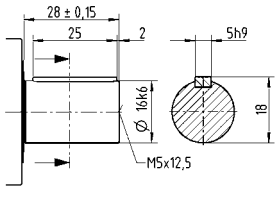


up to 19 [4] (E) clamping hub diameter

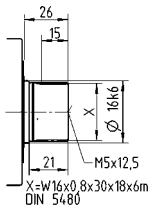


Other output variants

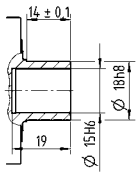
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



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**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]			T_{2a}	*Nm*	57	57	67	57	57	67	57	67	48	56	48
				in.lb	507	507	595	507	507	595	507	595	423	499	423
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	50	50	50	50	50	50	50	50	38	50	38
				in.lb	443	443	443	443	443	443	443	443	336	443	336
Nominal torque (at n_{1N})			T_{2N}	*Nm*	38	40	40	40	38	40	40	40	31	40	31
				in.lb	332	354	351	357	333	357	357	357	270	357	272
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	109	109	109	109	109	109	109	109	109	109	100
				in.lb	965	965	965	965	965	965	965	965	965	965	885
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]			n_{1N}	*rpm*	4400	4400	4400	4400	4400	4400	4400	4800	4800	5500	5500
Max. input speed			n_{1Max}	*rpm*	8500	8500	8500	8500	8500	8500	8500	8500	8500	8500	8500
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	0.28	0.25	0.23	0.22	0.24	0.20	0.20	0.19	0.19	0.17	0.18
				in.lb	2.5	2.2	2.0	1.9	2.1	1.8	1.8	1.7	1.7	1.5	1.6
Max. backlash			j_t	*arcmin*	Standard ≤ 6 / Reduced ≤ 4										
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	3.5										
				in.lb/arcmin	31										
Max. axial force [c)]			F_{2AMax}	*N*	2400										
				lb_f	540										
Max. lateral force [c)]			F_{2QMax}	*N*	2800										
				lb_f	630										
Max. tilting moment			M_{2KMax}	*Nm*	152										
				in.lb	1345										
Efficiency at full load			η	%	94										
Service life			L_h	*h*	> 20000										
Weight (incl. standard adapter plate)			*m*	*kg*	2.0										
				lb_m	4.4										
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 57										
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®)					BC2-00060AA016.000-X										
Bore diameter of coupling on the application side				*mm*	X = 012.000 - 035.000										
Mass moment of inertia (relates to the drive)	B	11	J_1	$kgcm^2$	0.077	0.069	0.068	0.061	0.061	0.061	0.057	0.057	0.056	0.056	0.056
				10^{-3} *in.lb.s²*	0.068	0.061	0.060	0.054	0.054	0.054	0.050	0.050	0.050	0.050	0.050
Clamping hub diameter [mm]	C	14	J_1	$kgcm^2$	0.17	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.15	0.15	0.15
Optimized mass inertia version available on request				10^{-3} *in.lb.s²*	0.15	0.14	0.14	0.14	0.14	0.14	0.13	0.13	0.13	0.13	0.13

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

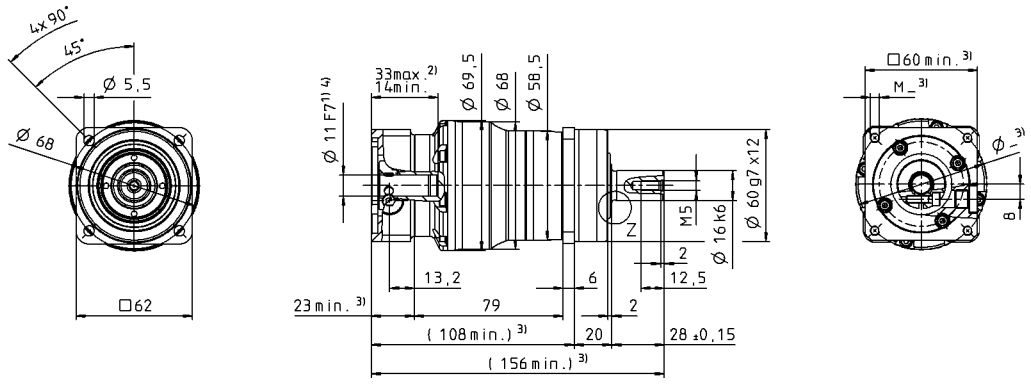
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

View A View B

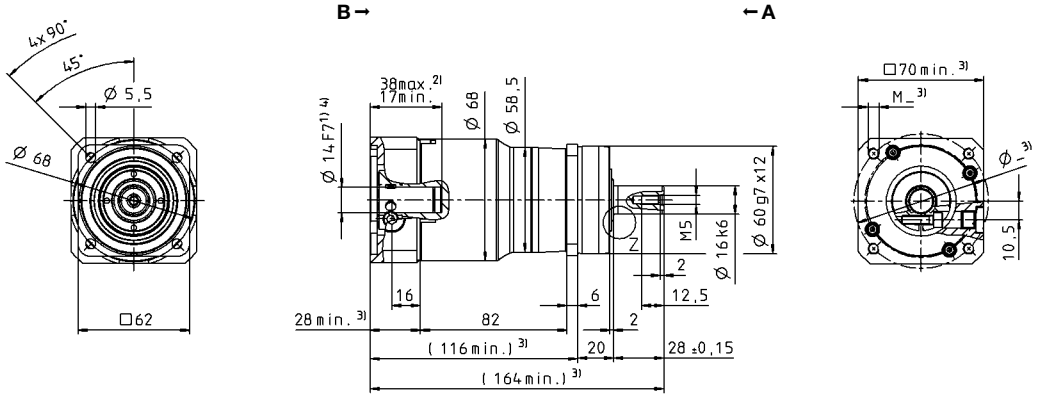
2-stage

Motor shaft diameter [mm]

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

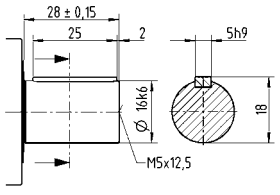


up to 14 [4] (C) clamping hub diameter

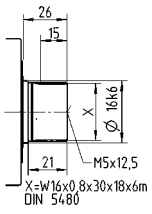


Other output variants

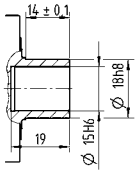
Shaft with key



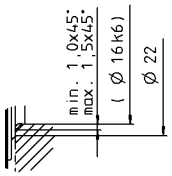
Splined shaft (DIN 5480)



Shaft mounted



Z:



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*		136	176	176	176	152	152
		in.lb		1204	1558	1558	1558	1345	1345
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		102	132	132	132	114	114
		in.lb		903	1168	1168	1168	1009	1009
Nominal torque (at n_{1N})	T_{2N}	*Nm*		63	81	81	81	80	81
		in.lb		558	719	716	719	712	720
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		139	185	250	250	250	250
		in.lb		1230	1640	2213	2213	2213	2213
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]	n_{1N}	*rpm*		2900	2900	2900	3100	3100	3100
Max. input speed	n_{1Max}	*rpm*		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*		1.5	1.4	0.96	0.72	0.55	0.52
		in.lb		14	12	8.5	6.4	4.9	4.6
Max. backlash	j_t	*arcmin*		Standard ≤ 4 / Reduced ≤ 2					
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		10					
		in.lb/arcmin		89					
Max. axial force [c)]	F_{2AMax}	*N*		3350					
		lb_f		754					
Max. lateral force [c)]	F_{2QMax}	*N*		4200					
		lb_f		945					
Max. tilting moment	M_{2KMax}	*Nm*		236					
		in.lb		2089					
Efficiency at full load	η	*%*		97					
Service life	L_h	*h*		> 20000					
Weight (incl. standard adapter plate)	*m*	*kg*		3.9					
		lb_m		8.6					
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 65					
Metal bellows coupling (recommended product type – validate sizing with cymex®)				BC2-00150AA022.000-X					
Bore diameter of coupling on the application side			*mm*	X = 019.000 - 042.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	C	14	J_1	*kgcm²*	0.86	0.61	0.51	0.42	0.38	0.38
				10⁻³ in.lb.s²	0.76	0.54	0.45	0.37	0.34	0.34
	E	19	J_1	*kgcm²*	1.03	0.78	0.68	0.59	0.54	0.54
				10⁻³ in.lb.s²	0.91	0.69	0.60	0.52	0.48	0.48
	G	24	J_1	*kgcm²*	2.40	2.15	2.05	1.96	1.91	1.91
				10⁻³ in.lb.s²	2.12	1.90	1.81	1.73	1.69	1.69

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

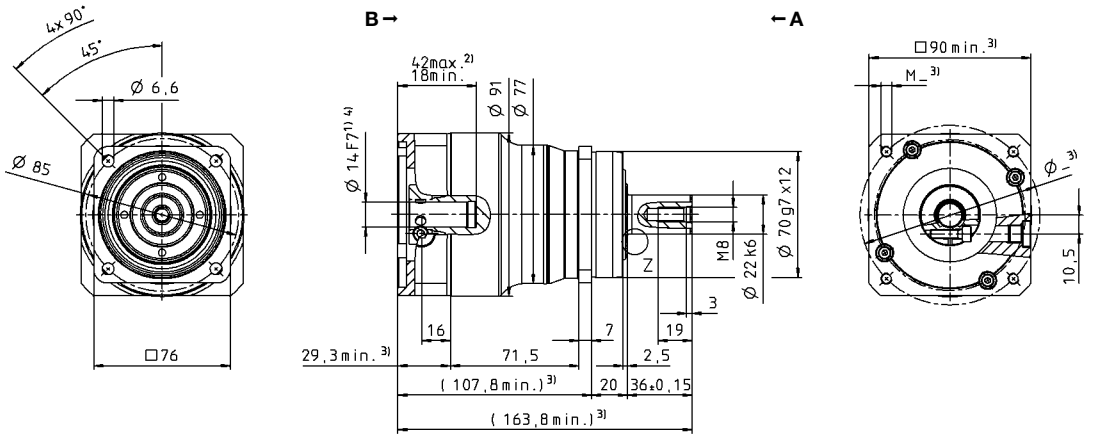
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

View A View B

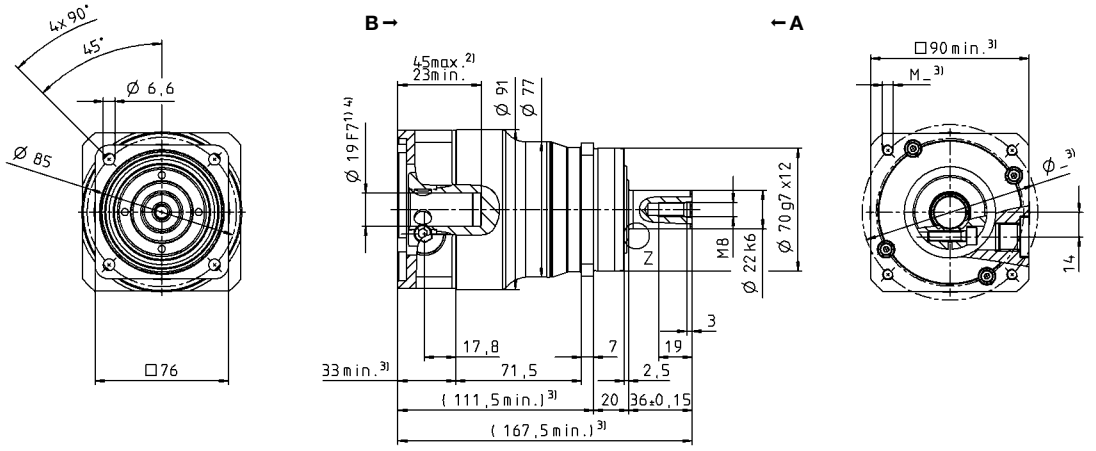
1-stage

Motor shaft diameter [mm]

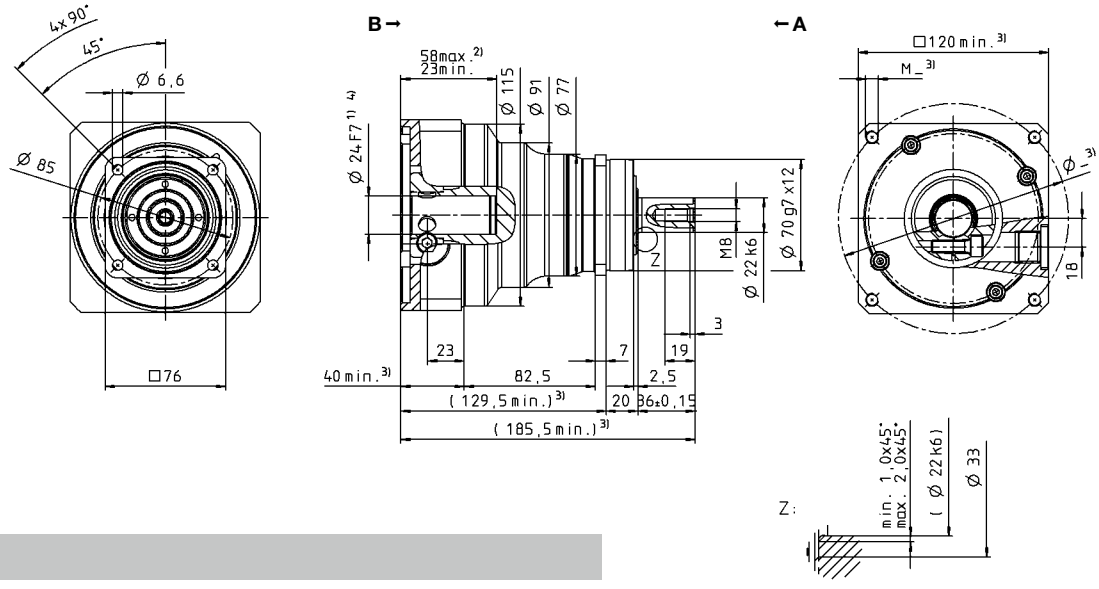
up to 14 [4] (C) clamping hub diameter



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

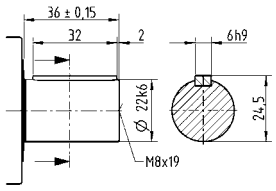


up to 24 [4] (G) clamping hub diameter

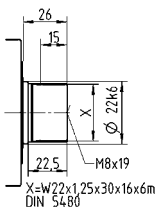


Other output variants

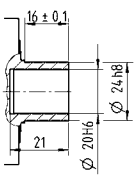
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



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**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]			T_{2a}	*Nm*	126	126	158	126	126	158	126	158	105	113	105
				in.lb	1118	1118	1398	1118	1118	1398	1118	1398	932	998	932
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	126	126	132	126	126	132	126	132	105	113	105
				in.lb	1118	1118	1168	1118	1118	1168	1118	1168	932	998	932
Nominal torque (at n_{1N})			T_{2N}	*Nm*	101	101	106	101	101	106	101	106	84	90	84
				in.lb	895	895	935	895	895	935	895	935	746	799	746
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	250	250	250	250	250	250	250	250	250	250	250
				in.lb	2213	2213	2213	2213	2213	2213	2213	2213	2213	2213	2213
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]			n_{1N}	*rpm*	3500	3500	3500	3500	3500	3500	3500	3800	3800	4500	4500
Max. input speed			n_{1Max}	*rpm*	8500	8500	8500	8500	8500	8500	8500	8500	8500	8500	8500
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	0.50	0.41	0.35	0.32	0.44	0.28	0.26	0.23	0.23	0.21	0.23
				in.lb	4.4	3.6	3.1	2.8	3.9	2.5	2.3	2.0	2.0	1.9	2.0
Max. backlash			j_t	*arcmin*	Standard ≤ 6 / Reduced ≤ 4										
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	10										
				in.lb/arcmin	89										
Max. axial force [c)]			F_{2AMax}	*N*	3350										
				lb_f	754										
Max. lateral force [c)]			F_{2QMax}	*N*	4200										
				lb_f	945										
Max. tilting moment			M_{2KMax}	*Nm*	236										
				in.lb	2089										
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										
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®)					BC2-00150AA022.000-X										
Bore diameter of coupling on the application side				*mm*	X = 019.000 - 042.000										
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	B	11	J_1	$kgcm^2$	0.16	0.13	0.13	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.09
				10^{-3} $in.lb.s^2$	0.14	0.12	0.12	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.08
	C	14	J_1	$kgcm^2$	0.23	0.20	0.20	0.18	0.18	0.18	0.16	0.16	0.16	0.16	0.16
				10^{-3} $in.lb.s^2$	0.20	0.18	0.18	0.16	0.16	0.16	0.14	0.14	0.14	0.14	0.14
	E	19	J_1	$kgcm^2$	0.55	0.53	0.52	0.50	0.50	0.50	0.49	0.49	0.49	0.49	0.49
				10^{-3} $in.lb.s^2$	0.49	0.47	0.46	0.44	0.44	0.44	0.43	0.43	0.43	0.43	0.43

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

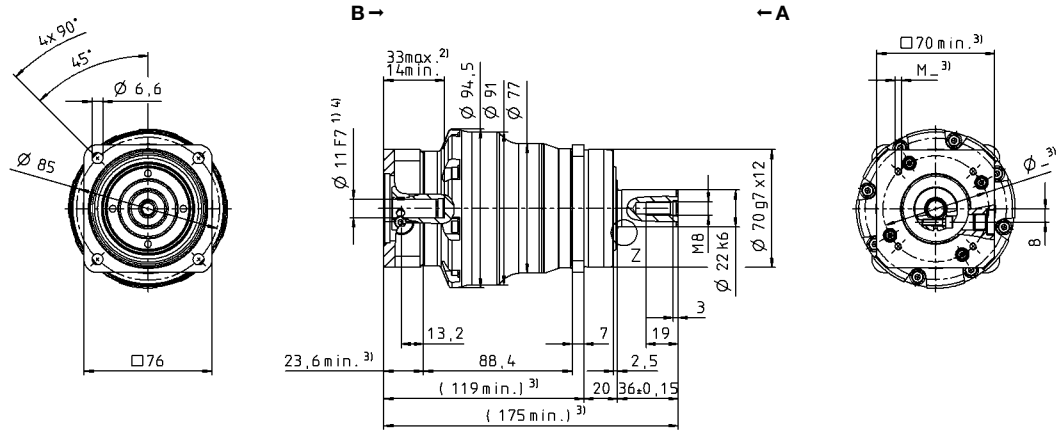
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

View A View B

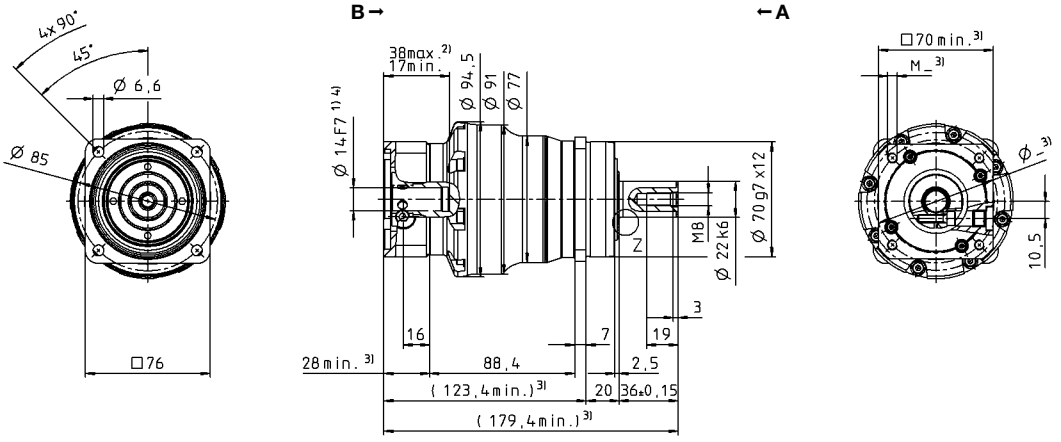
2-stage

Motor shaft diameter [mm]

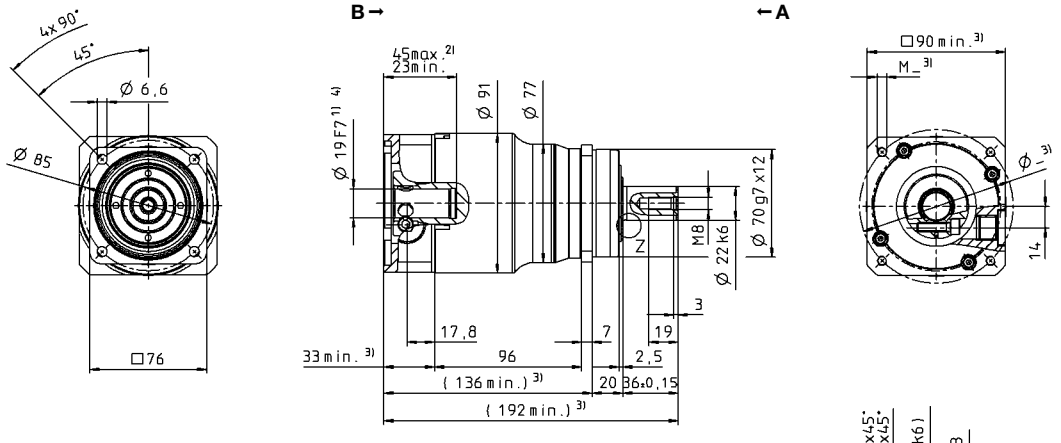
up to 11 [4] (B) clamping hub diameter

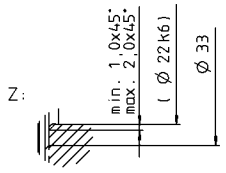


up to 14 [4] (C) [5] clamping hub diameter



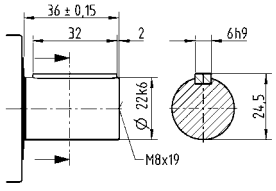
up to 19 [4] (E) clamping hub diameter



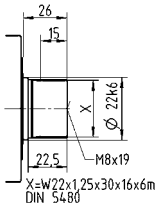


Other output variants

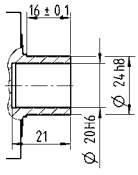
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



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*	376	495	495	428	376	376
				in.lb	3328	4381	4381	3784	3328	3328
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	282	378	378	378	282	282
				in.lb	2496	3346	3346	3346	2496	2496
Nominal torque (at n_{1N})			T_{2N}	*Nm*	131	171	169	166	166	174
				in.lb	1157	1510	1498	1473	1470	1538
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	500	625	625	625	625	625
				in.lb	4425	5532	5532	5532	5532	5532
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]			n_{1N}	*rpm*	2500	2500	2500	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*	3.1	2.4	2.1	1.3	1.0	1.0
				in.lb	28	21	18	12	9.2	9.2
Max. backlash			j_t	*arcmin*	Standard ≤ 3 / Reduced ≤ 1					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	31					
				in.lb/arcmin	274					
Max. axial force [c)]			F_{2AMax}	*N*	5650					
				lb_f	1271					
Max. lateral force [c)]			F_{2QMax}	*N*	6600					
				lb_f	1485					
Max. tilting moment			M_{2KMax}	*Nm*	487					
				in.lb	4310					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			*m*	*kg*	7.7					
				lb_m	17					
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®)					BC2-00300AA032.000-X					
Bore diameter of coupling on the application side				*mm*	X = 024.000 - 060.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	E	19	J_1	*kgcm²*	3.29	2.35	1.92	1.60	1.38	1.38
				10⁻³ in.lb.s²	2.91	2.08	1.70	1.42	1.22	1.22
	G	24	J_1	*kgcm²*	3.99	3.04	2.61	2.29	2.07	2.07
				10⁻³ in.lb.s²	3.53	2.69	2.31	2.03	1.83	1.83
	H	28	J_1	*kgcm²*	3.59	2.65	2.22	1.90	1.68	1.68
				10⁻³ in.lb.s²	3.18	2.35	1.96	1.68	1.49	1.49
	K	38	J_1	*kgcm²*	11.1	10.1	9.68	9.36	9.14	9.14
				10⁻³ in.lb.s²	9.82	8.94	8.57	8.28	8.09	8.09

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

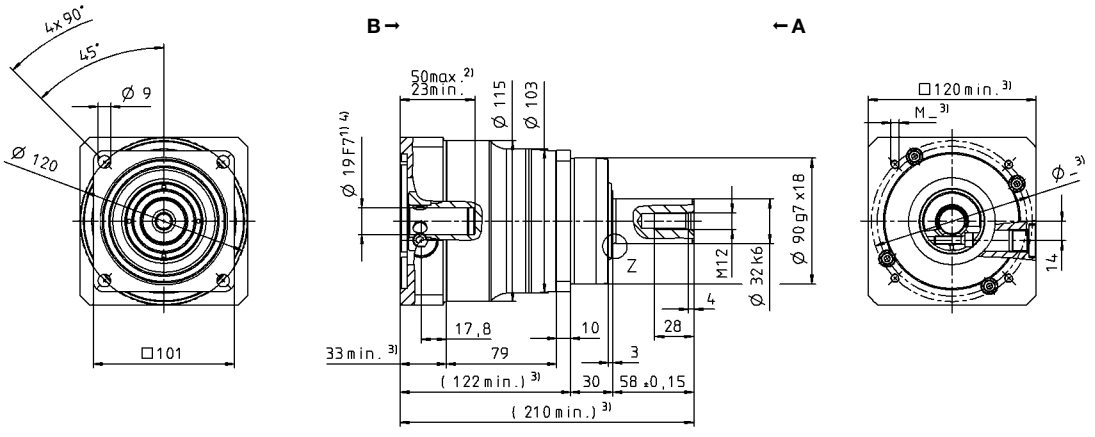
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

View A View B

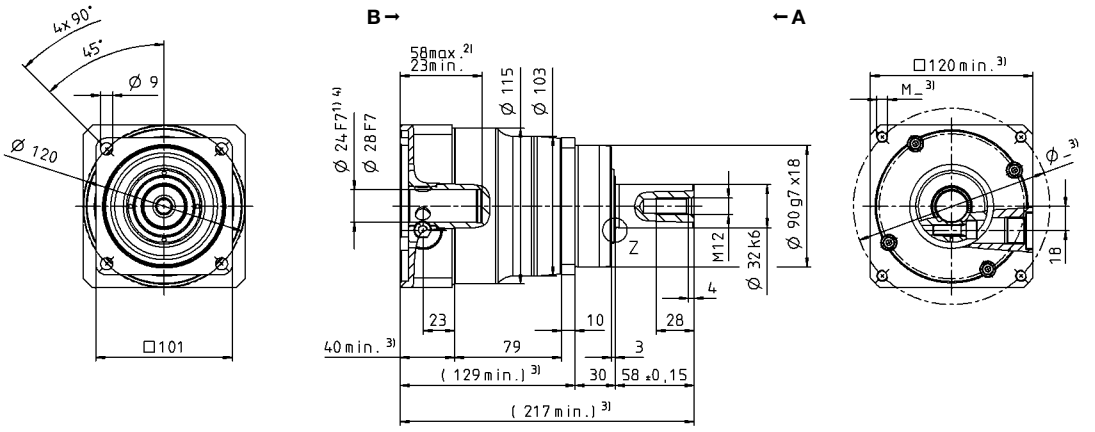
1-stage

Motor shaft diameter [mm]

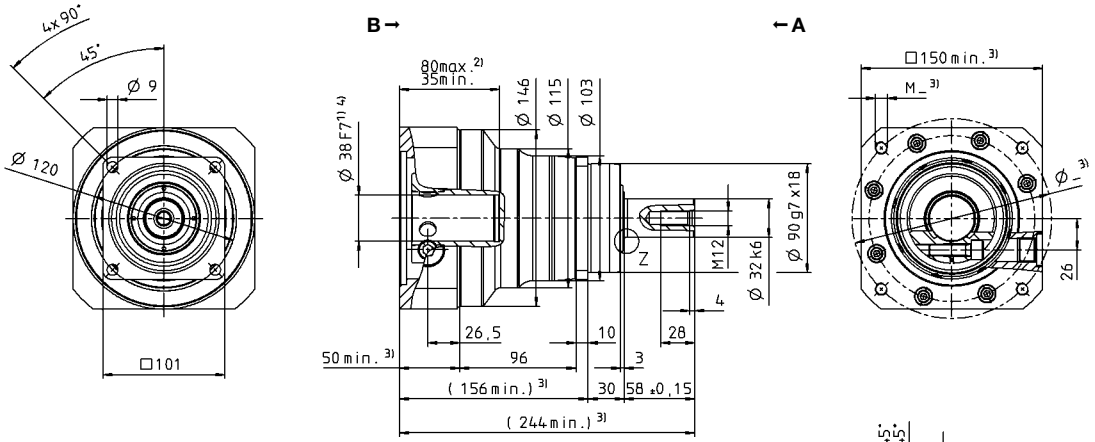
up to 19 [4] (E) clamping hub diameter

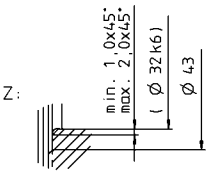


up to 24/28 [4] (G[5]/H) clamping hub diameter



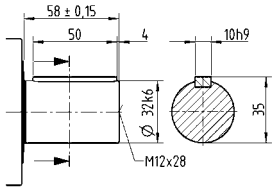
up to 38 [4] (K) clamping hub diameter



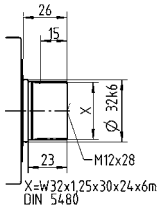


Other output variants

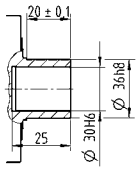
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



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**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}		*Nm*	347	347	347	347	347	347	347	347	259	347	259
			in.lb	3067	3067	3067	3067	3067	3067	3067	3067	2288	3067	2288
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)	T_{2B}		*Nm*	347	347	347	347	347	347	347	347	259	347	259
			in.lb	3067	3067	3067	3067	3067	3067	3067	3067	2288	3067	2288
Nominal torque (at n_{1N})	T_{2N}		*Nm*	243	259	257	277	243	277	277	277	207	277	207
			in.lb	2146	2295	2277	2453	2153	2453	2453	2453	1830	2453	1830
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}		*Nm*	625	625	625	625	625	625	625	625	625	625	625
			in.lb	5532	5532	5532	5532	5532	5532	5532	5532	5532	5532	5532
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]	n_{1N}		*rpm*	3100	3100	3100	3100	3100	3100	3100	3500	3500	4200	4200
Max. input speed	n_{1Max}		*rpm*	6500	6500	6500	6500	6500	6500	6500	6500	6500	6500	6500
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}		*Nm*	1.0	0.93	0.85	0.77	0.86	0.54	0.54	0.46	0.46	0.39	0.37
			in.lb	9.2	8.2	7.5	6.8	7.6	4.8	4.8	4.1	4.1	3.5	3.3
Max. backlash	j_t		*arcmin*	Standard ≤ 5 / Reduced ≤ 3										
Torsional rigidity [b)]	C_{t21}		*Nm/arcmin*	31										
			in.lb/arcmin	274										
Max. axial force [c)]	F_{2AMax}		*N*	5650										
			lb_f	1271										
Max. lateral force [c)]	F_{2QMax}		*N*	6600										
			lb_f	1485										
Max. tilting moment	M_{2KMax}		*Nm*	487										
			in.lb	4310										
Efficiency at full load	η		%	94										
Service life	L_h		*h*	> 20000										
Weight (incl. standard adapter plate)	m		*kg*	7.9										
			lb_m	17.5										
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}		*dB(A)*	≤ 56										
Max. permitted housing temperature			*°C*	+90										
			F	194										
Ambient temperature			*°C*	–15 to +40										
			F	5 to 104										
Lubrication				Lubricated for life										
Direction of rotation				In- and output same direction										
Protection class				IP 65										
Metal bellows coupling (recommended product type – validate sizing with cymex®)				BC2-00300AA032.000-X										
Bore diameter of coupling on the application side			*mm*	X = 024.000 - 060.000										
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	C	14	J_1	*kgcm²*	0.64	0.54	0.52	0.43	0.43	0.43	0.38	0.38	0.54	0.37	0.37
				10^{-3} in.lb.s²	0.57	0.48	0.46	0.38	0.38	0.38	0.34	0.34	0.48	0.33	0.33
	E	19	J_1	*kgcm²*	0.81	0.70	0.68	0.60	0.43	0.59	0.55	0.54	0.38	0.54	0.54
				10^{-3} in.lb.s²	0.72	0.62	0.60	0.53	0.38	0.52	0.49	0.48	0.34	0.48	0.48
	G	24	J_1	*kgcm²*	2.18	2.07	2.05	1.97	1.97	1.96	1.92	1.91	1.91	1.91	1.91
				10^{-3} in.lb.s²	1.93	1.83	1.81	1.74	1.74	1.73	1.70	1.69	1.69	1.69	1.69
	H	28	J_1	*kgcm²*	1.98	1.90	1.88	1.81	1.81	1.80	1.76	1.75	1.75	1.75	1.75
				10^{-3} in.lb.s²	1.75	1.68	1.66	1.60	1.60	1.59	1.56	1.55	1.55	1.55	1.55

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

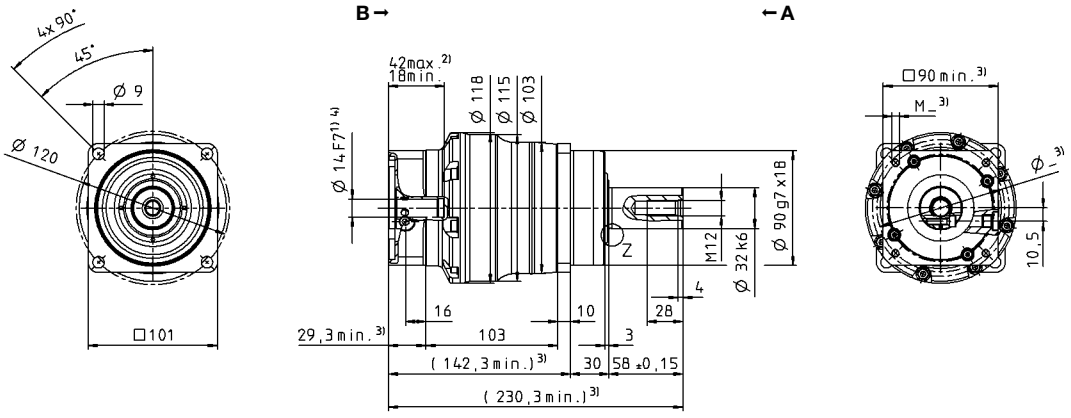
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

View A | View B

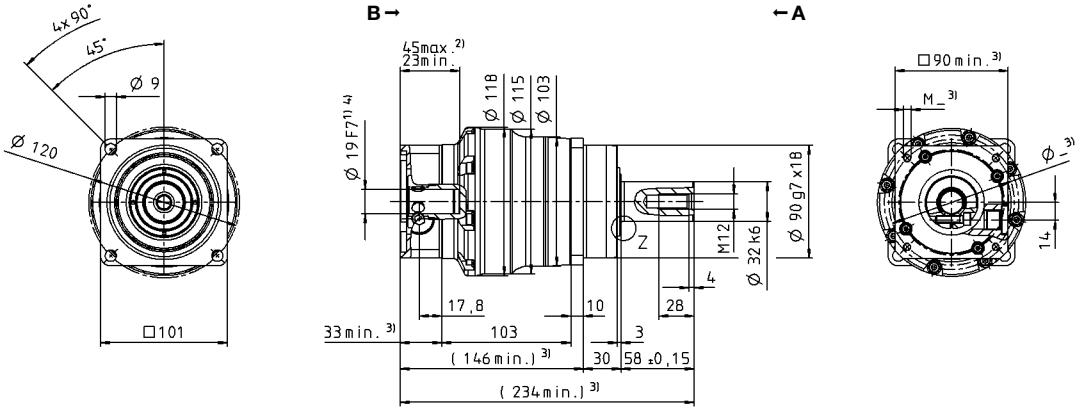
2-stage

Motor shaft diameter [mm]

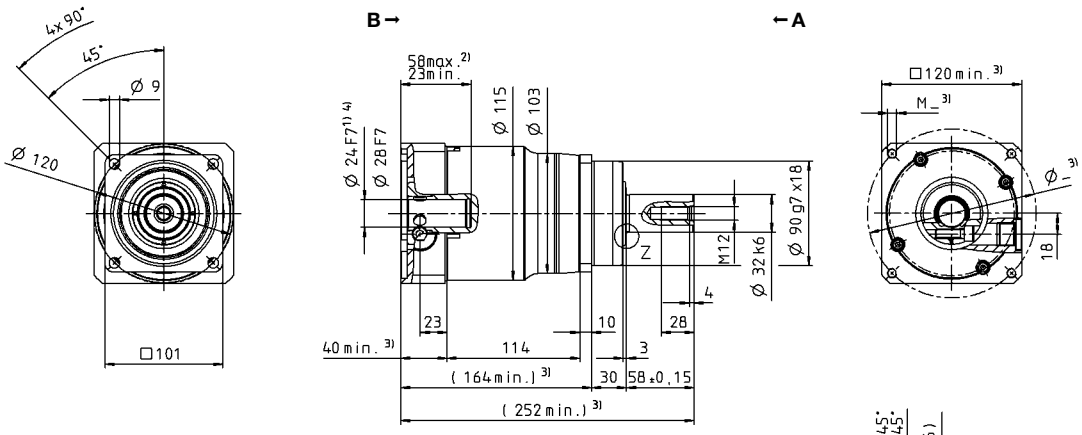
up to 14 [4] (C) clamping hub diameter



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

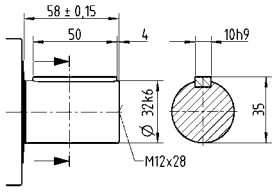


up to 24/28 [4] (G/H) clamping hub diameter

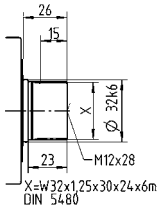


Other output variants

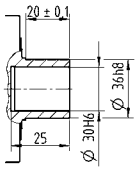
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



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*	624	1056	1056	825	720	720
				in.lb	5523	9346	9346	7302	6373	6373
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	468	792	792	792	636	636
				in.lb	4142	7010	7010	7010	5629	5629
Nominal torque (at n_{1N})			T_{2N}	*Nm*	202	335	333	319	312	327
				in.lb	1786	2962	2944	2820	2763	2894
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	1250	1350	1350	1350	1250	1250
				in.lb	11064	11949	11949	11949	11064	11064
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]			n_{1N}	*rpm*	2100	2100	2100	2600	2600	2600
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*	6.7	5.4	4.4	3.0	2.5	2.2
				in.lb	60	47	39	27	23	19
Max. backlash			j_t	*arcmin*	Standard ≤ 3 / Reduced ≤ 1					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	53					
				in.lb/arcmin	469					
Max. axial force [c)]			F_{2AMax}	*N*	9870					
				lb_f	2221					
Max. lateral force [c)]			F_{2QMax}	*N*	9900					
				lb_f	2228					
Max. tilting moment			M_{2KMax}	*Nm*	952					
				in.lb	8426					
Efficiency at full load			η	*%*	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			*m*	*kg*	17.2					
				lb_m	38					
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 65					
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BC2-00800AA040.000-X					
Bore diameter of coupling on the application side				*mm*	X = 040.000 - 075.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	G	24	J_1	$kgcm^2$	10.7	7.82	6.79	5.84	5.28	5.28
				10^{-3} $in.lb.s^2$	9.47	6.92	6.01	5.17	4.67	4.67
	I	32	J_1	$kgcm^2$	13.8	11.0	9.95	9.00	8.44	8.44
				10^{-3} $in.lb.s^2$	12.2	9.74	8.81	7.97	7.47	7.47
	K	38	J_1	$kgcm^2$	14.9	12.1	11.0	10.1	9.51	9.51
				10^{-3} $in.lb.s^2$	13.2	10.7	9.74	8.94	8.42	8.42
	M	48	J_1	$kgcm^2$	29.5	26.7	25.6	24.7	24.2	24.2
				10^{-3} $in.lb.s^2$	26.1	23.6	22.7	21.9	21.4	21.4

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

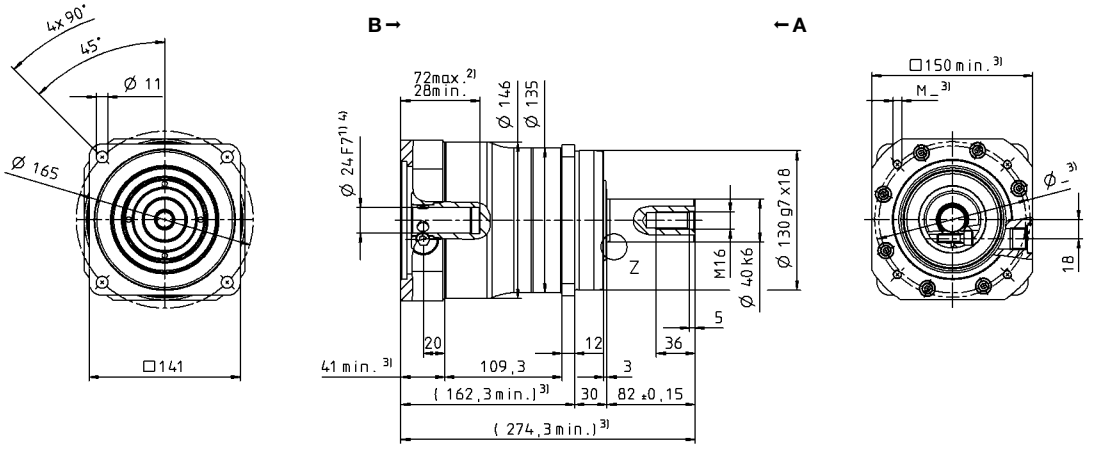
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

View A View B

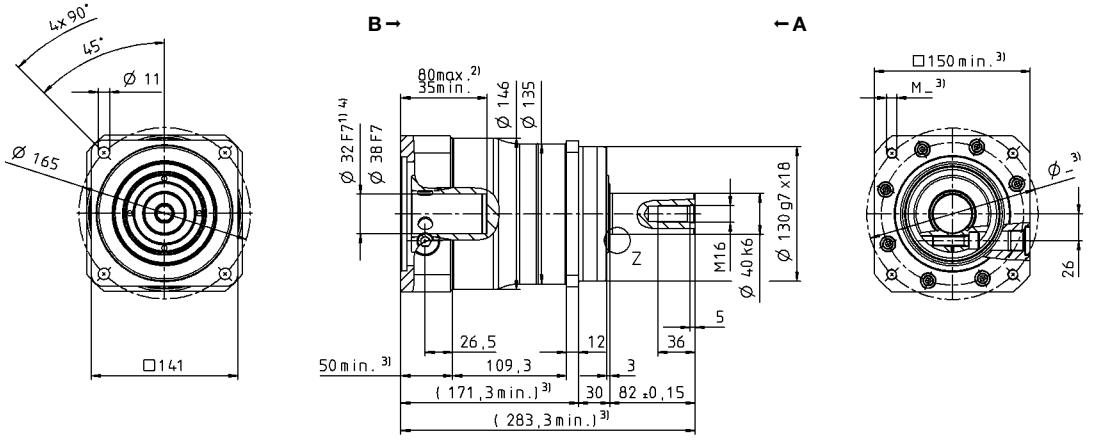
1-stage

Motor shaft diameter [mm]

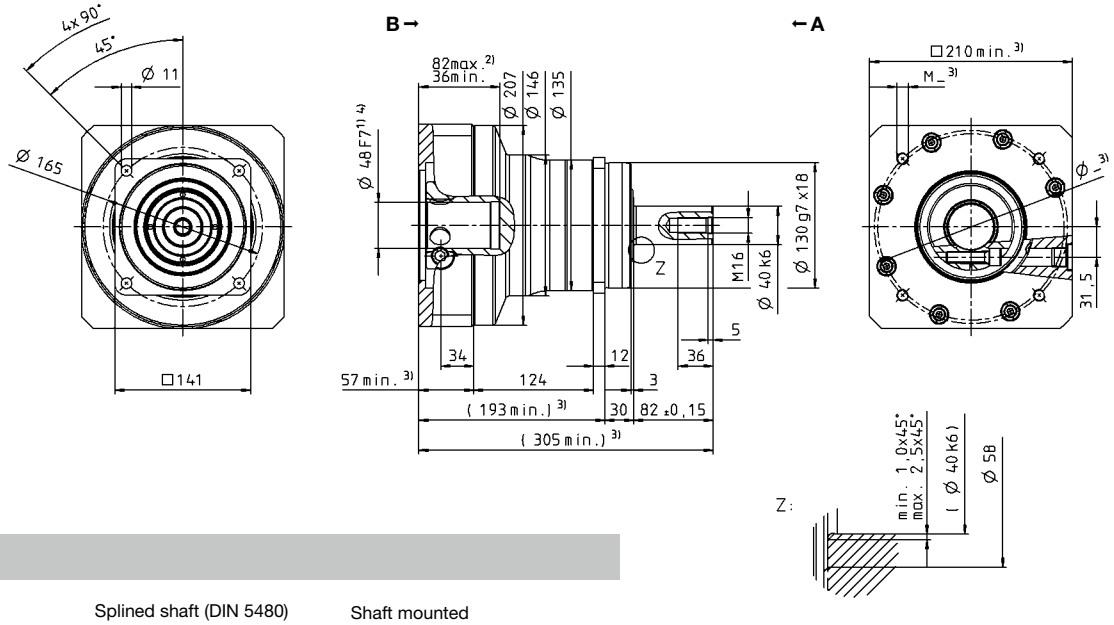
up to 24 [4] (G) clamping hub diameter



up to 32/38 [4] (I/K[5]) clamping hub diameter

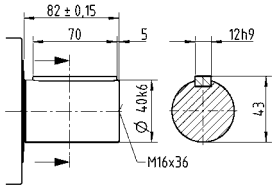


up to 48 [4] (M) clamping hub diameter

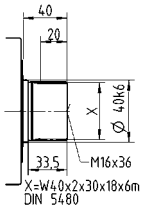


Other output variants

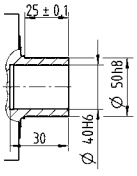
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



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**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]		T_{2a}	*Nm*	726	726	670	726	726	670	726	670	583	726	583
			in.lb	6426	6426	5934	6426	6426	5934	6426	5934	5160	6426	5160
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)		T_{2B}	*Nm*	726	726	670	726	726	670	726	670	583	726	583
			in.lb	6426	6426	5934	6426	6426	5934	6426	5930	5164	6426	5160
Nominal torque (at n_{1N})		T_{2N}	*Nm*	461	493	489	545	464	536	581	536	466	581	466
			in.lb	4078	4361	4332	4824	4104	4747	5141	4747	4128	5141	4128
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)		T_{2Not}	*Nm*	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1250
			in.lb	11949	11949	11949	11949	11949	11949	11949	11949	11949	11949	11064
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]		n_{1N}	*rpm*	2900	2900	2900	2900	2900	2900	2900	3200	3200	3200	3900
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*	2.4	2.1	2.0	1.8	1.6	1.2	1.2	1.1	1.1	0.88	0.80
			in.lb	21	19	17	16	14	11	11	9.4	9.4	7.8	7.1
Max. backlash		j_t	*arcmin*	Standard ≤ 5 / Reduced ≤ 3										
Torsional rigidity [b)]		C_{t21}	*Nm/arcmin*	53										
			in.lb/arcmin	469										
Max. axial force [c)]		F_{2AMax}	*N*	9870										
			lb_f	2221										
Max. lateral force [c)]		F_{2QMax}	*N*	9900										
			lb_f	2228										
Max. tilting moment		M_{2KMax}	*Nm*	952										
			in.lb	8426										
Efficiency at full load		η	*%*	94										
Service life		L_h	*h*	> 20000										
Weight (incl. standard adapter plate)		m	*kg*	17										
			lb_m	37.6										
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 65										
Metal bellows coupling (recommended product type – validate sizing with cymex®)				BC2-00800AA040.000-X										
Bore diameter of coupling on the application side			*mm*	X = 040.000 - 075.000										
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	E	19	J_1	*kgcm²*	2.50	2.01	1.97	1.65	1.65	1.63	1.40	1.39	1.39	1.38	1.38
				10^{-3} in.lb.s²	2.21	1.78	1.74	1.46	1.46	1.44	1.24	1.23	1.23	1.22	1.22
	G	24	J_1	*kgcm²*	3.19	2.71	2.67	2.34	2.34	2.32	2.10	2.08	2.08	2.08	2.07
				10^{-3} in.lb.s²	2.82	2.40	2.36	2.07	2.07	2.05	1.86	1.84	1.84	1.84	1.83
	K	38	J_1	*kgcm²*	10.3	9.77	9.73	9.41	9.41	9.39	9.16	9.15	9.15	9.14	9.14
				10^{-3} in.lb.s²	9.07	8.65	8.61	8.33	8.33	8.31	8.11	8.10	8.10	8.09	8.09

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

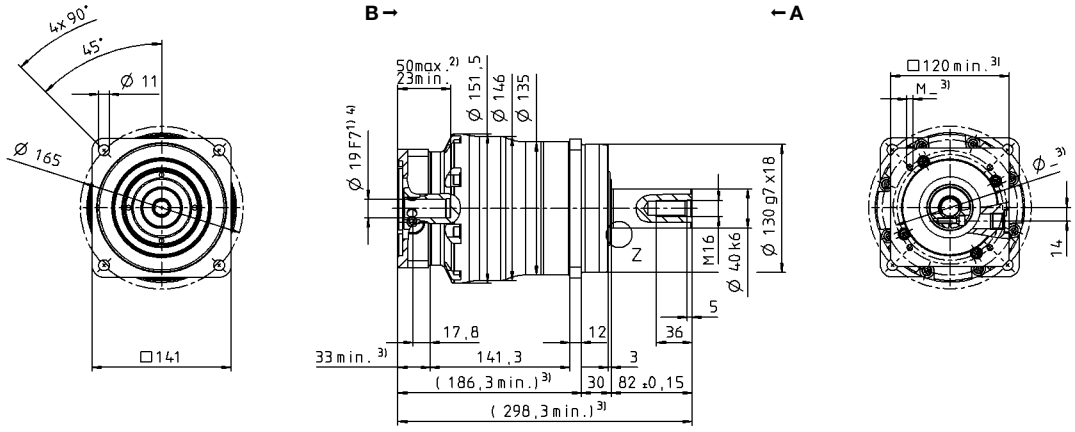
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

View A View B

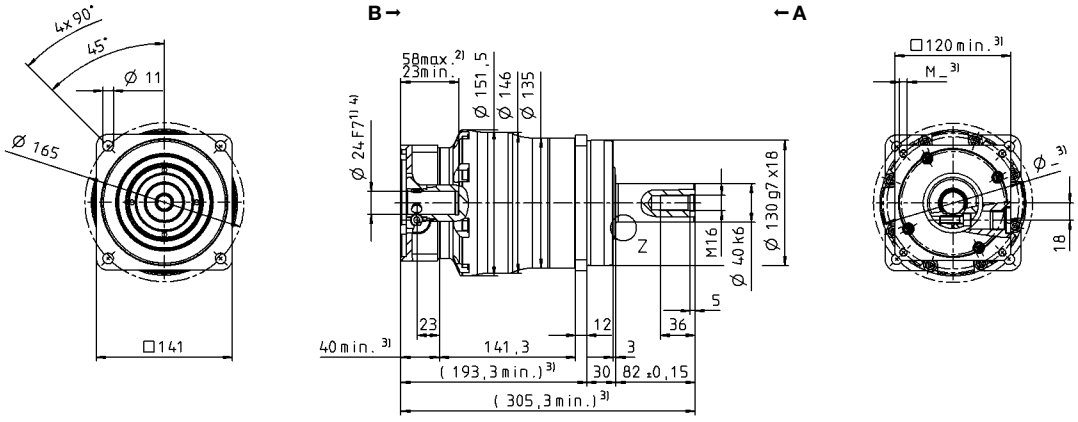
2-stage

Motor shaft diameter [mm]

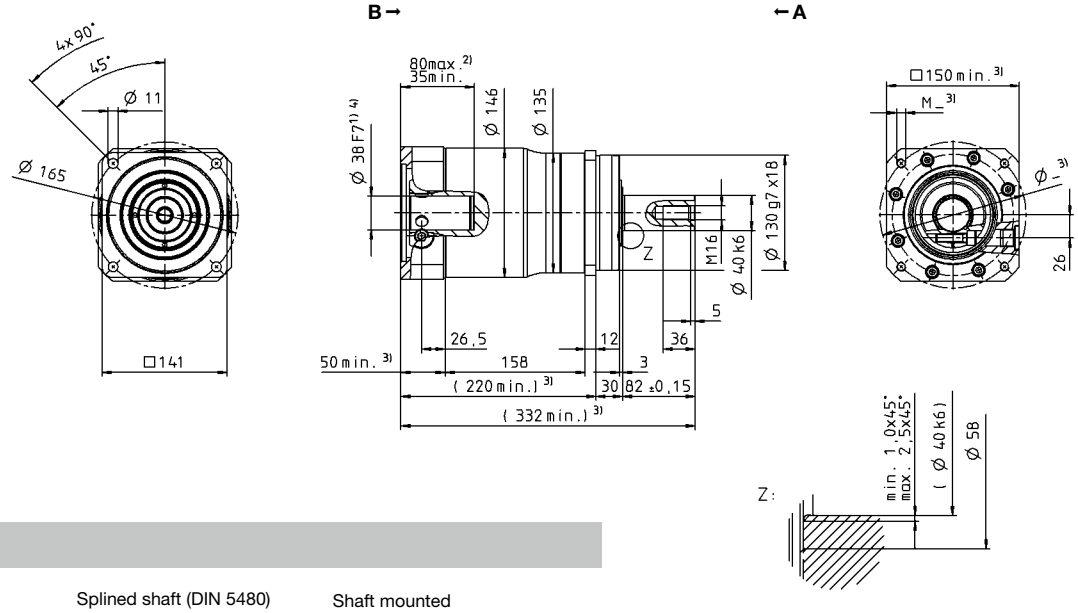
up to 19 [4] (E) clamping hub diameter



up to 24 [4] (G) [5] clamping hub diameter

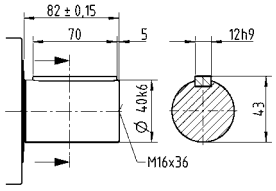


up to 38 [4] (K) clamping hub diameter

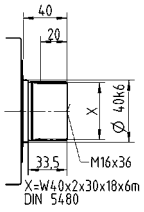


Other output variants

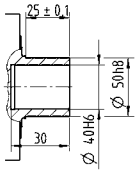
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



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*	1552	1936	1936	1936	1552	1552
				in.lb	13736	17135	17135	17135	13736	13736
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	1164	1452	1452	1452	1164	1164
				in.lb	10302	12851	12851	12851	10302	10302
Nominal torque (at n_{1N})			T_{2N}	*Nm*	513	927	919	825	825	864
				in.lb	4544	8203	8134	7305	7305	7644
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	2750	2750	2750	2750	2750	2750
				in.lb	24340	24340	24340	24340	24340	24340
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]			n_{1N}	*rpm*	1500	1500	1500	2300	2300	2300
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*	15	12	8.0	5.6	5.6	3.8
				in.lb	135	103	71	50	50	34
Max. backlash			j_t	*arcmin*	Standard ≤ 3 / Reduced ≤ 1					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	175					
				in.lb/arcmin	1549					
Max. axial force [c)]			F_{2AMax}	*N*	15570					
				lb_f	3503					
Max. lateral force [c)]			F_{2QMax}	*N*	15400					
				lb_f	3465					
Max. tilting moment			M_{2KMax}	*Nm*	1600					
				in.lb	14161					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			*m*	*kg*	34					
				lb_m	75.1					
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 65					
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BC2-01500AA055.000-X					
Bore diameter of coupling on the application side				*mm*	X = 050.000 - 080.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	K	38	J_1	*kgcm²*	50.8	33.9	27.9	22.2	22.2	19.2
				10^{-3} *in.lb.s²*	45.0	30.0	24.7	19.7	19.7	17.0
	M	48	J_1	*kgcm²*	58.2	41.2	35.3	29.6	29.6	26.5
				10^{-3} *in.lb.s²*	51.5	36.5	31.2	26.2	26.2	23.5
	N	55	J_1	*kgcm²*	65.7	49.7	44.0	38.5	38.5	35.4
				10^{-3} *in.lb.s²*	58.1	44.0	38.9	34.1	34.1	31.3

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

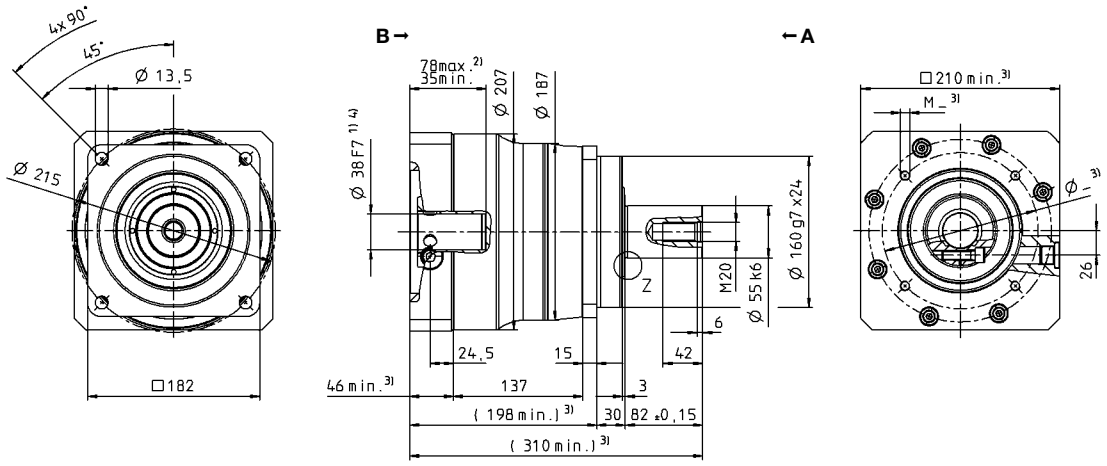
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

View A View B

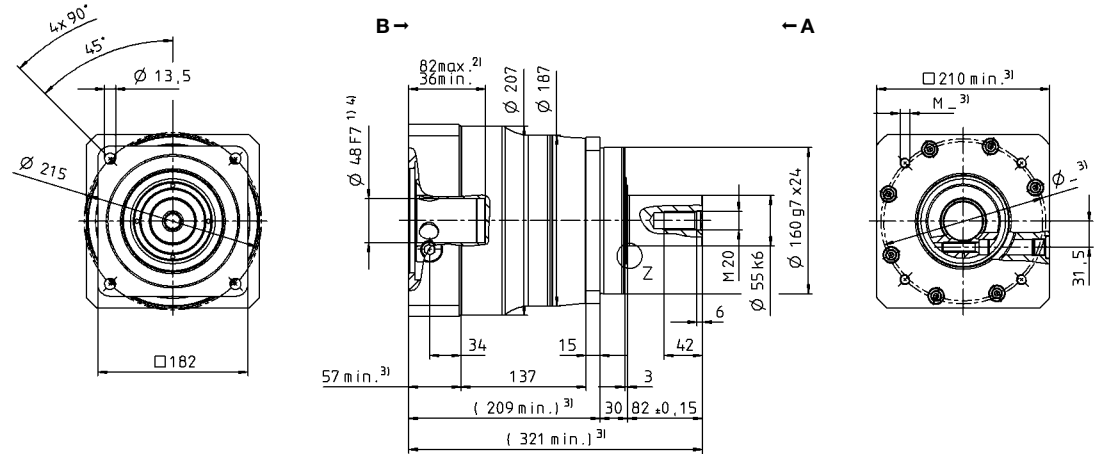
1-stage

Motor shaft diameter [mm]

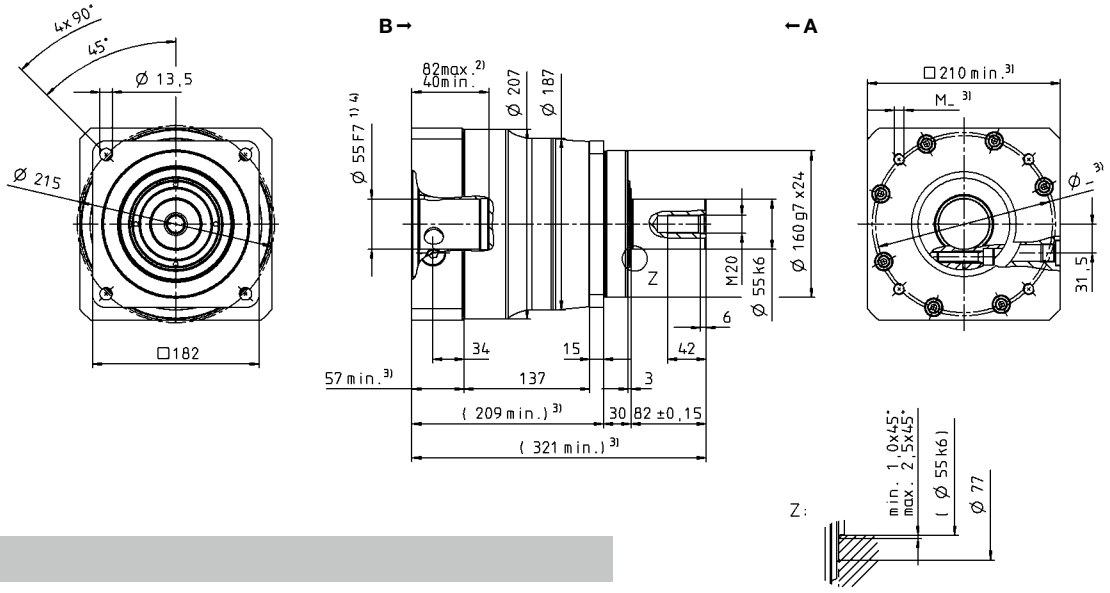
up to 38 [4] (K) clamping hub diameter



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

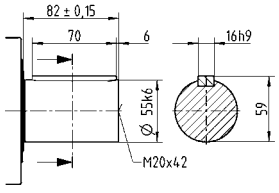


up to 55 [4] (N) [5] clamping hub diameter

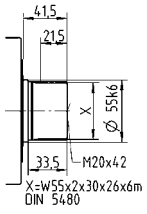


Other output variants

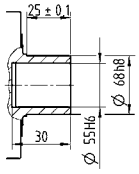
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



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**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]			T_{2a}	*Nm*	1485	1485	1857	1485	1485	1857	1485	1857	1238	1356	1238
				in.lb	13146	13146	16432	13146	13146	16432	13146	16432	10955	12000	10955
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	1452	1452	1452	1452	1452	1452	1452	1452	1164	1356	1164
				in.lb	12851	12851	12851	12851	12851	12851	12851	12851	10302	12002	10302
Nominal torque (at n_{1N})			T_{2N}	*Nm*	1162	1162	1162	1162	1162	1162	1162	1162	931	1085	931
				in.lb	10281	10281	10281	10281	10281	10281	10281	10281	8242	9600	8242
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	2750	2750	2750	2750	2750	2750	2750	2750	2750	2750	2750
				in.lb	24340	24340	24340	24340	24340	24340	24340	24340	24340	24340	24340
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]			n_{1N}	*rpm*	2700	2700	2700	2700	2700	2700	2700	2900	2900	3200	3400
Max. input speed			n_{1Max}	*rpm*	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*	4.7	3.9	3.6	3.3	3.3	2.8	2.2	1.9	2.2	1.8	1.8
				in.lb	42	35	32	29	29	25	20	17	20	16	16
Max. backlash			j_t	*arcmin*	Standard ≤ 5 / Reduced ≤ 3										
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	175										
				in.lb/arcmin	1549										
Max. axial force [c)]			F_{2AMax}	*N*	15570										
				lb_f	3503										
Max. lateral force [c)]			F_{2QMax}	*N*	15400										
				lb_f	3465										
Max. tilting moment			M_{2KMax}	*Nm*	1600										
				in.lb	14161										
Efficiency at full load			η	%	94										
Service life			L_h	*h*	> 20000										
Weight (incl. standard adapter plate)			*m*	*kg*	36.4										
				lb_m	80.4										
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®)					BC2-01500AA055.000-X										
Bore diameter of coupling on the application side				*mm*	X = 050.000 - 080.000										
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	G	24	J_1	$kgcm^2$	9.27	7.72	7.48	6.32	6.32	6.20	5.51	5.45	5.45	5.39	5.36
				10^{-3} *in.lb.s²*	8.20	6.83	6.62	5.59	5.59	5.49	4.88	4.82	4.82	4.77	4.74
	I	32	J_1	$kgcm^2$	12.4	10.9	10.6	9.48	9.48	9.36	8.67	9.68	8.55	8.55	8.52
				10^{-3} *in.lb.s²*	11.0	9.63	9.42	8.39	8.39	8.28	7.67	8.57	7.57	7.57	7.54
	K	38	J_1	$kgcm^2$	13.5	12.0	11.7	10.6	10.6	10.4	9.74	9.68	9.68	9.63	9.60
				10^{-3} *in.lb.s²*	12.0	10.6	10.4	9.34	9.34	9.23	8.62	8.57	8.57	8.52	8.50
	M	48	J_1	$kgcm^2$	28.1	26.6	26.3	25.2	25.2	25.1	24.4	24.3	24.3	24.3	24.3
				10^{-3} *in.lb.s²*	24.9	23.5	23.3	22.3	22.3	22.2	21.6	21.5	21.5	21.5	21.5

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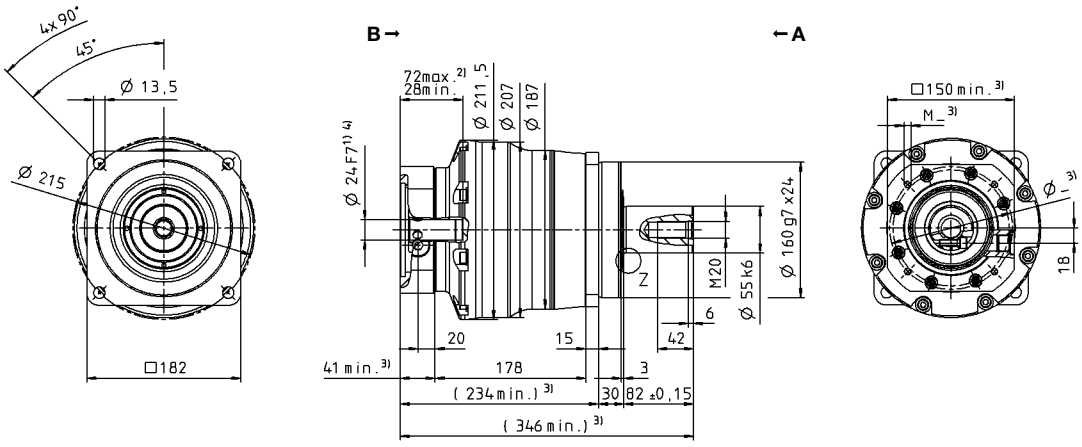
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

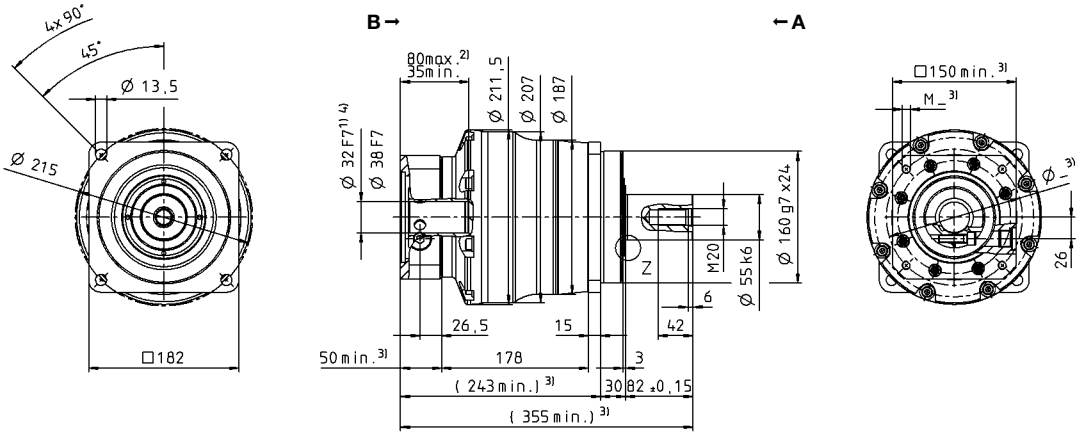
View A View B

2-stage

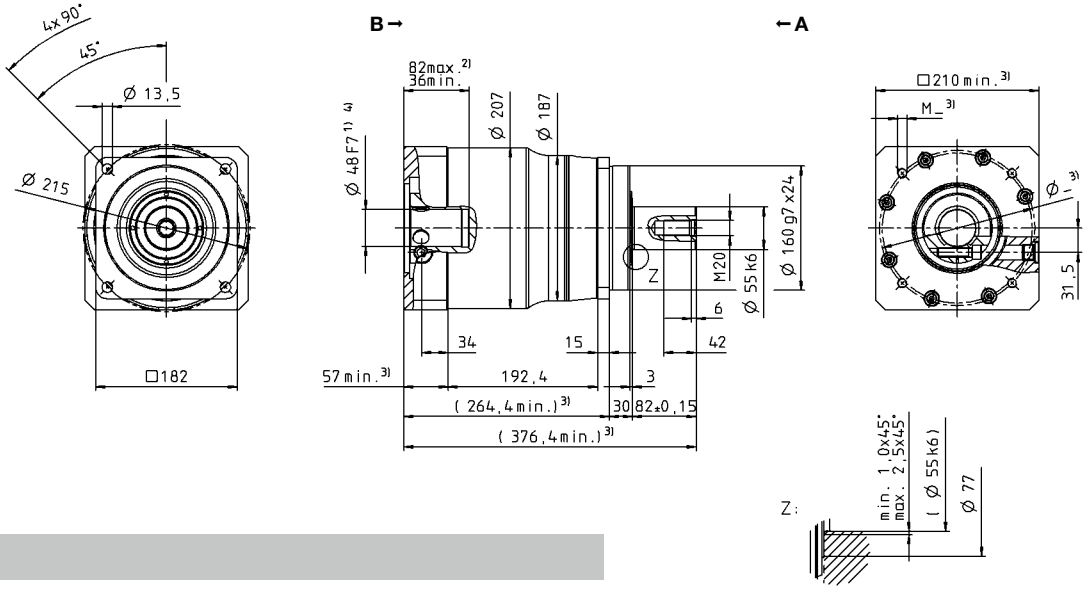
up to 24 [4] (G) clamping hub diameter



up to 32/38 [4] (I/K[5]) clamping hub diameter



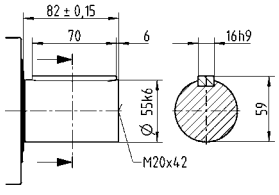
up to 48 [4] (M) clamping hub diameter



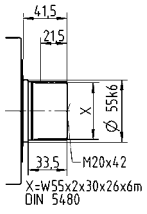
Motor shaft diameter [mm]

Other output variants

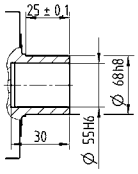
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



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*		2560	4000	4000	3840	2800	2800
		in.lb		22658	35403	35403	33987	24782	24782
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		1920	3000	3000	2880	2280	2280
		in.lb		16994	26552	26552	25490	20180	20180
Nominal torque (at n_{1N})	T_{2N}	*Nm*		1536	1895	1767	1731	1631	1708
		in.lb		13595	16772	15641	15323	14432	15122
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		5900	5900	5900	5900	5900	5900
		in.lb		52220	52220	52220	52220	52220	52220
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]	n_{1N}	*rpm*		1200	1200	1500	1700	2000	2000
Max. input speed	n_{1Max}	*rpm*		3000	3000	3000	3000	3000	3000
Mean no load running torque [b)] (at n_1 = 2000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		26	19	15	8.8	8.8	6.4
		in.lb		227	164	129	78	78	57
Max. backlash	j_t	*arcmin*		Standard ≤ 3 / Reduced ≤ 1					
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		400					
		in.lb/arcmin		3540					
Max. axial force [c)]	F_{2AMax}	*N*		30000					
		lb_f		6750					
Max. lateral force [c)]	F_{2QMax}	*N*		21000					
		lb_f		4725					
Max. tilting moment	M_{2KMax}	*Nm*		3100					
		in.lb		27437					
Efficiency at full load	η	*%*		97					
Service life	L_h	*h*		> 20000					
Weight (incl. standard adapter plate)	*m*	*kg*		56					
		lb_m		123.8					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 64					
Max. permitted housing temperature		*°C*		+90					
		F		194					
Ambient temperature		*°C*		–15 to +40					
		F		5 to 104					
Lubrication				Lubricated for life					
Direction of rotation				In- and output same direction					
Protection class				IP 65					
Metal bellows coupling (recommended product type – validate sizing with cymex®)				BC2-04000AA075.000-X					
Bore diameter of coupling on the application side		*mm*		X = 050.000 - 090.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	N 55	J_1	*kgcm²*	139	94.3	76.9	61.5	61.5	53.1
			10^{-3} *in.lb.s²*	123	83.5	68.1	54.4	54.4	47.0

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

[a)] At max. 10 % F_{2QMax}
[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)] Smooth shaft

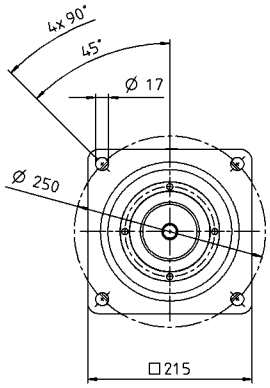
View A

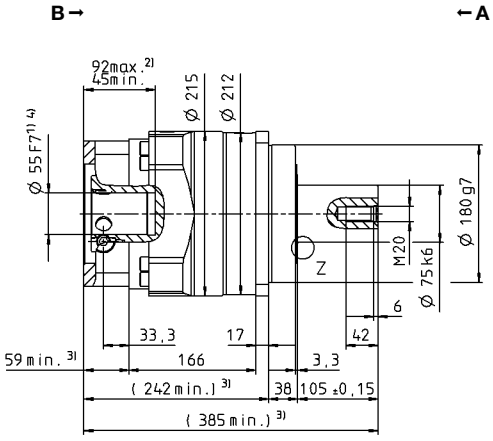
View B

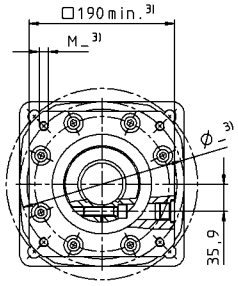
Motor shaft diameter [mm]

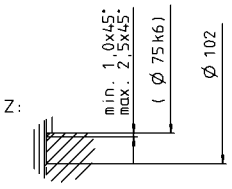
1-stage

up to 55 [4] (N) [5] clamping hub diameter



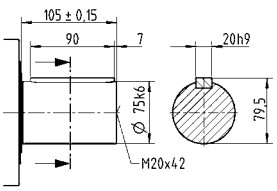




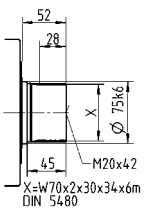


Other output variants

Shaft with key



Splined shaft (DIN 5480)



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**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*	3159	3159	3949	3159	3159	3840	2880	3600	2043	2457	2043
		in.lb	27958	27958	34947	27958	27958	33987	25490	31863	18081	21745	18081
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*	2880	3000	3000	2880	2880	2880	2840	2880	2043	2457	2043
		in.lb	25490	26552	26552	25490	25490	25490	25136	25490	18081	21745	18081
Nominal torque (at n_{1N})	T_{2N}	*Nm*	1274	1266	1567	1294	2200	1599	1358	1679	1634	1965	1634
		in.lb	11277	11205	13873	11452	19474	14150	12019	14861	14465	17396	14465
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900
		in.lb	52220	52220	52220	52220	52220	52220	52220	52220	52220	52220	52220
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]	n_{1N}	*rpm*	2500	2500	2500	2500	2500	2500	2500	2500	2500	3000	3000
Max. input speed	n_{1Max}	*rpm*	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
Mean no load running torque [b)] (at n_1 = 2000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	5.6	5.2	4.8	4.5	4.5	3.6	3.4	3.0	3.0	2.6	2.4
		in.lb	50	46	43	39	39	32	30	27	27	23	21
Max. backlash	j_t	*arcmin*	Standard ≤ 5 / Reduced ≤ 3										
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*	400										
		in.lb/arcmin	3540										
Max. axial force [c)]	F_{2AMax}	*N*	30000										
		lb_f	6750										
Max. lateral force [c)]	F_{2QMax}	*N*	21000										
		lb_f	4725										
Max. tilting moment	M_{2KMax}	*Nm*	3100										
		in.lb	27437										
Efficiency at full load	η	*%*	94										
Service life	L_h	*h*	> 20000										
Weight (incl. standard adapter plate)	*m*	*kg*	53										
		lb_m	117										
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*	≤ 57										
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®)			BC2-04000AA075.000-X										
Bore diameter of coupling on the application side		*mm*	X = 050.000 - 090.000										
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] M 48 Optimized mass inertia version available on request	J_1	*kgcm²*	34.5	31.5	30.8	30.0	30.0	29.7	28.5	28.3	28.3	28.1	28.0
		10⁻³ in.lb.s²	30.5	27.9	27.3	26.6	26.6	26.3	25.2	25.0	25.0	24.9	24.8

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

[a)] At max. 10 % F_{2QMax}
[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)] Smooth shaft

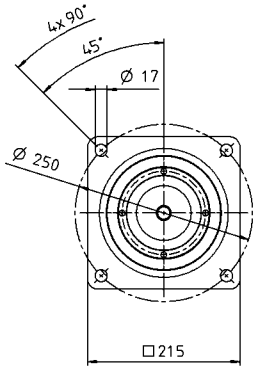
View A

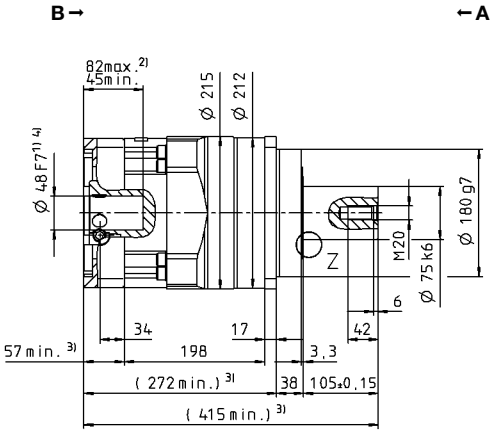
View B

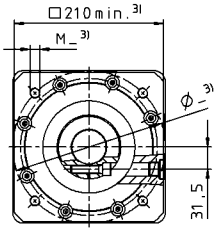
Motor shaft diameter [mm]

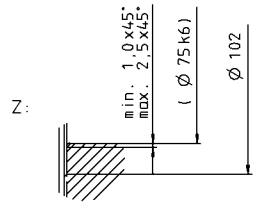
2-stage

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



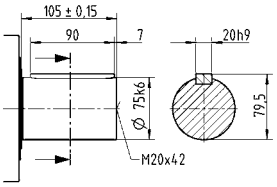




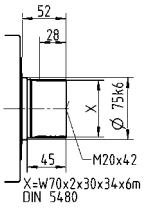


Other output variants

Shaft with key



Splined shaft (DIN 5480)



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*	4400	5700	5700	5700	4000	4000
			in.lb	38944	50450	50450	50450	35403	35403
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)		T_{2B}	*Nm*	3300	5400	5400	5160	4000	4000
			in.lb	29208	47794	47794	45670	35403	35403
Nominal torque (at n_{1N})		T_{2N}	*Nm*	2333	3038	2872	2737	2611	2735
			in.lb	20651	26885	25418	24223	23111	24208
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)		T_{2Not}	*Nm*	6850	8500	8500	8500	6850	6850
			in.lb	60628	75232	75232	75232	60628	60628
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]		n_{1N}	*rpm*	1000	1000	1200	1500	1700	1700
Max. input speed		n_{1Max}	*rpm*	3000	3000	3000	3000	3000	3000
Mean no load running torque [b)] (at n_1 = 2000 rpm and 20 °C gearbox temperature)		T_{012}	*Nm*	32	24	19	12	12	10
			in.lb	283	212	164	106	106	89
Max. backlash		j_t	*arcmin*	Standard ≤ 3 / Reduced ≤ 1					
Torsional rigidity [b)]		C_{t21}	*Nm/arcmin*	550					
			in.lb/arcmin	4868					
Max. axial force [c)]		F_{2AMax}	*N*	33000					
			lb_f	7425					
Max. lateral force [c)]		F_{2QMax}	*N*	30000					
			lb_f	6750					
Max. tilting moment		M_{2KMax}	*Nm*	5000					
			in.lb	44254					
Efficiency at full load		η	%	97					
Service life		L_h	*h*	> 20000					
Weight (incl. standard adapter plate)		*m*	*kg*	77					
			lb_m	170.2					
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 65					
Metal bellows coupling (recommended product type – validate sizing with cymex®)				BC2-06000AA085.000-X					
Bore diameter of coupling on the application side			*mm*	X = 060.000 - 140.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	O 60	J_1	$kgcm^2$	260	198	163	138	138	125
			10^{-3} $in.lb.s^2$	230	175	144	122	122	110

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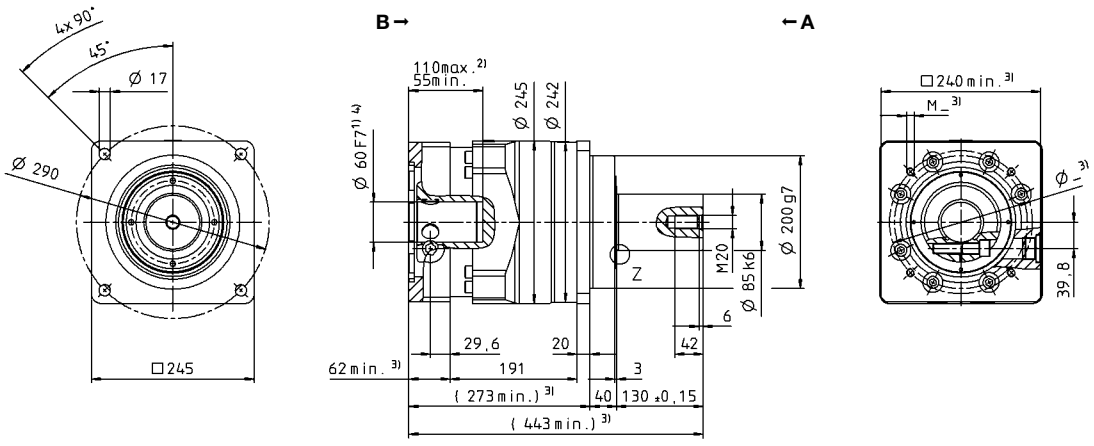
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

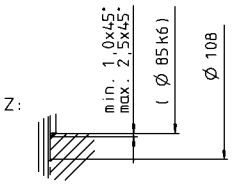
View A View B

Motor shaft diameter [mm]

1-stage

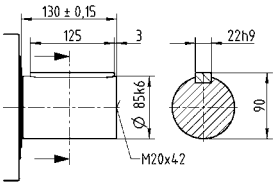
up to 60 [4] (O) [5] clamping hub diameter



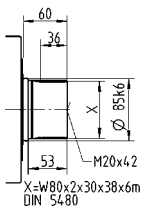


Other output variants

Shaft with key



Splined shaft (DIN 5480)



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**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*	5446	5446	5700	5446	5446	5700	5446	5700	3642	5700	3642
		in.lb	48202	48202	50450	48202	48202	50450	48202	50450	32236	50450	32236
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*	5400	5400	5400	5400	5400	5400	4400	5160	3642	4730	3642
		in.lb	47794	47794	47794	47794	47794	47794	38944	45670	32236	41864	32236
Nominal torque (at n_{1N})	T_{2N}	*Nm*	2658	2596	3198	2667	3754	3283	2803	3457	2914	3784	2914
		in.lb	23524	22976	28308	23607	33222	29060	24811	30600	25789	33491	25789
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*	8500	8500	8500	8500	8500	8500	8500	8500	6850	8500	6850
		in.lb	75232	75232	75232	75232	75232	75232	75232	75232	60628	75232	60628
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]	n_{1N}	*rpm*	2300	2500	2500	2500	2500	2500	2500	2500	2500	2800	2800
Max. input speed	n_{1Max}	*rpm*	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
Mean no load running torque [b)] (at n_1 = 2000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	8.4	7.1	6.5	5.9	5.9	4.5	4.1	3.5	3.5	3.0	3.0
		in.lb	74	63	58	52	52	40	36	31	31	26	26
Max. backlash	j_t	*arcmin*	Standard ≤ 5 / Reduced ≤ 3										
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*	550										
		in.lb/arcmin	4868										
Max. axial force [c)]	F_{2AMax}	*N*	33000										
		lb_f	7425										
Max. lateral force [c)]	F_{2QMax}	*N*	30000										
		lb_f	6750										
Max. tilting moment	M_{2KMax}	*Nm*	5000										
		in.lb	44254										
Efficiency at full load	η	*%*	94										
Service life	L_h	*h*	> 20000										
Weight (incl. standard adapter plate)	*m*	*kg*	76										
		lb_m	168										
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®)			BC2-06000AA085.000-X										
Bore diameter of coupling on the application side		*mm*	X = 060.000 - 140.000										
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] M 48 Optimized mass inertia version available on request	J_1	*kgcm²*	39.2	34.6	33.2	30.5	30.5	29.7	28.2	27.9	27.6	27.6	27.5
		10^{-3} in.lb.s²	34.7	30.6	29.4	27.0	27.0	26.3	25.0	24.7	24.4	24.4	24.3

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

[a)] At max. 10 % F_{2QMax}
[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)] Smooth shaft

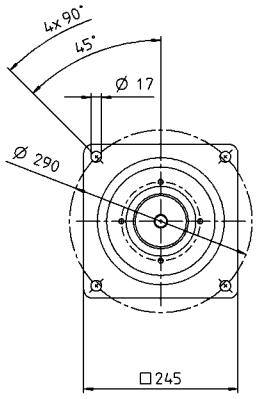
View A

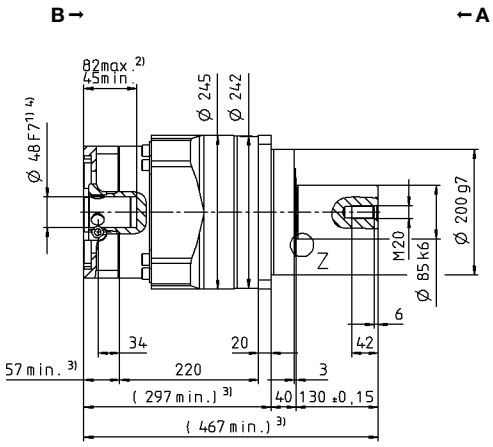
View B

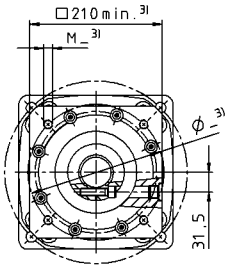
Motor shaft diameter [mm]

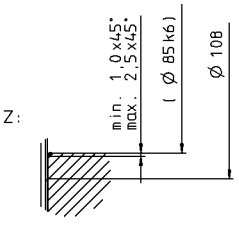
2-stage

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



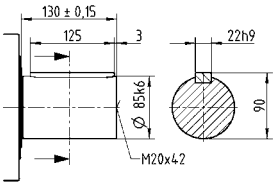




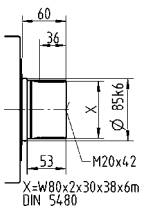


Other output variants

Shaft with key



Splined shaft (DIN 5480)



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*	68	90	90	90	70	70
			in.lb	602	797	797	797	620	620
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)		T_{2B}	*Nm*	68	90	90	90	70	70
			in.lb	602	797	797	797	620	620
Nominal torque (at n_{1N})		T_{2N}	*Nm*	41	51	51	52	50	53
			in.lb	362	448	447	459	441	468
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)		T_{2Not}	*Nm*	139	185	250	250	213	213
			in.lb	1230	1640	2213	2213	1885	1885
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]		n_{1N}	*rpm*	4500	4500	4500	4500	4500	4500
Max. input speed		n_{1Max}	*rpm*	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*	1.1	0.88	0.72	0.49	0.42	0.40
			in.lb	9.9	7.8	6.4	4.3	3.7	3.5
Max. backlash		j_t	*arcmin*	Standard ≤ 6 / Reduced ≤ 4					
Torsional rigidity [b)]		C_{t21}	*Nm/arcmin*	10					
			in.lb/arcmin	89					
Max. axial force [c)]		F_{2AMax}	*N*	3350					
			lb_f	754					
Max. lateral force [c)]		F_{2QMax}	*N*	4200					
			lb_f	945					
Max. tilting moment		M_{2KMax}	*Nm*	236					
			in.lb	2089					
Efficiency at full load		η	%	98.5					
Service life		L_h	*h*	> 30000					
Weight (incl. standard adapter plate)		*m*	*kg*	3.9					
			lb_m	8.6					
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 65					
Metal bellows coupling (recommended product type – validate sizing with cymex®)				BC2-00080AA022.000-X					
Bore diameter of coupling on the application side			*mm*	X = 014.000 - 042.000					
Mass moment of inertia (relates to the drive)	E 19	J_1	$kgcm^2$	1.03	0.78	0.68	0.59	0.54	0.54
			10^{-3} $in.lb.s^2$	0.91	0.69	0.60	0.52	0.48	0.48
Clamping hub diameter [mm]	G 24	J_1	$kgcm^2$	2.40	2.15	2.05	1.96	1.91	1.91
			10^{-3} $in.lb.s^2$	2.12	1.90	1.81	1.73	1.69	1.69

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

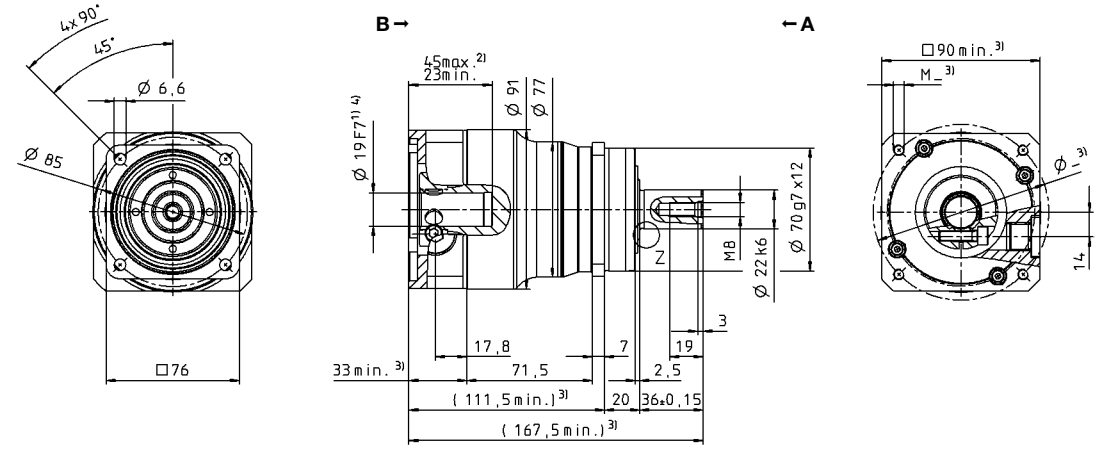
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

View A View B

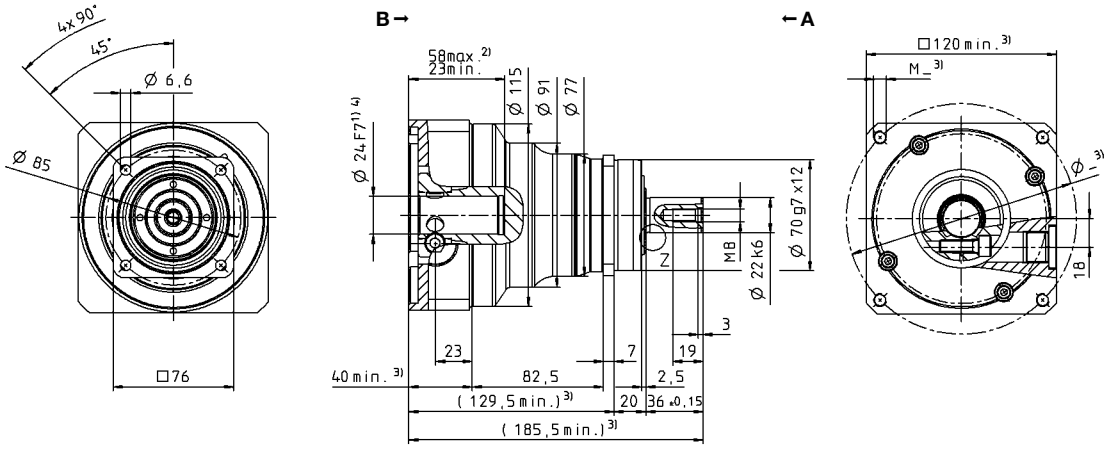
1-stage

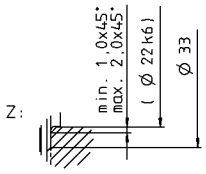
Motor shaft diameter [mm]

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



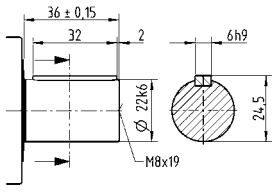
up to 24 [4] (G) clamping hub diameter



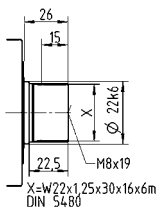


Other output variants

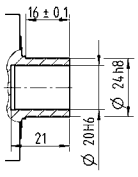
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



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**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*		90	90	90	90	90	90	90	90	70	90	70
		in.lb		797	797	797	797	797	797	797	797	620	797	620
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		90	90	90	90	90	90	90	90	70	90	70
		in.lb		797	797	797	797	797	797	797	797	620	797	620
Nominal torque (at n_{1N})	T_{2N}	*Nm*		62	62	72	65	72	72	65	72	56	72	56
		in.lb		552	553	637	572	637	637	574	637	496	637	496
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		250	250	250	250	250	250	250	250	213	250	213
		in.lb		2213	2213	2213	2213	2213	2213	2213	2213	1885	2213	1885
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]	n_{1N}	*rpm*		4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
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*		0.36	0.24	0.18	0.18	0.17	0.16	0.16	0.16	0.16	0.15	0.14
		in.lb		3.2	2.1	1.6	1.6	1.5	1.4	1.4	1.4	1.4	1.3	1.2
Max. backlash	j_t	*arcmin*		Standard ≤ 8 / Reduced ≤ 6										
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		10										
		in.lb/arcmin		89										
Max. axial force [c)]	F_{2AMax}	*N*		3350										
		lb_f		754										
Max. lateral force [c)]	F_{2QMax}	*N*		4200										
		lb_f		945										
Max. tilting moment	M_{2KMax}	*Nm*		236										
		in.lb		2089										
Efficiency at full load	η	*%*		96.5										
Service life	L_h	*h*		> 30000										
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										
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®)				BC2-00080AA022.000-X										
Bore diameter of coupling on the application side			*mm*	X = 014.000 - 042.000										
Mass moment of inertia (relates to the drive)	C	14	J_1	*kgcm²*	0.23	0.20	0.20	0.18	0.18	0.18	0.16	0.16	0.16	0.16	0.16
				10^{-3} in.lb.s²	0.20	0.18	0.18	0.16	0.16	0.16	0.14	0.14	0.14	0.14	0.14
Clamping hub diameter [mm]	E	19	J_1	*kgcm²*	0.55	0.53	0.52	0.50	0.50	0.50	0.49	0.49	0.49	0.49	0.49
				10^{-3} in.lb.s²	0.49	0.47	0.46	0.44	0.44	0.44	0.43	0.43	0.43	0.43	0.43

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

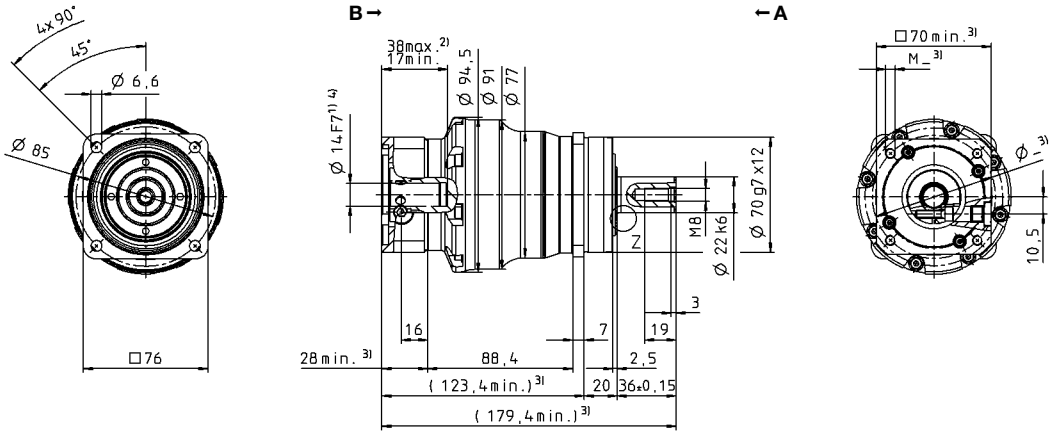
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

View A View B

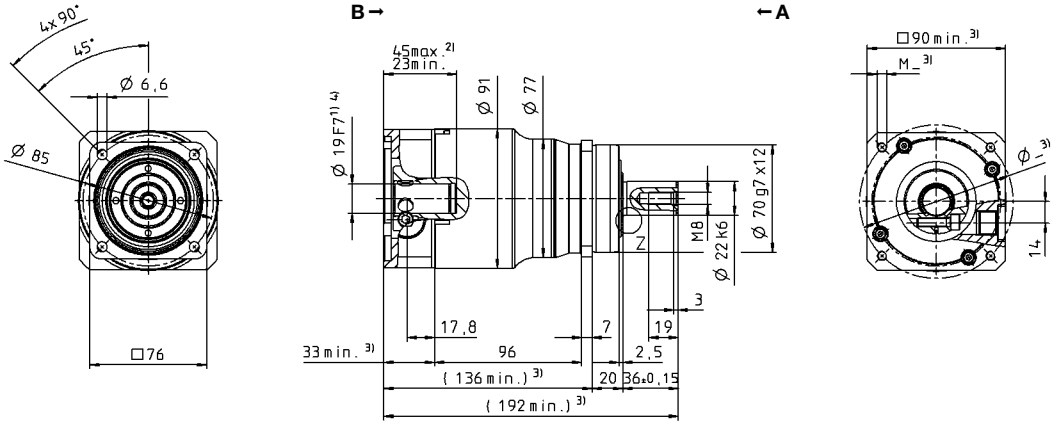
2-stage

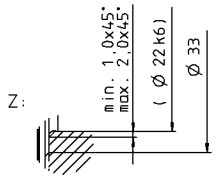
Motor shaft diameter [mm]

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



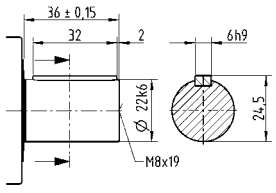
up to 19 [4] (E) clamping hub diameter



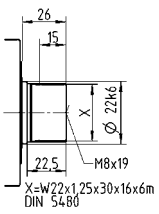


Other output variants

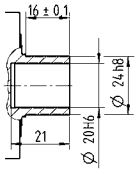
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



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

				Standard version MC						Friction optimized version L					
Ratio	i			**3**	**4**	**5**	**7**	**8**	**10**	**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]	T_{2a}	*Nm*		180	240	240	240	180	180	180	240	240	240	180	180
		in.lb		1593	2124	2124	2124	1593	1593	1593	2124	2124	2124	1593	1593
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		180	240	240	240	180	180	180	240	240	240	180	180
		in.lb		1593	2124	2124	2124	1593	1593	1593	2124	2124	2124	1593	1593
Nominal torque (at n_{1N})	T_{2N}	*Nm*		76	95	91	93	93	97	76	95	91	93	93	97
		in.lb		677	838	806	823	821	861	677	838	806	823	821	861
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		454	625	625	625	599	599	454	625	625	625	599	599
		in.lb		4016	5532	5532	5532	5302	5302	4016	5532	5532	5532	5302	5302
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]	n_{1N}	*rpm*		3500	4000	4500	4500	4500	4500	3500	4000	4500	4500	4500	4500
Max. input speed	n_{1Max}	*rpm*		6000	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*		2.0	1.8	1.4	0.84	0.78	0.64	0.9	0.8	0.6	0.5	0.4	0.4
		in.lb		17	16	12	7.4	6.9	5.7	8.0	7.1	5.3	4.4	3.5	3.5
Max. backlash	j_t	*arcmin*		Standard ≤ 4 / Reduced ≤ 2											
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		31											
		in.lb/arcmin		274											
Max. axial force [c)]	F_{2AMax}	*N*		5650						2000					
		lb_f		1271						450					
Max. lateral force [c)]	F_{2QMax}	*N*		6600						1000					
		lb_f		1485						225					
Max. tilting moment	M_{2KMax}	*Nm*		487						72					
		in.lb		4310						637					
Efficiency at full load	η	*%*		98.5						99					
Service life	L_h	*h*		> 30000											
Weight (incl. standard adapter plate)	m	*kg*		7.7											
		lb_m		17											
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						IP 52					
Metal bellows coupling (recommended product type – validate sizing with cymex®)				BC2-00300AA032.000-X											
Bore diameter of coupling on the application side		*mm*		X = 024.000 - 060.000											
Mass moment of inertia (relates to the drive)	G 24	J_1	*kgcm²*	3.99	3.04	2.61	2.29	2.26	2.07	3.99	3.04	2.61	2.29	2.26	2.07
			10^{-3} *in.lb.s²*	3.53	2.69	2.31	2.03	2.00	1.83	3.53	2.69	2.31	2.03	2.00	1.83
Clamping hub diameter [mm]	K 38	J_1	*kgcm²*	11.1	10.1	9.68	9.36	9.55	9.14	11.1	10.1	9.68	9.36	9.55	9.14
			10^{-3} *in.lb.s²*	9.82	8.94	8.57	8.28	8.45	8.09	9.82	8.94	8.57	8.28	8.45	8.09

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

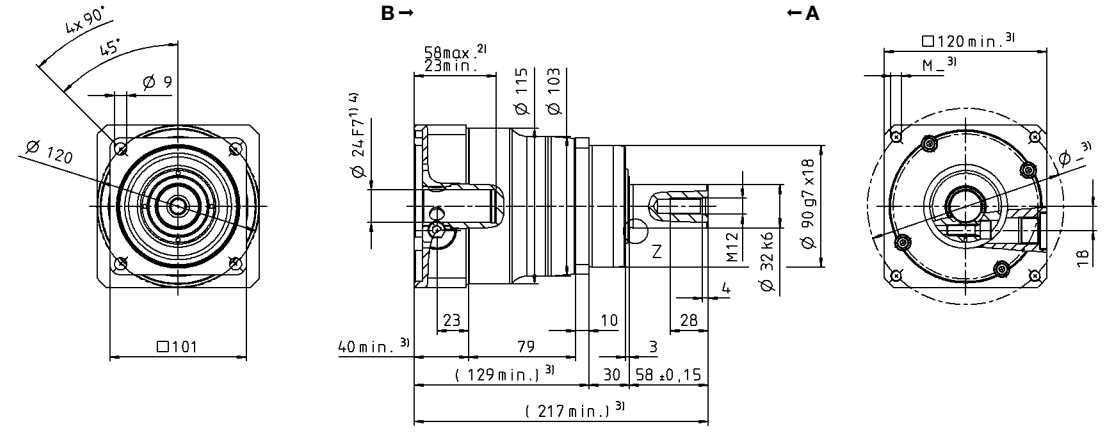
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

View A View B

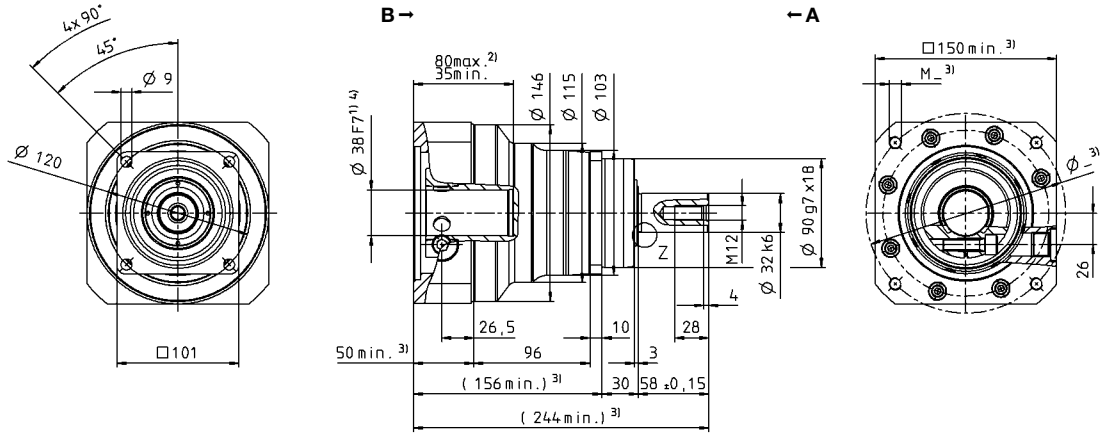
1-stage

Motor shaft diameter [mm]

up to 24 [4] (G) [5] clamping hub diameter

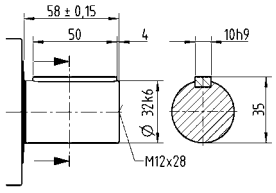


up to 38 [4] (K) clamping hub diameter

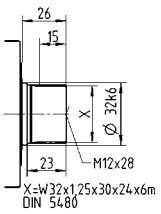


Other output variants

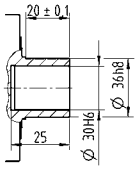
Shaft with key



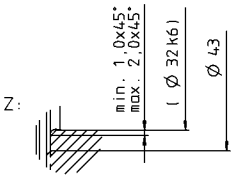
Splined shaft (DIN 5480)



Shaft mounted



Z:



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**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]			T_{2a}	*Nm*	240	240	240	240	240	240	240	240	180	240	180
				in.lb	2124	2124	2124	2124	2124	2124	2124	2124	1593	2124	1593
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	240	240	240	240	240	240	240	240	180	240	180
				in.lb	2124	2124	2124	2124	2124	2124	2124	2124	1593	2124	1593
Nominal torque (at n_{1N})			T_{2N}	*Nm*	138	148	149	164	141	164	183	182	144	189	144
				in.lb	1221	1313	1322	1453	1251	1450	1617	1614	1275	1673	1275
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	625	625	625	625	625	625	625	625	599	625	599
				in.lb	5532	5532	5532	5532	5532	5532	5532	5532	5302	5532	5302
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]			n_{1N}	*rpm*	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
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*	0.52	0.53	0.48	0.43	0.38	0.28	0.40	0.25	0.25	0.20	0.19
				in.lb	4.6	4.7	4.2	3.8	3.4	2.5	3.5	2.2	2.2	1.8	1.7
Max. backlash			j_t	*arcmin*	Standard ≤ 6 / Reduced ≤ 4										
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	31										
				in.lb/arcmin	274										
Max. axial force [c)]			F_{2AMax}	*N*	5650										
				lb_f	1271										
Max. lateral force [c)]			F_{2QMax}	*N*	6600										
				lb_f	1485										
Max. tilting moment			M_{2KMax}	*Nm*	487										
				in.lb	4310										
Efficiency at full load			η	%	96.5										
Service life			L_h	*h*	> 30000										
Weight (incl. standard adapter plate)			*m*	*kg*	7.9										
				lb_m	17.5										
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 56										
Max. permitted housing temperature				°C	+90										
				F	194										
Ambient temperature				°C	–15 to +40										
				F	5 to 104										
Lubrication					Lubricated for life										
Direction of rotation					In- and output same direction										
Protection class					IP 65										
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BC2-00300AA032.000-X										
Bore diameter of coupling on the application side				*mm*	X = 024.000 - 060.000										
Mass moment of inertia (relates to the drive)	E	19	J_1	$kgcm^2$	0.81	0.70	0.68	0.60	0.43	0.59	0.55	0.54	0.38	0.54	0.54
				10^{-3} *in.lb.s²*	0.72	0.62	0.60	0.53	0.38	0.52	0.49	0.48	0.34	0.48	0.48
Clamping hub diameter [mm]	G	24	J_1	$kgcm^2$	2.18	2.07	2.05	1.97	2.06	1.96	1.92	1.91	1.91	1.91	1.91
				10^{-3} *in.lb.s²*	1.93	1.83	1.81	1.74	1.82	1.73	1.70	1.69	1.69	1.69	1.69

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

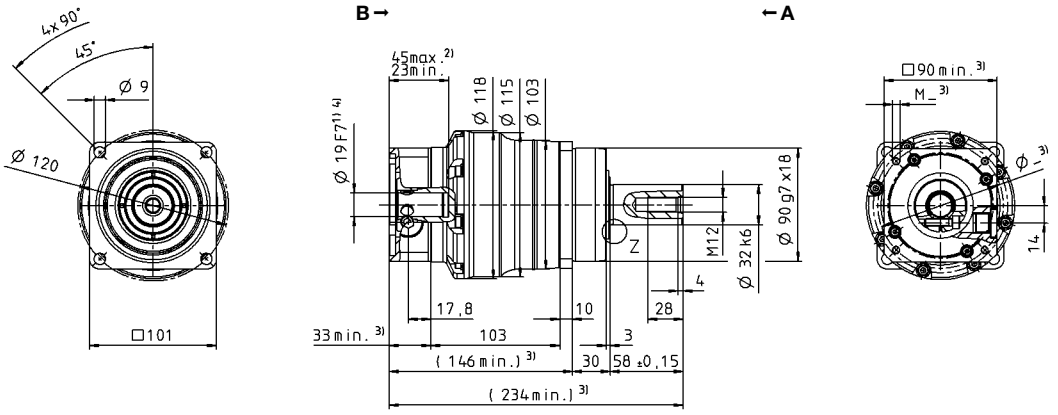
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

View A View B

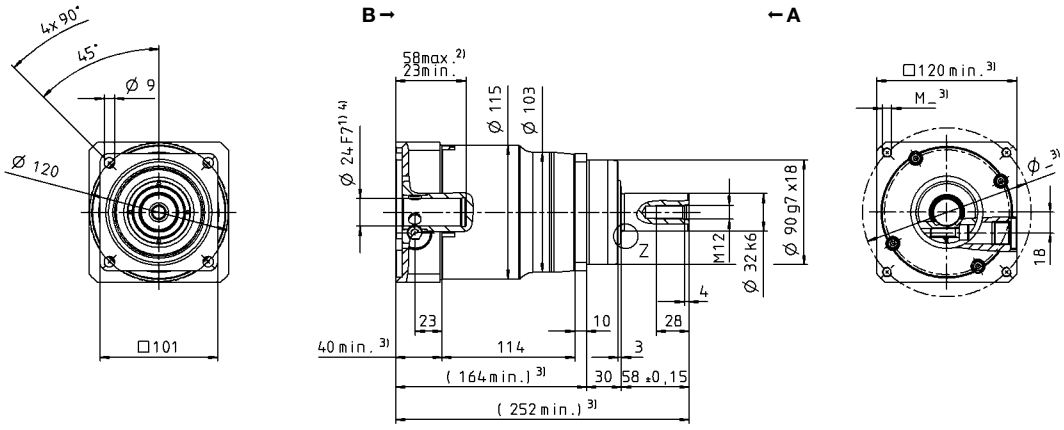
2-stage

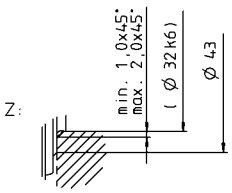
Motor shaft diameter [mm]

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



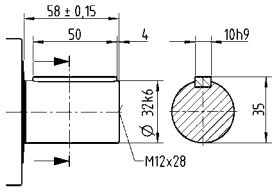
up to 24 [4] (G) clamping hub diameter



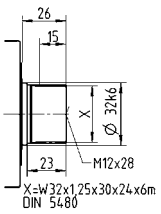


Other output variants

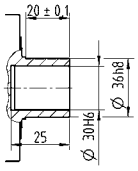
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



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

				Standard version MC						Friction optimized version L					
Ratio	*i*			**3**	**4**	**5**	**7**	**8**	**10**	**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]	T_{2a}	*Nm*		310	480	480	480	380	380	310	480	480	480	380	380
		in.lb		2744	4248	4248	4248	3363	3363	2744	4248	4248	4248	3363	3363
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		310	480	480	480	380	380	310	480	480	480	380	380
		in.lb		2744	4248	4248	4248	3363	3363	2744	4248	4248	4248	3363	3363
Nominal torque (at n_{1N})	T_{2N}	*Nm*		127	195	182	187	186	195	127	195	182	187	186	195
		in.lb		1122	1730	1612	1656	1644	1727	1122	1730	1612	1656	1644	1727
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		1250	1350	1350	1350	1250	1250	1250	1350	1350	1350	1250	1250
		in.lb		11064	11949	11949	11949	11064	11064	11064	11949	11949	11949	11064	11064
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]	n_{1N}	*rpm*		3000	3500	4500	4500	4500	4500	3000	3500	4500	4500	4500	4500
Max. input speed	n_{1Max}	*rpm*		6000	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*		4.1	3.5	3.0	2.2	1.8	1.7	2.0	1.5	1.2	1.0	0.9	0.9
		in.lb		36	31	27	20	16	15	18	13	11	8.9	8.0	8.0
Max. backlash	j_t	*arcmin*		Standard ≤ 4 / Reduced ≤ 2											
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		53											
		in.lb/arcmin		469											
Max. axial force [c)]	F_{2AMax}	*N*		9870						3000					
		lb_f		2221						675					
Max. lateral force [c)]	F_{2QMax}	*N*		9900						1200					
		lb_f		2228						270					
Max. tilting moment	M_{2KMax}	*Nm*		952						110					
		in.lb		8426						974					
Efficiency at full load	η	*%*		98.5						99					
Service life	L_h	*h*		> 30000											
Weight (incl. standard adapter plate)	*m*	*kg*		17.2											
		lb_m		38											
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 65						IP 52					
Metal bellows coupling (recommended product type – validate sizing with cymex®)				BC2-00500AA040.000-X											
Bore diameter of coupling on the application side		*mm*		X = 035.000 - 060.000											
Mass moment of inertia (relates to the drive)	K 38	J_1	*kgcm²*	14.9	12.1	11.0	10.1	10.1	9.5	14.9	12.1	11.0	10.1	10.1	9.5
			10^{-3} *in.lb.s²*	13.2	10.7	9.7	8.9	8.9	8.4	13.2	10.7	9.7	8.9	8.9	8.4
Clamping hub diameter [mm]	M 48	J_1	*kgcm²*	29.5	26.7	25.6	24.7	24.7	24.2	29.5	26.7	25.6	24.7	24.7	24.2
			10^{-3} *in.lb.s²*	26.1	23.6	22.7	21.9	21.9	21.4	26.1	23.6	22.7	21.9	21.9	21.4

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

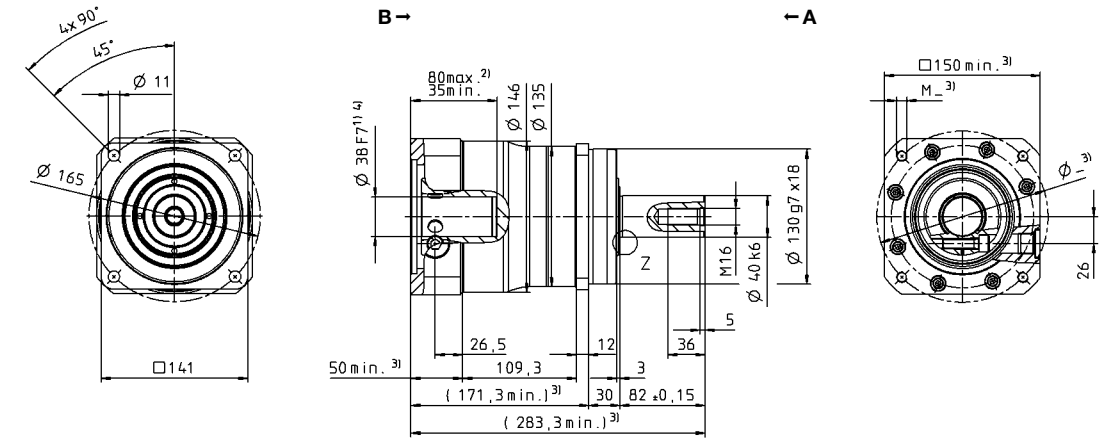
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

View A View B

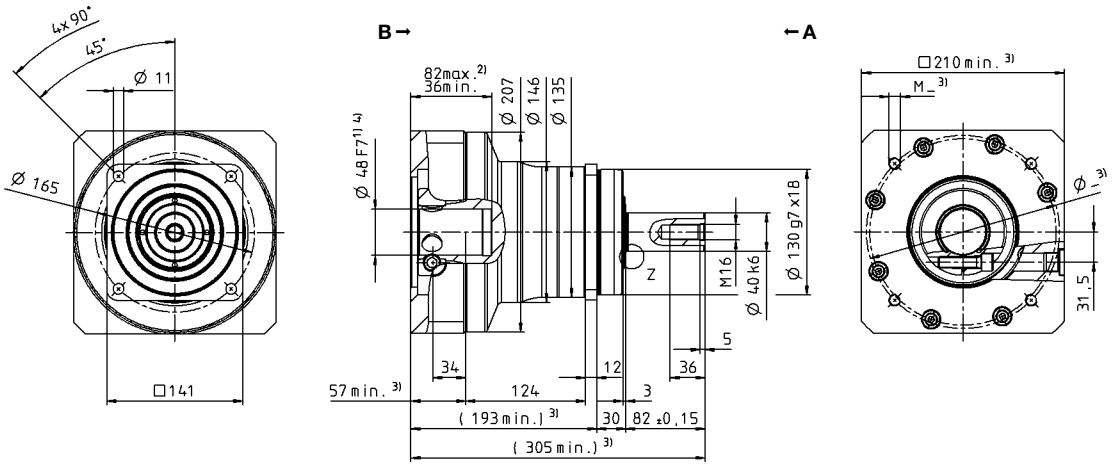
1-stage

Motor shaft diameter [mm]

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

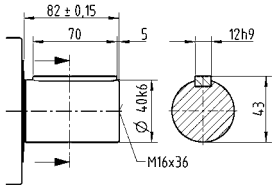


up to 48 [4] (M) clamping hub diameter

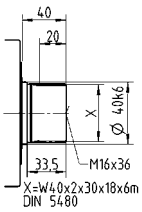


Other output variants

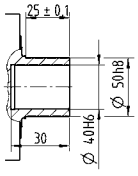
Shaft with key

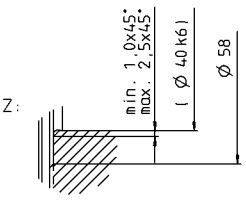


Splined shaft (DIN 5480)



Shaft mounted





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**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]			T_{2a}	*Nm*	480	480	480	480	480	480	480	480	380	480	380
				in.lb	4248	4248	4248	4248	4248	4248	4248	4248	3363	4248	3363
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	480	480	480	480	480	480	480	480	380	480	380
				in.lb	4248	4248	4248	4248	4248	4248	4248	4248	3363	4248	3363
Nominal torque (at n_{1N})			T_{2N}	*Nm*	277	297	298	328	287	329	364	367	304	304	304
				in.lb	2447	2629	2636	2900	2544	2915	3219	3250	2691	2690	2691
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	1350	1350	1350	1350	1350	1350	1350	1350	1250	1350	1250
				in.lb	11949	11949	11949	11949	11949	11949	11949	11949	11064	11949	11064
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]			n_{1N}	*rpm*	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
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*	1.1	1.0	0.96	0.80	0.72	0.60	0.55	0.45	0.45	0.40	0.40
				in.lb	9.7	9.2	8.5	7.1	6.4	5.3	4.9	4.0	4.0	3.5	3.5
Max. backlash			j_t	*arcmin*	Standard ≤ 6 / Reduced ≤ 4										
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	53										
				in.lb/arcmin	469										
Max. axial force [c)]			F_{2AMax}	*N*	9870										
				lb_f	2221										
Max. lateral force [c)]			F_{2QMax}	*N*	9900										
				lb_f	2228										
Max. tilting moment			M_{2KMax}	*Nm*	952										
				in.lb	8426										
Efficiency at full load			η	%	96.5										
Service life			L_h	*h*	> 30000										
Weight (incl. standard adapter plate)			*m*	*kg*	17										
				lb_m	37.6										
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 65										
Metal bellows coupling (recommended product type – validate sizing with cymex®)					BC2-00500AA040.000-X										
Bore diameter of coupling on the application side				*mm*	X = 035.000 - 060.000										
Mass moment of inertia (relates to the drive)	G	24	J_1	$kgcm^2$	3.19	2.71	2.67	2.34	1.65	2.32	2.10	2.08	2.08	2.08	2.07
				10^{-3} $in.lb.s^2$	2.82	2.40	2.36	2.07	1.46	2.05	1.86	1.84	1.84	1.84	1.83
Clamping hub diameter [mm]	K	38	J_1	$kgcm^2$	10.3	9.77	9.73	9.41	2.34	9.39	9.16	9.15	1.39	9.14	9.14
				10^{-3} $in.lb.s^2$	9.07	8.65	8.61	8.33	2.07	8.31	8.11	8.10	1.23	8.09	8.09

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

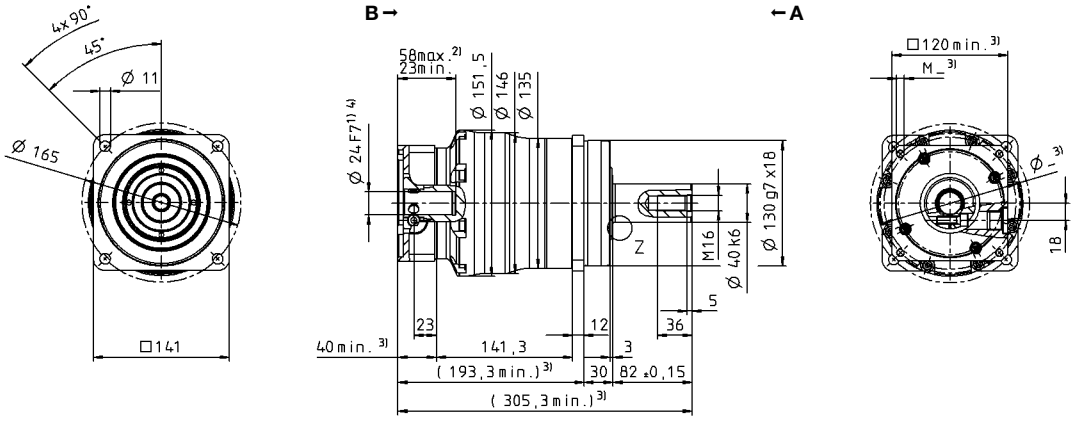
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Smooth shaft

View A View B

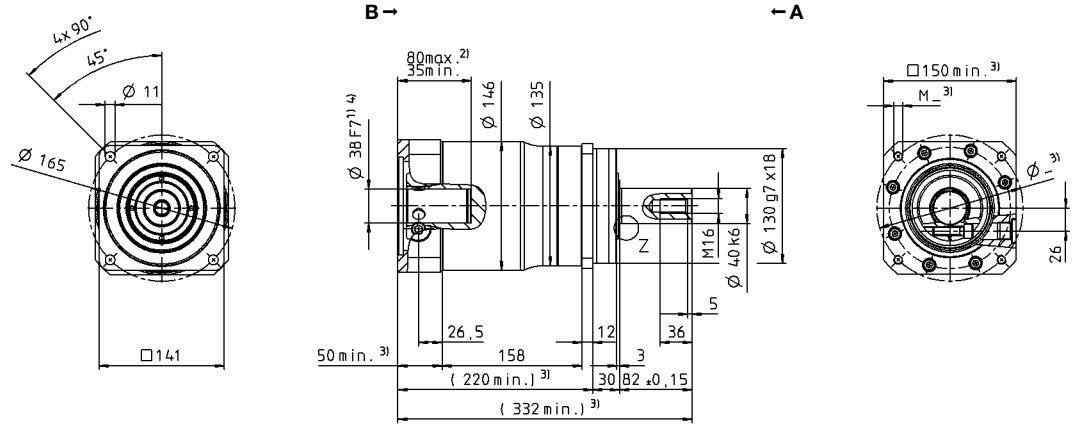
2-stage

Motor shaft diameter [mm]

up to 24 [4] (G) [5] clamping hub diameter

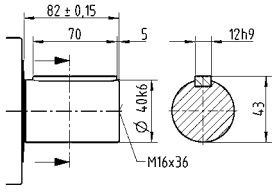


up to 38 [4] (K) clamping hub diameter

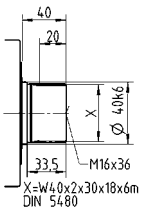


Other output variants

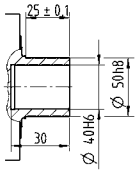
Shaft with key



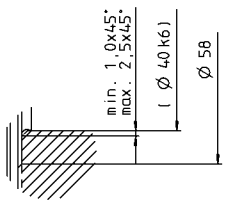
Splined shaft (DIN 5480)



Shaft mounted



Z:



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

			Standard version MC						Friction optimized version L					
Ratio	*i*		**3**	**4**	**5**	**7**	**8**	**10**	**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]	T_{2a}	*Nm*	700	880	880	880	700	700	700	880	880	880	700	700
		in.lb	6196	7789	7789	7789	6196	6196	6196	7789	7789	7789	6196	6196
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*	700	880	880	880	700	700	700	880	880	880	700	700
		in.lb	6196	7789	7789	7789	6196	6196	6196	7789	7789	7789	6196	6196
Nominal torque (at n_{1N})	T_{2N}	*Nm*	289	492	379	469	465	488	289	492	379	469	465	488
		in.lb	2554	4355	3357	4151	4117	4316	2554	4355	3357	4151	4117	4316
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*	2640	2750	2750	2750	2640	2640	2640	2750	2750	2750	2640	2640
		in.lb	23366	24340	24340	24340	23366	23366	23366	24340	24340	24340	23366	23366
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]	n_{1N}	*rpm*	3000	3500	4500	4500	4500	4500	3000	3500	4500	4500	4500	4500
Max. input speed	n_{1Max}	*rpm*	4500	6000	6000	6000	6000	6000	4500	6000	6000	6000	6000	6000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	9.8	8.2	6.6	4.4	4.4	3.2	3.8	3.0	2.3	1.8	1.7	1.6
		in.lb	87	73	58	39	39	28	34	27	20	16	15	14
Max. backlash	j_t	*arcmin*	Standard ≤ 4 / Reduced ≤ 2											
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*	175											
		in.lb/arcmin	1549											
Max. axial force [c)]	F_{2AMax}	*N*	14150						5000					
		lb_f	3184						1125					
Max. lateral force [c)]	F_{2QMax}	*N*	15400						2000					
		lb_f	3465						450					
Max. tilting moment	M_{2KMax}	*Nm*	1600						208					
		in.lb	14161						1841					
Efficiency at full load	η	*%*	98.5						99					
Service life	L_h	*h*	> 30000											
Weight (incl. standard adapter plate)	*m*	*kg*	34											
		lb_m	75.1											
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 65						IP 52					
Metal bellows coupling (recommended product type – validate sizing with cymex®)			BC2-00800AA055.000-X											
Bore diameter of coupling on the application side		*mm*	X = 040.000 - 075.000											
Mass moment of inertia (relates to the drive) **M 48** Clamping hub diameter [mm]	J_1	$kgcm^2$	58.5	41.6	35.6	30.0	30.0	26.9	58.5	41.6	35.6	30.0	30.0	26.9
		10^{-3} $in.lb.s^2$	51.8	36.8	31.5	26.6	26.6	23.8	51.8	36.8	31.5	26.6	26.6	23.8

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

[a)] At max. 10 % F_{2QMax}
[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)] Smooth shaft

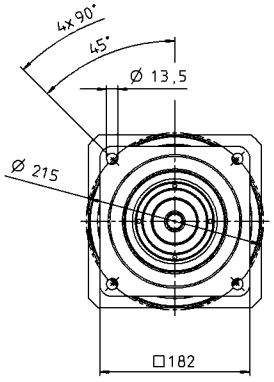
View A

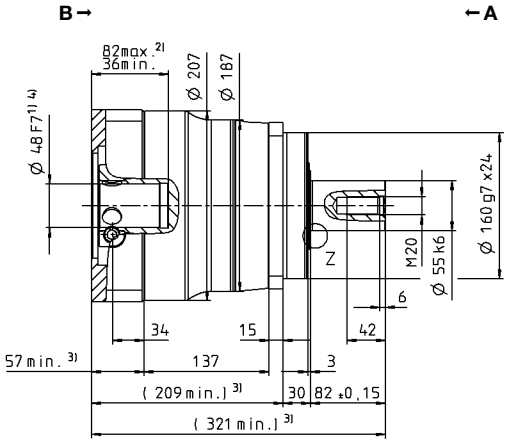
View B

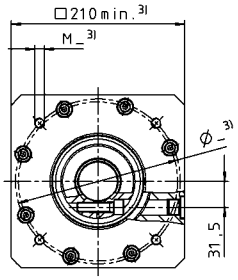
Motor shaft diameter [mm]

1-stage

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



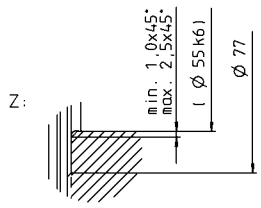




Planetary gearboxes

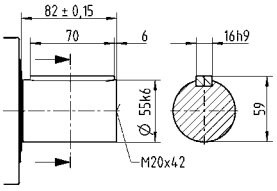
SP+

MC

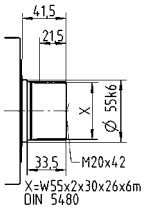


Other output variants

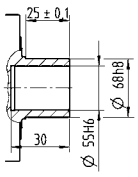
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



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**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*		880	880	880	880	880	880	880	880	700	880	700
		in.lb		7789	7789	7789	7789	7789	7789	7789	7789	6196	7789	6196
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		880	880	880	880	880	880	880	880	700	880	700
		in.lb		7789	7789	7789	7789	7789	7789	7789	7789	6196	7789	6196
Nominal torque (at n_{1N})	T_{2N}	*Nm*		696	704	704	704	704	704	704	704	560	704	560
		in.lb		6156	6231	6231	6231	6231	6231	6231	6231	4956	6231	4956
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		2750	2750	2750	2750	2750	2750	2750	2750	2640	2750	2640
		in.lb		24340	24340	24340	24340	24340	24340	24340	24340	23366	24340	23366
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]	n_{1N}	*rpm*		4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
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*		2.2	2.3	1.8	1.7	1.7	1.4	1.2	1.2	1.2	0.95	1.0
		in.lb		20	21	16	15	15	12	11	11	11	8.4	9.2
Max. backlash	j_t	*arcmin*		Standard ≤ 6 / Reduced ≤ 4										
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		175										
		in.lb/arcmin		1549										
Max. axial force [c)]	F_{2AMax}	*N*		14150										
		lb_f		3184										
Max. lateral force [c)]	F_{2QMax}	*N*		15400										
		lb_f		3465										
Max. tilting moment	M_{2KMax}	*Nm*		1600										
		in.lb		14161										
Efficiency at full load	η	*%*		96.5										
Service life	L_h	*h*		> 30000										
Weight (incl. standard adapter plate)	m	*kg*		36.4										
		lb_m		80.4										
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®)				BC2-00800AA055.000-X										
Bore diameter of coupling on the application side		*mm*		X = 040.000 - 075.000										
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] K 38	J_1	*kgcm²*		13.5	12.0	11.7	10.6	10.6	10.4	9.74	9.68	5.45	9.63	9.60
		10^{-3} in.lb.s²		12.0	10.6	10.4	9.34	9.34	9.23	8.62	8.57	4.82	8.52	8.50

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

[a)] At max. 10 % F_{2QMax}
[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)] Smooth shaft

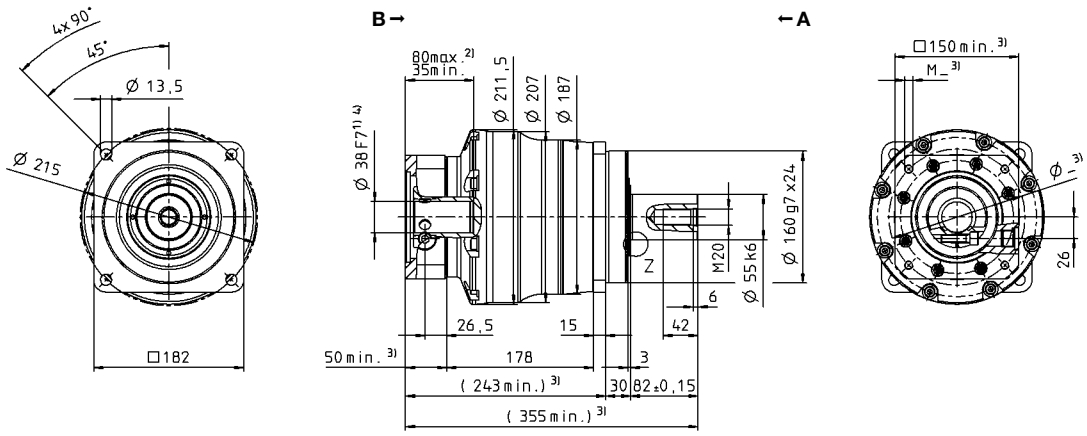
View A

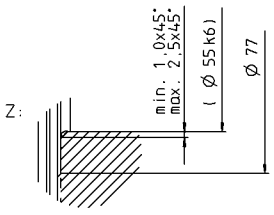
View B

Motor shaft diameter [mm]

2-stage

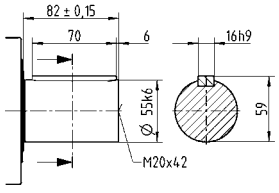
up to 38 [4] (K) [5] clamping hub diameter



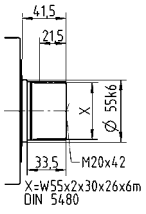


Other output variants

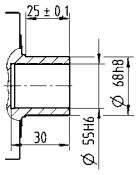
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



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

			Standard version MC						Friction optimized version L					
Ratio	*i*		**3**	**4**	**5**	**7**	**8**	**10**	**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]	T_{2a}	*Nm*	1200	2000	2000	1700	1200	1200	1200	2000	2000	1700	1200	1200
		in.lb	10621	17702	17702	15046	10621	10621	10621	17702	17702	15046	10621	10621
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*	1200	2000	2000	1700	1200	1200	1200	2000	2000	1700	1200	1200
		in.lb	10621	17702	17702	15046	10621	10621	10621	17702	17702	15046	10621	10621
Nominal torque (at n_{1N})	T_{2N}	*Nm*	960	1260	1141	1169	960	960	960	1260	1141	1169	960	960
		in.lb	8497	11148	10098	10347	8497	8497	8497	11148	10098	10347	8497	8497
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900
		in.lb	52220	52220	52220	52220	52220	52220	52220	52220	52220	52220	52220	52220
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]	n_{1N}	*rpm*	2250	2500	3500	3500	3500	3500	2250	2500	3500	3500	3500	3500
Max. input speed	n_{1Max}	*rpm*	3400	6000	6000	6000	6000	6000	3400	6000	6000	6000	6000	6000
Mean no load running torque [b)] (at n_1 = 2000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	12	11	8.4	5.6	5.6	4.4	5.5	4.9	4.6	4.0	3.8	3.6
		in.lb	108	99	74	50	50	39	49	43	41	35	34	32
Max. backlash	j_t	*arcmin*	Standard ≤ 4 / Reduced ≤ 2											
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*	400											
		in.lb/arcmin	3540											
Max. axial force [c)]	F_{2AMax}	*N*	30000						8000					
		lb_f	6750						1800					
Max. lateral force [c)]	F_{2QMax}	*N*	21000						2500					
		lb_f	4725						563					
Max. tilting moment	M_{2KMax}	*Nm*	3100						310					
		in.lb	27437						2744					
Efficiency at full load	η	*%*	98.5						99					
Service life	L_h	*h*	> 30000											
Weight (incl. standard adapter plate)	*m*	*kg*	56											
		lb_m	123.8											
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*	≤ 64											
Max. permitted housing temperature		*°C*	+90											
		F	194											
Ambient temperature		*°C*	–15 to +40											
		F	5 to 104											
Lubrication			Lubricated for life											
Direction of rotation			In- and output same direction											
Protection class			IP 65						IP 52					
Metal bellows coupling (recommended product type – validate sizing with cymex®)			BC2-04000AA075.000-X											
Bore diameter of coupling on the application side		*mm*	X = 050.000 - 090.000											
Mass moment of inertia (relates to the drive) N 55 Clamping hub diameter [mm]	J_1	$kgcm^2$	139	94.3	76.9	61.5	61.5	53.1	139	94.3	76.9	61.5	61.5	53.1
		10^{-3} $in.lb.s^2$	123	83.5	68.1	54.4	54.4	47.0	123	83.5	68.1	54.4	54.4	47.0

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

[a)] At max. 10 % F_{2QMax}
[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)] Smooth shaft

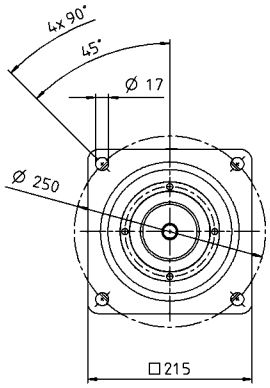
View A

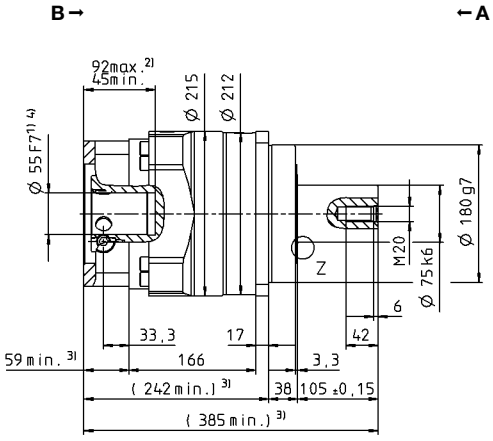
View B

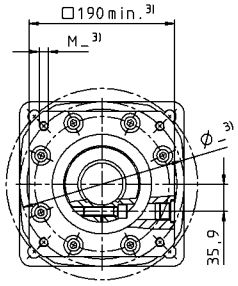
Motor shaft diameter [mm]

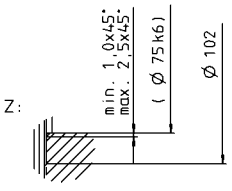
1-stage

up to 55 [4] (N) [5] clamping hub diameter



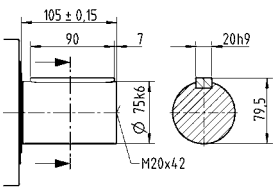




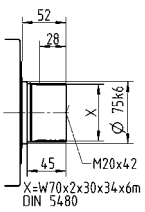


Other output variants

Shaft with key



Splined shaft (DIN 5480)



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**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]		T_{2a}	*Nm*	1680	1800	2000	1680	1680	1920	1040	1300	1200	1700	1200
			in.lb	14869	15931	17702	14869	14869	16994	9205	11506	10621	15046	10621
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)		T_{2B}	*Nm*	1680	1800	2000	1680	1680	1920	1040	1300	1200	1700	1200
			in.lb	14869	15931	17702	14869	14869	16994	9205	11506	10621	15046	10621
Nominal torque (at n_{1N})		T_{2N}	*Nm*	898	728	910	744	1344	929	787	984	960	1360	960
			in.lb	7949	6445	8056	6581	11895	8226	6969	8711	8497	12037	8497
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)		T_{2Not}	*Nm*	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900
			in.lb	52220	52220	52220	52220	52220	52220	52220	52220	52220	52220	52220
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]		n_{1N}	*rpm*	3500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
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 = 2000 rpm and 20 °C gearbox temperature)		T_{012}	*Nm*	3.4	3.1	2.9	2.6	2.6	2.0	2.0	1.8	1.8	1.6	1.6
			in.lb	30	27	25	23	23	18	18	16	16	14	14
Max. backlash		j_t	*arcmin*	Standard ≤ 5 / Reduced ≤ 4										
Torsional rigidity [b)]		C_{t21}	*Nm/arcmin*	400										
			in.lb/arcmin	3540										
Max. axial force [c)]		F_{2AMax}	*N*	30000										
			lb_f	6750										
Max. lateral force [c)]		F_{2QMax}	*N*	21000										
			lb_f	4725										
Max. tilting moment		M_{2KMax}	*Nm*	3100										
			in.lb	27437										
Efficiency at full load		η	*%*	96.5										
Service life		L_h	*h*	> 30000										
Weight (incl. standard adapter plate)		*m*	*kg*	53										
			lb_m	117.1										
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)		L_{PA}	*dB(A)*	≤ 57										
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®)				BC2-04000AA075.000-X										
Bore diameter of coupling on the application side			*mm*	X = 050.000 - 090.000										
Mass moment of inertia (relates to the drive)	M	48	J_1	*kgcm²*	34.5	31.5	30.8	30.0	30.0	29.7	28.5	28.3	28.3	28.1	28.0
Clamping hub diameter [mm]				*10^{-3} in.lb.s²*	30.5	27.9	27.3	26.6	26.6	26.3	25.2	25.0	25.0	24.9	24.8

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

[a)] At max. 10 % F_{2QMax}
[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)] Smooth shaft

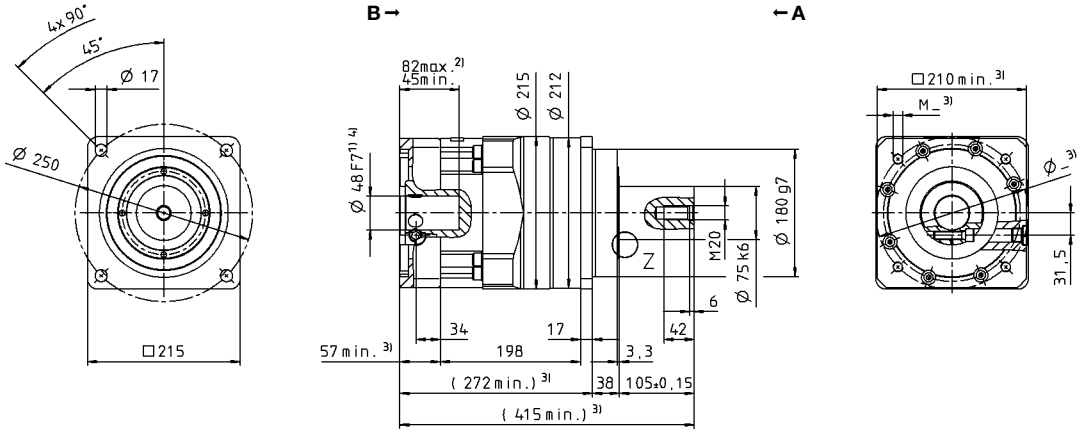
View A

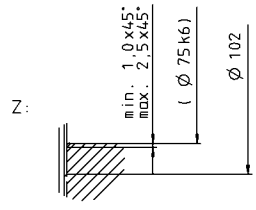
View B

Motor shaft diameter [mm]

2-stage

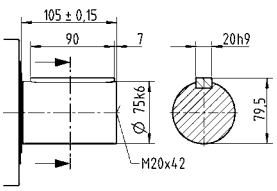
up to 48 [4] (M) [5] clamping hub diameter



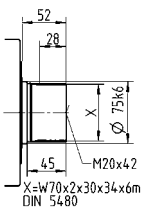


Other output variants

Shaft with key



Splined shaft (DIN 5480)



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

			Standard version MC						Friction optimized version L					
Ratio	*i*		**3**	**4**	**5**	**7**	**8**	**10**	**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]	T_{2a}	*Nm*	1750	3500	3600	2700	1800	1800	1750	3500	3600	2700	1800	1800
		in.lb	15489	30978	31863	23897	15931	15931	15489	30978	31863	23897	15931	15931
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*	1750	3500	3600	2700	1800	1800	1750	3500	3600	2700	1800	1800
		in.lb	15489	30978	31863	23897	15931	15931	15489	30978	31863	23897	15931	15931
Nominal torque (at n_{1N})	T_{2N}	*Nm*	1400	2029	1861	1910	1440	1440	1400	2029	1861	1910	1440	1440
		in.lb	12391	17955	16471	16909	12745	12745	12391	17955	16471	16909	12745	12745
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*	6850	8500	8500	8500	6850	6850	6850	8500	8500	8500	6850	6850
		in.lb	60628	75232	75232	75232	60628	60628	60628	75232	75232	75232	60628	60628
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]	n_{1N}	*rpm*	1750	2250	3000	3000	3000	3000	1750	2250	3000	3000	3000	3000
Max. input speed	n_{1Max}	*rpm*	3400	4000	5000	5000	5000	5000	3400	4000	5000	5000	5000	5000
Mean no load running torque [b)] (at n_1 = 2000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*	18	16	12	8.6	8.6	5.8	8.0	7.0	6.0	5.0	4.8	4.2
		in.lb	159	141	107	77	77	51	71	62	53	44	43	37
Max. backlash	j_t	*arcmin*	Standard ≤ 4 / Reduced ≤ 2											
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*	550											
		in.lb/arcmin	4868											
Max. axial force [c)]	F_{2AMax}	*N*	33000						10000					
		lb_f	7425						2250					
Max. lateral force [c)]	F_{2QMax}	*N*	30000						2000					
		lb_f	6750						450					
Max. tilting moment	M_{2KMax}	*Nm*	5000						280					
		in.lb	44254						2478					
Efficiency at full load	η	*%*	98.5						99					
Service life	L_h	*h*	> 30000											
Weight (incl. standard adapter plate)	*m*	*kg*	77											
		lb_m	170.2											
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 65						IP 52					
Metal bellows coupling (recommended product type – validate sizing with cymex®)			BC2-04000AA085.000-X											
Bore diameter of coupling on the application side		*mm*	X = 050.000 - 090.000											
Mass moment of inertia (relates to the drive) O 60 Clamping hub diameter [mm]	J_1	*kgcm²*	260	198	163	138	138	125	260	198	163	138	138	125
		10^{-3} in.lb.s²	230	175	144	122	122	110	230	175	144	122	122	110

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

[a)] At max. 10 % F_{2QMax}
[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)] Smooth shaft

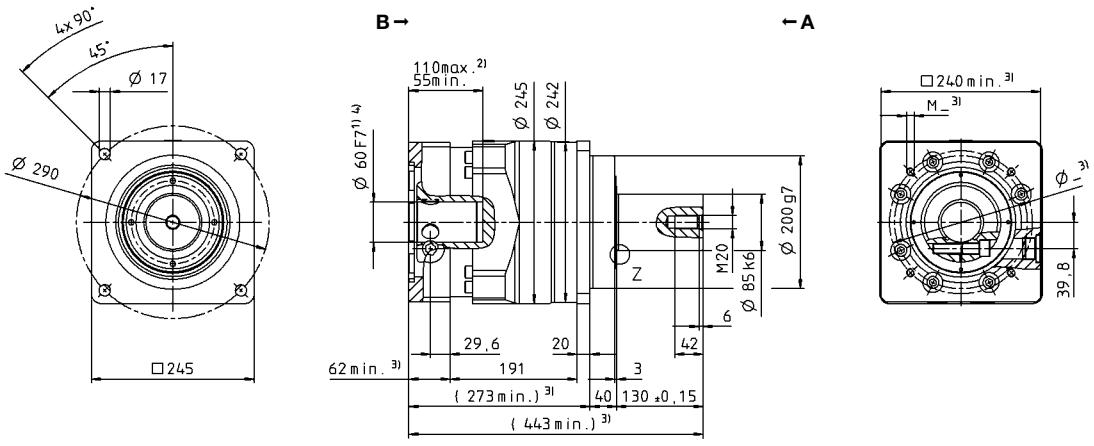
View A

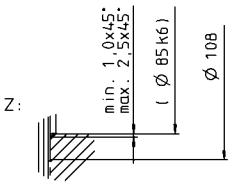
View B

Motor shaft diameter [mm]

1-stage

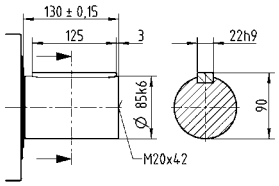
up to 60 [4] (O) [5] clamping hub diameter



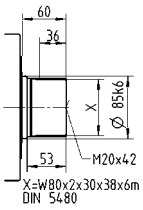


Other output variants

Shaft with key



Splined shaft (DIN 5480)



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**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]		T_{2a}	*Nm*	3500	3500	3600	2900	2900	3600	1680	2100	1800	2700	1800
			in.lb	30978	30978	31863	25667	25667	31863	14869	18587	15931	23897	15931
Max. acceleration torque [b) e)] (max. 1000 cycles per hour)		T_{2B}	*Nm*	3500	3500	3600	2900	2900	3600	1680	2100	1800	2700	1800
			in.lb	30978	30978	31863	25667	25667	31863	14869	18587	15931	23897	15931
Nominal torque (at n_{1N})		T_{2N}	*Nm*	1950	1803	2266	1867	2320	2694	1344	1680	1440	2160	1440
			in.lb	17255	15960	20058	16521	20534	23843	11895	14869	12745	19118	12745
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)		T_{2Not}	*Nm*	8500	8500	8500	8500	8500	8500	8500	8500	6850	8500	6850
			in.lb	75232	75232	75232	75232	75232	75232	75232	75232	60628	75232	60628
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]		n_{1N}	*rpm*	3500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
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 = 2000 rpm and 20 °C gearbox temperature)		T_{012}	*Nm*	4.8	4.4	4.0	3.6	3.6	2.8	2.4	2.0	2.0	1.6	1.4
			in.lb	43	39	35	32	32	25	21	18	18	14	13
Max. backlash		j_t	*arcmin*	Standard ≤ 5 / Reduced ≤ 4										
Torsional rigidity [b)]		C_{t21}	*Nm/arcmin*	550										
			in.lb/arcmin	4868										
Max. axial force [c)]		F_{2AMax}	*N*	33000										
			lb_f	7425										
Max. lateral force [c)]		F_{2QMax}	*N*	30000										
			lb_f	6750										
Max. tilting moment		M_{2KMax}	*Nm*	5000										
			in.lb	44254										
Efficiency at full load		η	*%*	96.5										
Service life		L_h	*h*	> 30000										
Weight (incl. standard adapter plate)		*m*	*kg*	76										
			lb_m	168.0										
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®)				BC2-04000AA085.000-X										
Bore diameter of coupling on the application side			*mm*	X = 050.000 - 090.000										
Mass moment of inertia (relates to the drive)	M	48	J_1	*kgcm²*	34.5	31.5	30.8	30.0	30.0	29.7	28.5	28.3	28.3	28.1	28.0
Clamping hub diameter [mm]				*10^{-3} in.lb.s²*	30.5	27.9	27.3	26.6	26.6	26.3	25.2	25.1	25.1	24.9	24.8

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

[a)] At max. 10 % F_{2QMax}
[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)] Smooth shaft

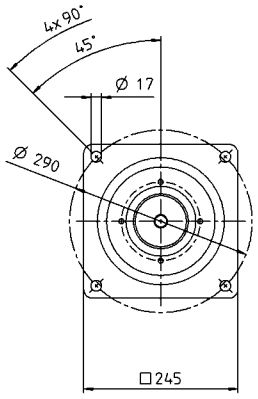
View A

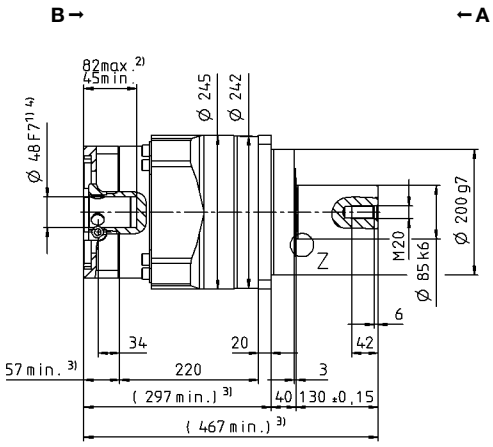
View B

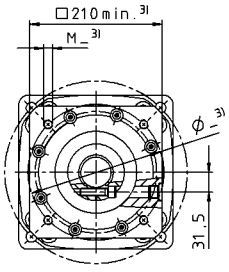
Motor shaft diameter [mm]

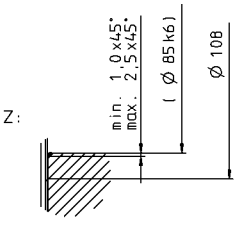
2-stage

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



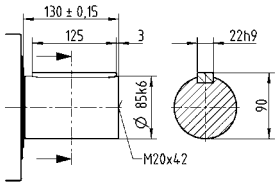




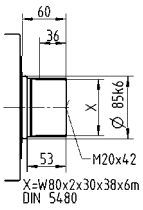


Other output variants

Shaft with key



Splined shaft (DIN 5480)



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[3] The dimensions depend on the motor

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[5] Standard clamping hub diameter