HG+ – Precise hollow shaft solution

HG+

The versatile hypoid gearboxes of the alpha Advanced Line are available with a hollow shaft on one or both sides. With the HG+, the low torsional backlash and high torsional rigidity assure maximum positioning accuracy of the drives and the high precision of machines – even during highly dynamic operation.

Product highlights

Max. torsional backlash [arcmin] ≤ 4

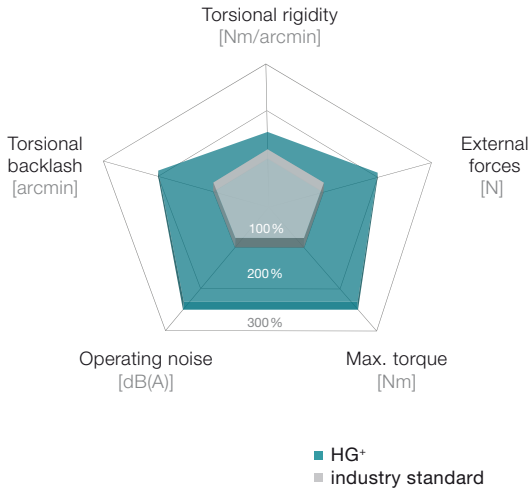
Hollow shaft version

Multiple output configurations for greater flexibility

Extremely smooth-running

Other gearbox models
Corrosion resistant design, ATEX

The HG+ compared to the industry standard



HG+ in corrosion-resistant design

HG+ with hollow shaft on both sides

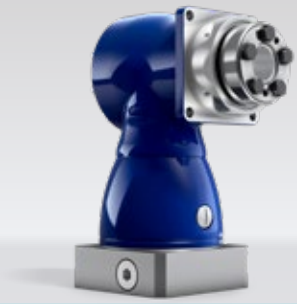
Hollow shaft for feeding through media or establishing a connection to the application

Variable output connection, also rearward

Taper roller bearings for absorbing axial and radial forces

Metal bellows coupling at the input: length compensation to protect the motor bearing

High-quality hypoid gearing for a higher torque and smoother operation



HG⁺ with shrink disk

					1-stage					2-stage									
Ratio			*i*		**3**	**4**	**5**	**7**	**10**	**12**	**16**	**20**	**25**	**28**	**35**	**40**	**50**	**70**	**100**
Max. torque [a) b)]			T_{2a}	*Nm*	36	36	36	25	20	36	36	36	36	36	36	36	36	25	20
				in.lb	319	319	319	221	177	319	319	319	319	319	319	319	319	221	177
Max. acceleration torque [b)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	30	30	30	25	20	30	30	30	30	30	30	30	30	25	20
				in.lb	266	266	266	221	177	266	266	266	266	266	266	266	266	221	177
Nominal torque (at n_{1N})			T_{2N}	*Nm*	22	22	22	20	15	22	22	22	22	22	22	22	22	20	15
				in.lb	195	195	195	177	133	195	195	195	195	195	195	195	195	177	133
Emergency stop torque [a) b)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	40	50	50	45	40	50	50	50	50	50	50	50	50	45	40
				in.lb	354	443	443	398	354	443	443	443	443	443	443	443	443	398	354
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]			n_{1N}	n_{1T}	2500	2700	3000	3000	3000	4400	4400	4400	4400	4400	4400	4400	4800	5500	5500
Max. input speed			n_{1Max}	*rpm*	7500	7500	7500	7500	7500	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*	1.6	1.5	1.2	1.7	1.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
				in.lb	14	13	11	15	13	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Max. backlash			j_t	*arcmin*	Standard ≤ 5														
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	2.2	2.3	2.4	2.2	1.9	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.2	1.9
				in.lb/arcmin	19	20	21	19	17	20	20	20	20	20	20	20	21	19	17
Max. axial force [c)]			F_{2AMax}	*N*	2400														
				lb_f	540														
Max. lateral force [c)]			F_{2QMax}	*N*	2700														
				lb_f	608														
Max. tilting moment			M_{2KMax}	*Nm*	251														
				in.lb	2222														
Efficiency at full load			η	%	96					94									
Service life			L_h	*h*	> 20000														
Weight (incl. standard adapter plate)			*m*	*kg*	2.9					3.2									
				lb_m	6					7									
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	0 to +40														
				F	32 to 104														
Lubrication					Lubricated for life														
Direction of rotation					In- and output opposite direction														
Protection class					IP 65														
Shrink disc (Standard version)					SD 018x044 S2														
Max. torque (without axial force)			T_{max}	*Nm*	100														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	B	11	J_1	*kgcm²*	-	-	-	-	-	0.09	0.09	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06
				10^{-3} *in.lb.s²*	-	-	-	-	-	0.08	0.08	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05
	C	14	J_1	*kgcm²*	0.52	0.44	0.4	0.36	0.34	0.2	0.2	0.19	0.19	0.18	0.18	0.17	0.17	0.17	0.17
				10^{-3} *in.lb.s²*	0.46	0.39	0.35	0.32	0.3	0.18	0.18	0.17	0.17	0.16	0.16	0.15	0.15	0.15	0.15
	E	19	J_1	*kgcm²*	0.87	0.79	0.75	0.71	0.7	-	-	-	-	-	-	-	-	-	-
				10^{-3} *in.lb.s²*	0.77	0.7	0.66	0.63	0.62	-	-	-	-	-	-	-	-	-	-

Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**
Please contact us for optimum sizing at S1 conditions (Continuous operation).

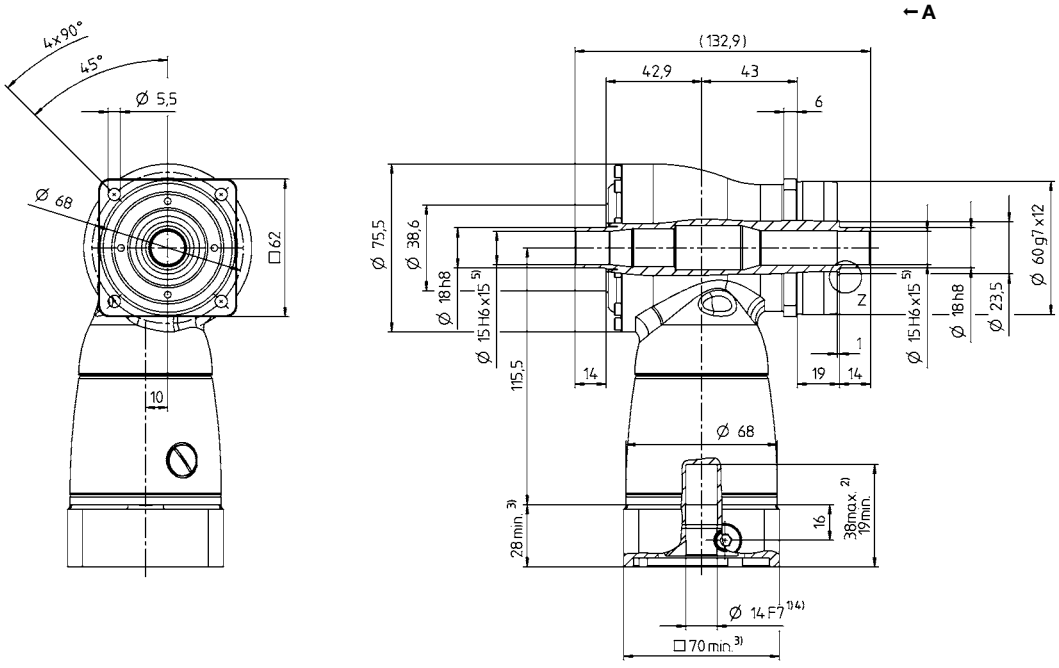
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures

View A

Motor shaft diameter [mm]

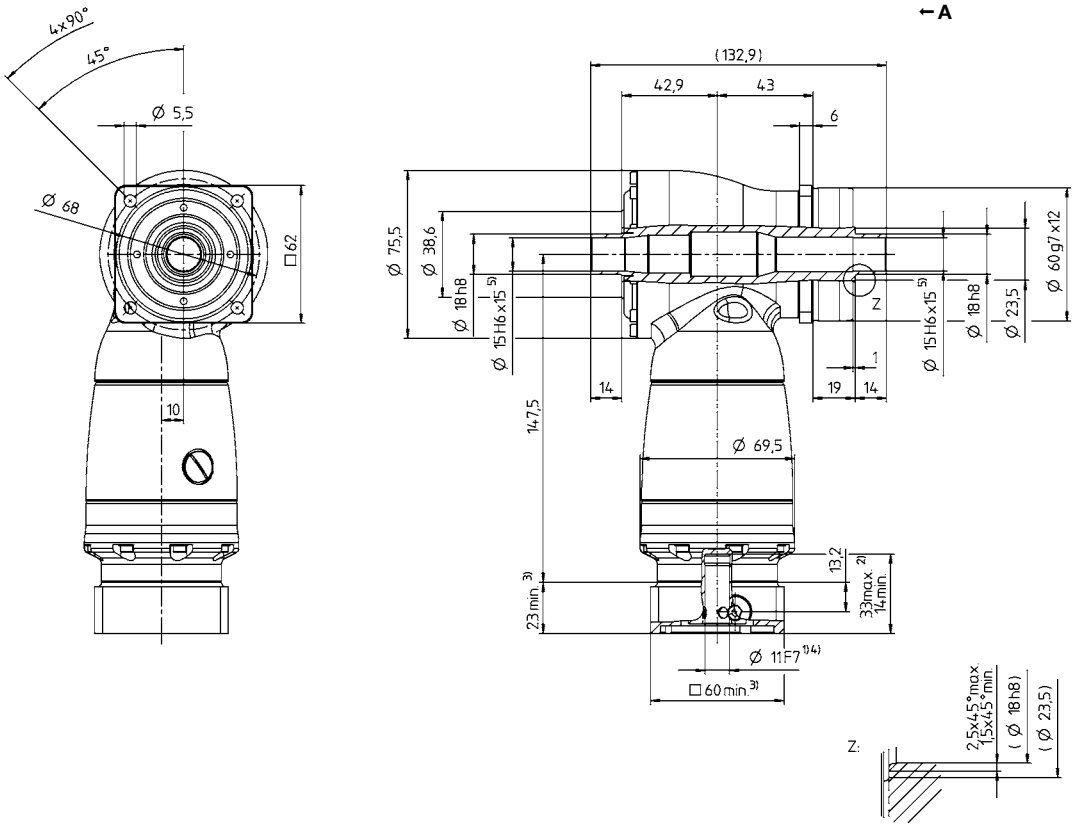
1-stage

up to 14/19 [4] (C [6]/E) clamping hub diameter



2-stage

up to 11/14 [4] (B [6]/C) clamping hub diameter



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

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) Tolerance h6 for mounted shaft.
6) Standard clamping hub diameter

					1-stage					2-stage									
Ratio			*i*		**3**	**4**	**5**	**7**	**10**	**12**	**16**	**20**	**25**	**28**	**35**	**40**	**50**	**70**	**100**
Max. torque [a) b)]			T_{2a}	*Nm*	84	84	84	60	50	84	84	84	84	84	84	84	84	60	50
				in.lb	743	743	743	531	443	743	743	743	743	743	743	743	743	531	443
Max. acceleration torque [b)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	70	70	70	60	50	70	70	70	70	70	70	70	70	60	50
				in.lb	620	620	620	531	443	620	620	620	620	620	620	620	620	531	443
Nominal torque (at n_{1N})			T_{2N}	*Nm*	50	50	50	45	40	50	50	50	50	50	50	50	50	45	40
				in.lb	443	443	443	398	354	443	443	443	443	443	443	443	443	398	354
Emergency stop torque [a) b)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	95	115	115	110	100	115	115	115	115	115	115	115	115	110	100
				in.lb	841	1018	1018	974	885	1018	1018	1018	1018	1018	1018	1018	1018	974	885
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]			n_{1N}	n_{1T}	2300	2500	2800	2800	2800	3500	3500	3500	3500	3500	3500	3500	3800	4500	4500
Max. input speed			n_{1Max}	*rpm*	7500	7500	7500	7500	7500	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*	1.6	1.5	1.2	1.7	1.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
				in.lb	14	13	11	15	13	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Max. backlash			j_t	*arcmin*	Standard ≤ 4														
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	5.3	5.9	6.7	6.6	6.5	5.9	5.9	5.9	5.9	5.9	5.9	5.9	6.7	6.6	6.5
				in.lb/arcmin	47	52	59	58	58	52	52	52	52	52	52	52	59	58	58
Max. axial force [c)]			F_{2AMax}	*N*	3400														
				lb_f	765														
Max. lateral force [c)]			F_{2QMax}	*N*	4000														
				lb_f	900														
Max. tilting moment			M_{2KMax}	*Nm*	437														
				in.lb	3868														
Efficiency at full load			η	%	96					94									
Service life			L_h	*h*	> 20000														
Weight (incl. standard adapter plate)			*m*	*kg*	4.8					5.1									
				lb_m	11					11									
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	0 to +40														
				F	32 to 104														
Lubrication					Lubricated for life														
Direction of rotation					In- and output opposite direction														
Protection class					IP 65														
Shrink disc (Standard version)					SD 024x050 S2														
Max. torque (without axial force)			T_{max}	*Nm*	250														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	*kgcm²*	-	-	-	-	-	0.28	0.27	0.23	0.23	0.2	0.2	0.18	0.18	0.18	0.18
				10^{-3} *in.lb.s²*	-	-	-	-	-	0.25	0.24	0.2	0.2	0.18	0.18	0.16	0.16	0.16	0.16
	E	19	J_1	*kgcm²*	1.46	1.19	1.06	0.95	0.9	0.73	0.71	0.68	0.67	0.63	0.62	0.63	0.63	0.63	0.63
				10^{-3} *in.lb.s²*	1.29	1.05	0.94	0.84	0.8	0.65	0.63	0.6	0.59	0.56	0.55	0.56	0.56	0.56	0.56
	H	28	J_1	*kgcm²*	2.88	2.61	2.47	2.37	2.31	-	-	-	-	-	-	-	-	-	-
				10^{-3} *in.lb.s²*	2.55	2.31	2.19	2.1	2.04	-	-	-	-	-	-	-	-	-	-

Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**
Please contact us for optimum sizing at S1 conditions (Continuous operation).

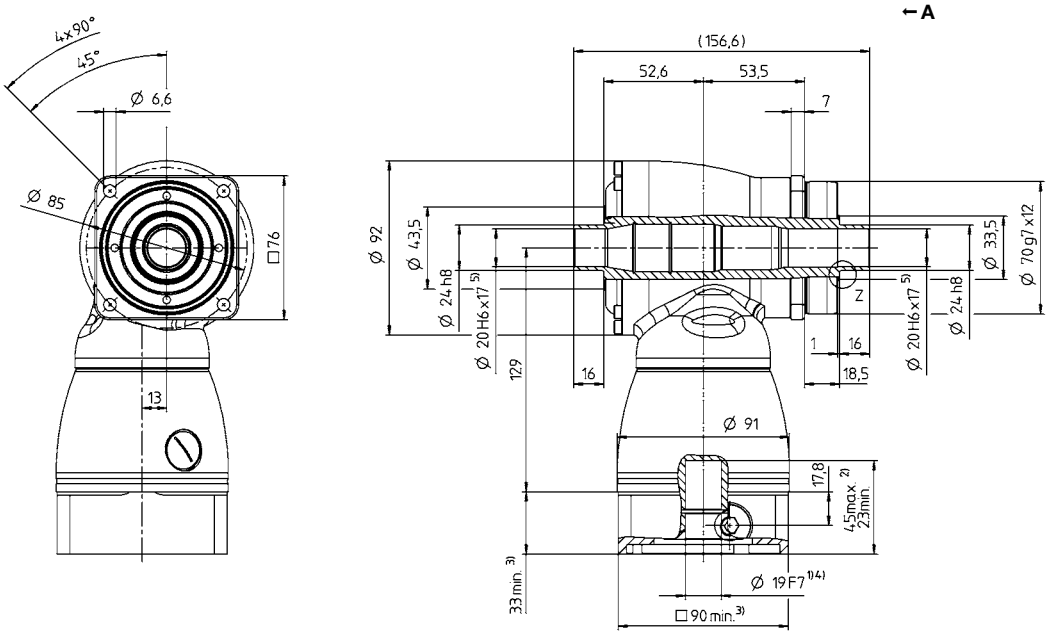
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures

View A

Motor shaft diameter [mm]

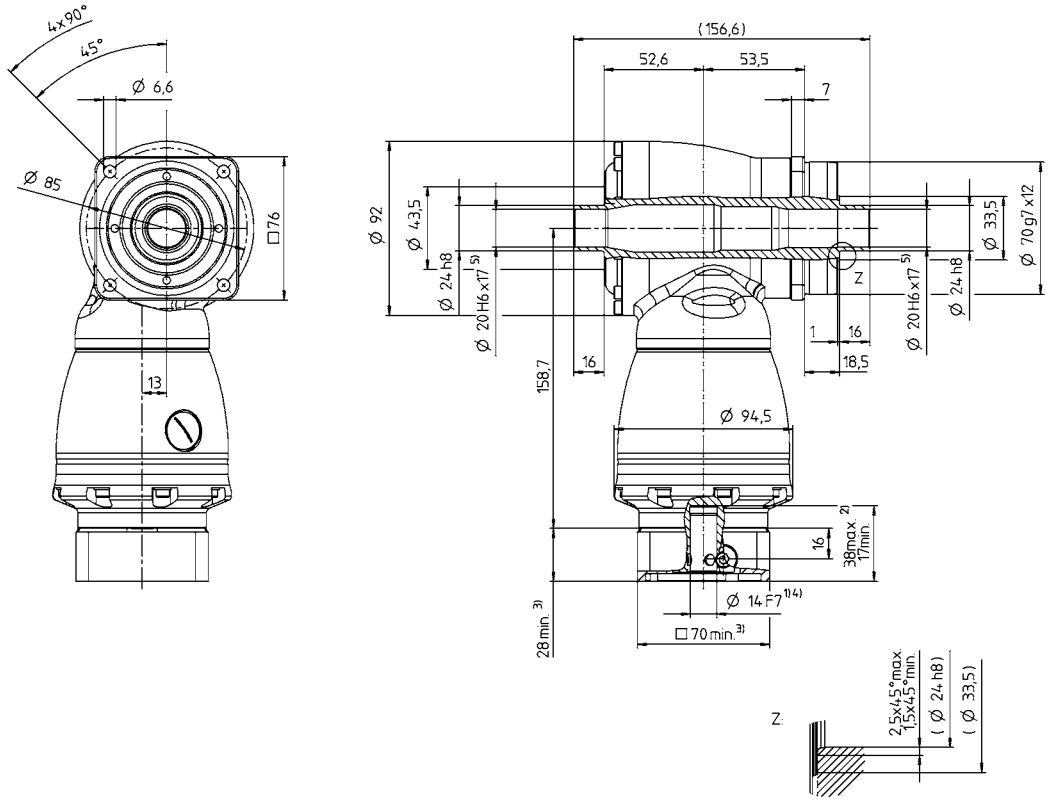
1-stage

up to 19/28 [4]
(E [6]/H) clamping hub diameter



2-stage

up to 14/19 [4]
(C [6]/E) clamping hub diameter



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

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] Tolerance h6 for mounted shaft.
[6] Standard clamping hub diameter

				1-stage					2-stage									
Ratio			*i*	**3**	**4**	**5**	**7**	**10**	**12**	**16**	**20**	**25**	**28**	**35**	**40**	**50**	**70**	**100**
Max. torque [a) b)]			T_{2a}	*Nm*	204	204	204	145	125	204	204	204	204	204	204	204	204	145	125
				in.lb	1806	1806	1806	1283	1106	1806	1806	1806	1806	1806	1806	1806	1806	1283	1106
Max. acceleration torque [b)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	170	170	170	145	125	170	170	170	170	170	170	170	170	145	125
				in.lb	1505	1505	1505	1283	1106	1505	1505	1505	1505	1505	1505	1505	1505	1283	1106
Nominal torque (at n_{1N})			T_{2N}	*Nm*	100	100	100	90	80	100	100	100	100	100	100	100	100	90	80
				in.lb	885	885	885	797	708	885	885	885	885	885	885	885	885	797	708
Emergency stop torque [a) b)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	220	260	260	255	250	260	260	260	260	260	260	260	260	255	250
				in.lb	1947	2301	2301	2257	2213	2301	2301	2301	2301	2301	2301	2301	2301	2257	2213
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]			n_{1N}	n_{1T}	2200	2400	2700	2500	2500	3100	3100	3100	3100	3100	3100	3100	3500	4200	4200
Max. input speed			n_{1Max}	*rpm*	5500	5500	5500	5500	5500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	4.3	3.4	3.2	4.6	3.7	0.7	0.7	0.6	0.4	0.4	0.3	0.2	0.2	0.2	0.2
				in.lb	38	30	28	41	33	6.2	6.2	5.3	3.5	3.5	2.7	1.8	1.8	1.8	1.8
Max. backlash			j_t	*arcmin*	Standard ≤ 4														
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	10.7	12.1	14	14.2	14.4	12.1	12.1	12.1	12.1	12.1	12.1	12.1	14	14.2	14.4
				in.lb/arcmin	95	107	124	126	127	107	107	107	107	107	107	107	124	126	127
Max. axial force [c)]			F_{2AMax}	*N*	5700														
				lb_f	1283														
Max. lateral force [c)]			F_{2QMax}	*N*	6300														
				lb_f	1418														
Max. tilting moment			M_{2KMax}	*Nm*	833														
				in.lb	7373														
Efficiency at full load			η	%	96					94									
Service life			L_h	*h*	> 20000														
Weight (incl. standard adapter plate)			*m*	*kg*	9.3					9.5									
				lb_m	21					21									
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 66														
Max. permitted housing temperature				°C	+90														
				F	194														
Ambient temperature				°C	0 to +40														
				F	32 to 104														
Lubrication					Lubricated for life														
Direction of rotation					In- and output opposite direction														
Protection class					IP 65														
Shrink disc (Standard version)					SD 036x072 S2														
Max. torque (without axial force)			T_{max}	*Nm*	650														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	$kgcm^2$	-	-	-	-	-	1.02	0.97	0.86	0.84	0.75	0.74	0.69	0.69	0.68	0.68
				10^{-3} *in.lb.s²*	-	-	-	-	-	0.9	0.86	0.76	0.74	0.66	0.65	0.61	0.61	0.6	0.6
	G	24	J_1	$kgcm^2$	-	-	-	-	-	2.59	2.54	2.42	2.4	2.31	2.3	2.26	2.25	2.25	2.25
				10^{-3} *in.lb.s²*	-	-	-	-	-	2.29	2.25	2.14	2.12	2.04	2.04	2	1.99	1.99	1.99
	H	28	J_1	$kgcm^2$	4.64	3.8	3.34	2.98	2.79	-	-	-	-	-	-	-	-	-	-
				10^{-3} *in.lb.s²*	4.11	3.36	2.96	2.64	2.47	-	-	-	-	-	-	-	-	-	-
	K	38	J_1	$kgcm^2$	11.9	11	10.6	10.2	10	-	-	-	-	-	-	-	-	-	-
				10^{-3} *in.lb.s²*	10.53	9.74	9.38	9.03	8.85	-	-	-	-	-	-	-	-	-	-

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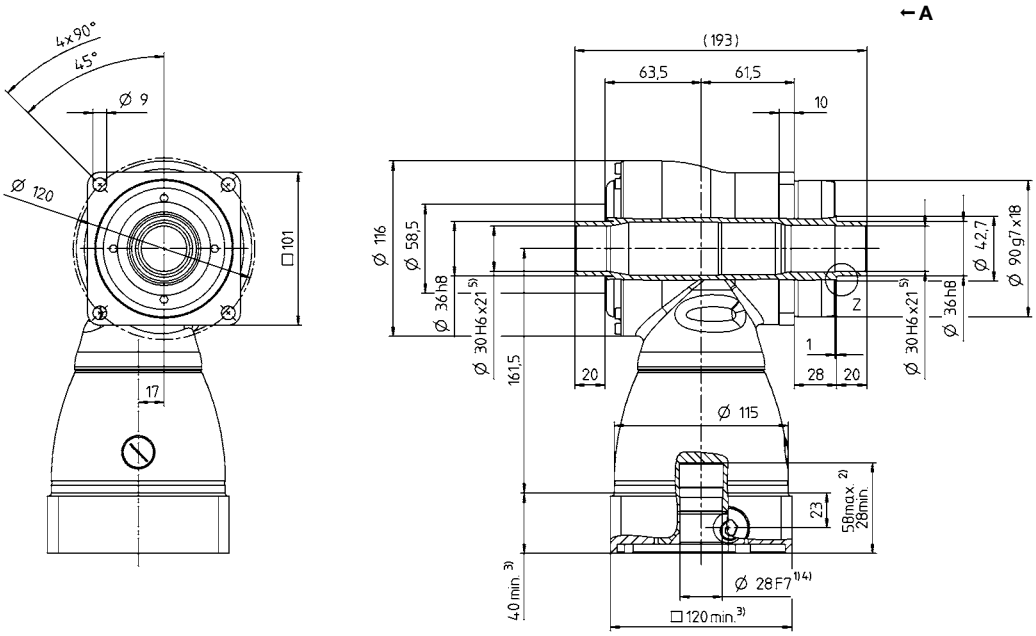
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures

View A

Motor shaft diameter [mm]

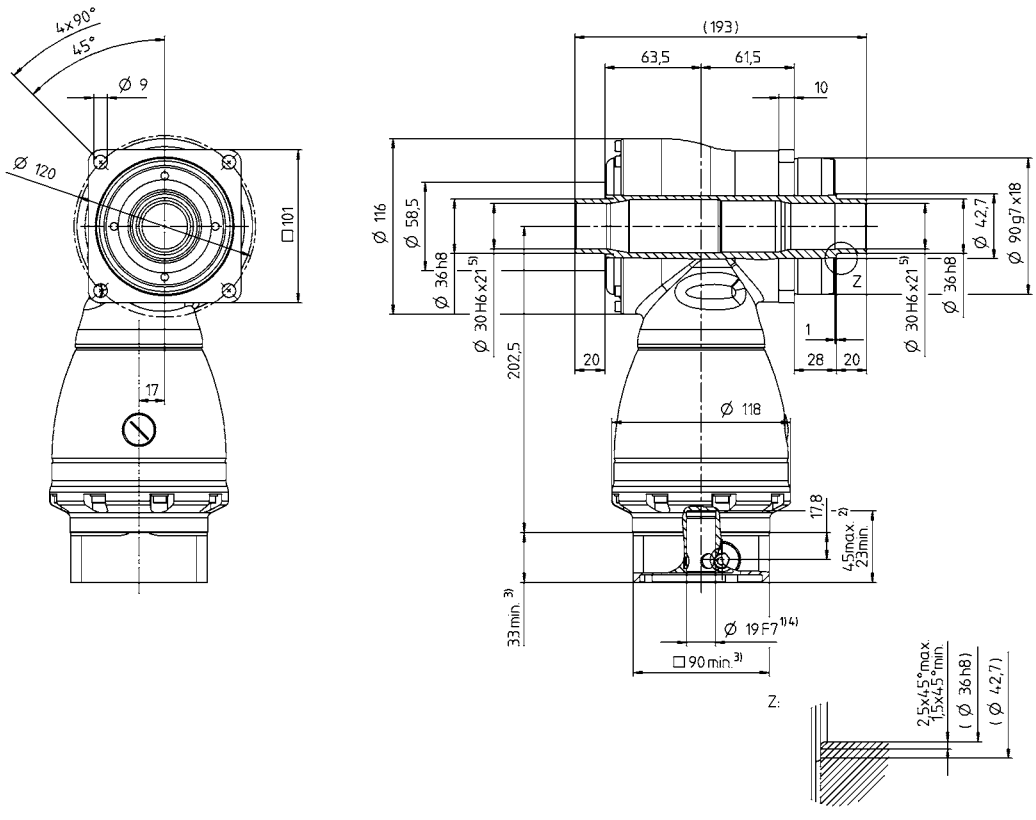
1-stage

up to 28/38 [4] (H [6]/K) clamping hub diameter



2-stage

up to 19/24 [4] (E [6]/G) clamping hub diameter



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

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) Tolerance h6 for mounted shaft.
6) Standard clamping hub diameter

				1-stage					2-stage									
Ratio			*i*	**3**	**4**	**5**	**7**	**10**	**12**	**16**	**20**	**25**	**28**	**35**	**40**	**50**	**70**	**100**
Max. torque [a) b)]			*Nm*	360	360	360	250	210	360	360	360	360	360	360	360	360	250	210
			T_{2a}	*in.lb*	3186	3186	3186	2213	1859	3186	3186	3186	3186	3186	3186	3186	3186	2213	1859
Max. acceleration torque [b)] (max. 1000 cycles per hour)			*Nm*	300	300	300	250	210	300	300	300	300	300	300	300	300	250	210
			T_{2B}	*in.lb*	2655	2655	2655	2213	1859	2655	2655	2655	2655	2655	2655	2655	2655	2213	1859
Nominal torque (at n_{1N})			*Nm*	190	190	190	175	160	190	190	190	190	190	190	190	190	175	160
			T_{2N}	*in.lb*	1682	1682	1682	1549	1416	1682	1682	1682	1682	1682	1682	1682	1682	1549	1416
Emergency stop torque [a) b)] (permitted 1000 times during the service life of the gearbox)			*Nm*	400	500	500	450	400	500	500	500	500	500	500	500	500	450	400
			T_{2Not}	*in.lb*	3540	4425	4425	3983	3540	4425	4425	4425	4425	4425	4425	4425	4425	3983	3540
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]			n_{1N}	n_{1T}	1900	2000	2200	2000	2000	2900	2900	2900	2900	2900	2900	2900	3200	3200	3900
Max. input speed			n_{1Max}	*rpm*	5000	5000	5000	5000	5000	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			*Nm*	10	7.6	7.9	11	7.9	1.5	1	0.8	0.6	0.6	0.4	0.4	0.3	0.3	0.3
			T_{012}	*in.lb*	89	67	70	97	70	13	8.9	7.1	5.3	5.3	3.5	3.5	2.7	2.7	2.7
Max. backlash			j_t	*arcmin*	Standard ≤ 4														
Torsional rigidity [b)]			*Nm/arcmin*	32	36	41	39	38	36	36	36	36	36	36	36	41	39	38
			C_{t21}	*in.lb/arcmin*	283	319	363	345	336	319	319	319	319	319	319	363	345	336
Max. axial force [c)]			F_{2AMax}	*N*	9900														
				lb_f	2228														
Max. lateral force [c)]			F_{2QMax}	*N*	9500														
				lb_f	2138														
Max. tilting moment			M_{2KMax}	*Nm*	1692														
				in.lb	14976														
Efficiency at full load			η	%	96					94									
Service life			L_h	*h*	> 20000														
Weight (incl. standard adapter plate)			*m*	*kg*	22.6					24									
				lb_m	50					53									
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 68														
Max. permitted housing temperature				°C	+90														
				F	194														
Ambient temperature				°C	0 to +40														
				F	32 to 104														
Lubrication					Lubricated for life														
Direction of rotation					In- and output opposite direction														
Protection class					IP 65														
Shrink disc (Standard version)					SD 050x090 S2														
Max. torque (without axial force)			T_{max}	*Nm*	1320														
Mass moment of inertia (relates to the drive)	G	24	J_1	$kgcm^2$	-	-	-	-	-	4.2	3.84	3.27	3.16	2.78	2.73	2.48	2.46	2.43	2.42
				10^{-3} *in.lb.s²*	-	-	-	-	-	3.72	3.4	2.89	2.8	2.46	2.42	2.19	2.18	2.15	2.14
Clamping hub diameter [mm]	K	38	J_1	$kgcm^2$	25	19.1	16.3	14.1	12.8	11.1	10.7	10.2	10.1	9.69	9.64	9.39	9.37	9.34	9.33
				10^{-3} *in.lb.s²*	22.13	16.9	14.43	12.48	11.33	9.82	9.47	9.03	8.94	8.58	8.53	8.31	8.29	8.27	8.26

Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**
Please contact us for optimum sizing at S1 conditions (Continuous operation).

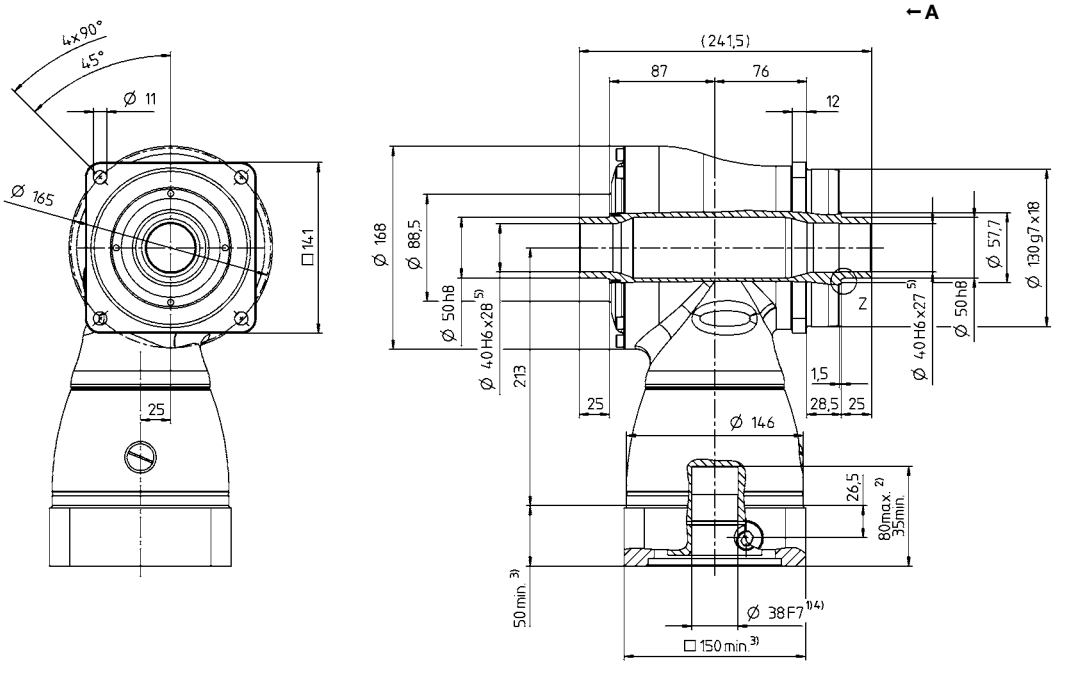
[a)] At max. 10 % F_{2QMax}
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures

View A

Motor shaft diameter [mm]

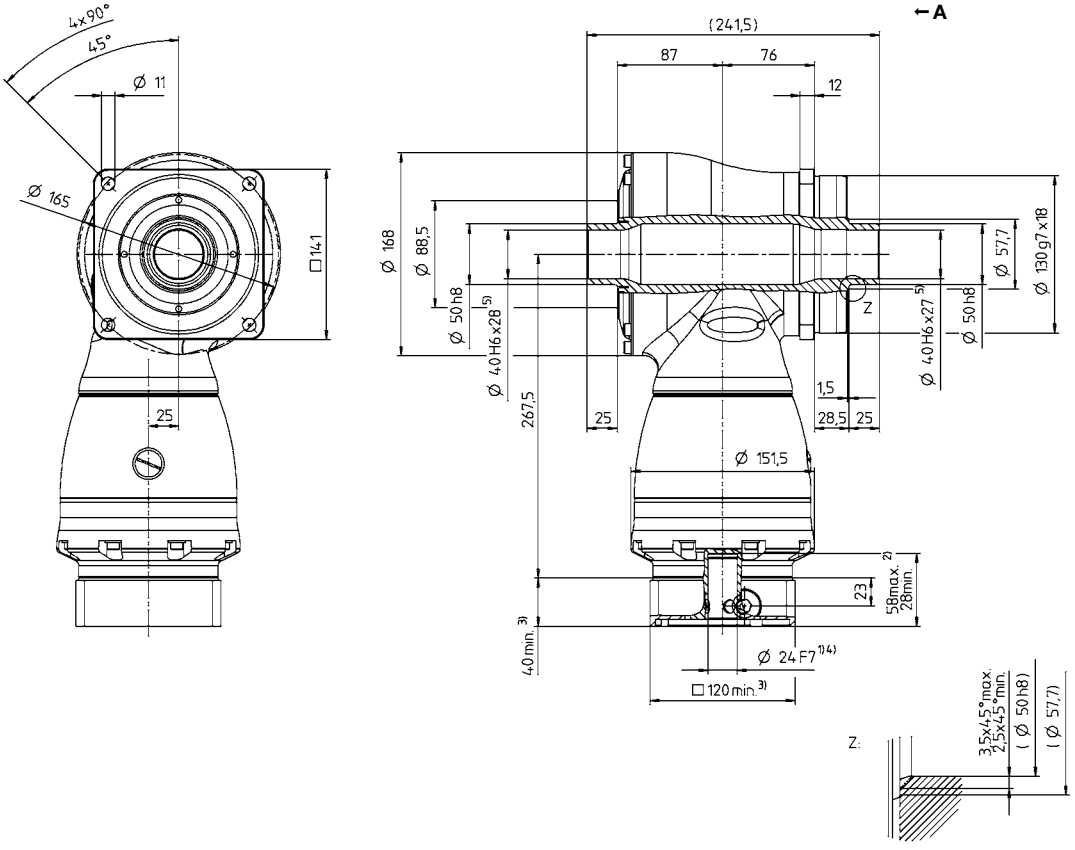
1-stage

up to 38 [4] (K) [6] clamping hub diameter



2-stage

up to 24/38 [4] (G/K) [6] clamping hub diameter



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

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] Tolerance h6 for mounted shaft.
[6] Standard clamping hub diameter

				1-stage					2-stage									
Ratio		*i*		**3**	**4**	**5**	**7**	**10**	**12**	**16**	**20**	**25**	**28**	**35**	**40**	**50**	**70**	**100**
Max. torque [a) b)]		T_{2a}	*Nm*	768	768	768	550	470	768	768	768	768	768	768	768	768	550	470
			in.lb	6797	6797	6797	4868	4160	6797	6797	6797	6797	6797	6797	6797	6797	4868	4160
Max. acceleration torque [b)] (max. 1000 cycles per hour)		T_{2B}	*Nm*	640	640	640	550	470	640	640	640	640	640	640	640	640	550	470
			in.lb	5665	5665	5665	4868	4160	5665	5665	5665	5665	5665	5665	5665	5665	4868	4160
Nominal torque (at n_{1N})		T_{2N}	*Nm*	400	400	400	380	360	400	400	400	400	400	400	400	400	380	360
			in.lb	3540	3540	3540	3363	3186	3540	3540	3540	3540	3540	3540	3540	3540	3363	3186
Emergency stop torque [a) b)] (permitted 1000 times during the service life of the gearbox)		T_{2Not}	*Nm*	900	1050	1050	970	900	1050	1050	1050	1050	1050	1050	1050	1050	970	900
			in.lb	7966	9293	9293	8585	7966	9293	9293	9293	9293	9293	9293	9293	9293	8585	7966
Permitted average input speed (at T_{2N} and 20 °C ambient temperature) [d)]		n_{1N}	n_{1T}	1600	1800	2000	1800	1800	2700	2700	2700	2700	2700	2700	2700	2900	3200	3400
Max. input speed		n_{1Max}	*rpm*	4500	4500	4500	4500	4500	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)		T_{012}	*Nm*	21	17	16	19	16	3.3	2.5	2	1.8	1.4	1.3	1	1	1	1
			in.lb	186	150	142	168	142	29	22	18	16	12	12	8.9	8.9	8.9	8.9
Max. backlash		j_t	*arcmin*	Standard ≤ 4														
Torsional rigidity [b)]		C_{t21}	*Nm/arcmin*	71	80	91	89	88	80	80	80	80	80	80	80	91	89	88
			in.lb/arcmin	628	708	805	788	779	708	708	708	708	708	708	708	805	788	779
Max. axial force [c)]		F_{2AMax}	*N*	14200														
			lb_f	3195														
Max. lateral force [c)]		F_{2QMax}	*N*	14700														
			lb_f	3308														
Max. tilting moment		M_{2KMax}	*Nm*	3213														
			in.lb	28438														
Efficiency at full load		η	*%*	96					94									
Service life		L_h	*h*	> 20000														
Weight (incl. standard adapter plate)		*m*	*kg*	45.4					47									
			lb_m	100					104									
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)		L_{PA}	*dB(A)*	≤ 68														
Max. permitted housing temperature			*°C*	+90														
			F	194														
Ambient temperature			*°C*	0 to +40														
			F	32 to 104														
Lubrication				Lubricated for life														
Direction of rotation				In- and output opposite direction														
Protection class				IP 65														
Shrink disc (Standard version)				SD 068x115 S2														
Max. torque (without axial force)		T_{max}	*Nm*	2450														
Mass moment of inertia (relates to the drive)	K	38	J_1	*kgcm²*	-	-	-	-	-	15.3	14	12.3	12	10.9	10.7	10.1	10	9.95	9.91
				10^{-3} in.lb.s²	-	-	-	-	-	13.54	12.39	10.89	10.62	9.65	9.47	8.94	8.85	8.81	8.77
Clamping hub diameter [mm]	M	48	J_1	*kgcm²*	73.3	51.6	42.1	34	29.7	30	28.7	27.1	26.7	25.6	25.4	24.8	24.7	24.7	24.6
				10^{-3} in.lb.s²	64.87	45.67	37.26	30.09	26.28	26.55	25.4	23.98	23.63	22.66	22.48	21.95	21.86	21.86	21.77

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[b)] Valid for standard clamping hub diameter
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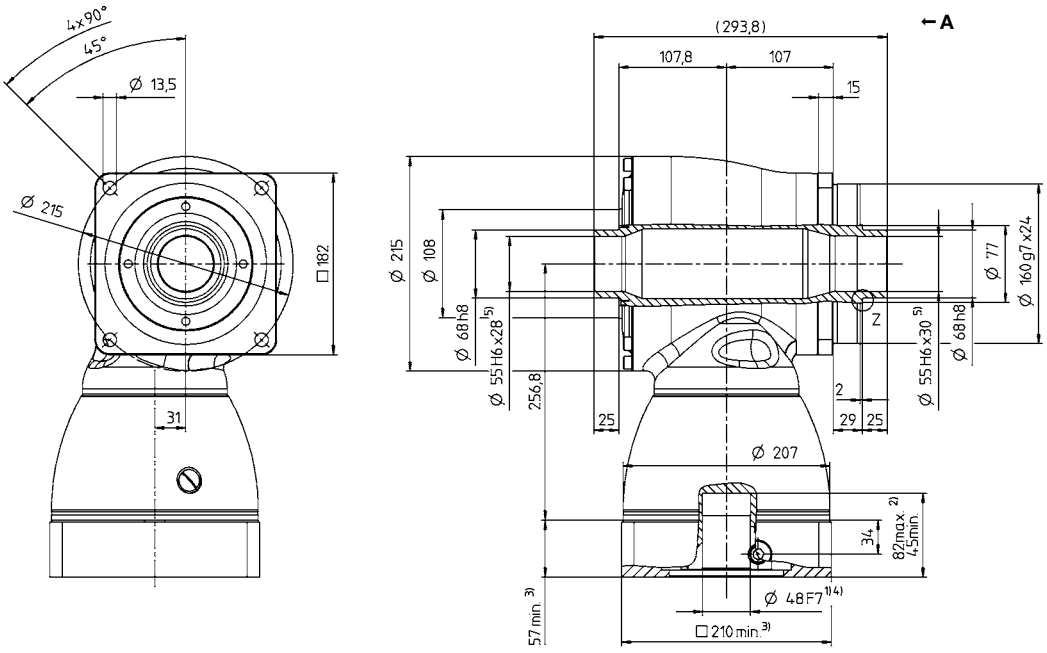
[d)] Please reduce input speed at higher ambient temperatures

View A

Motor shaft diameter [mm]

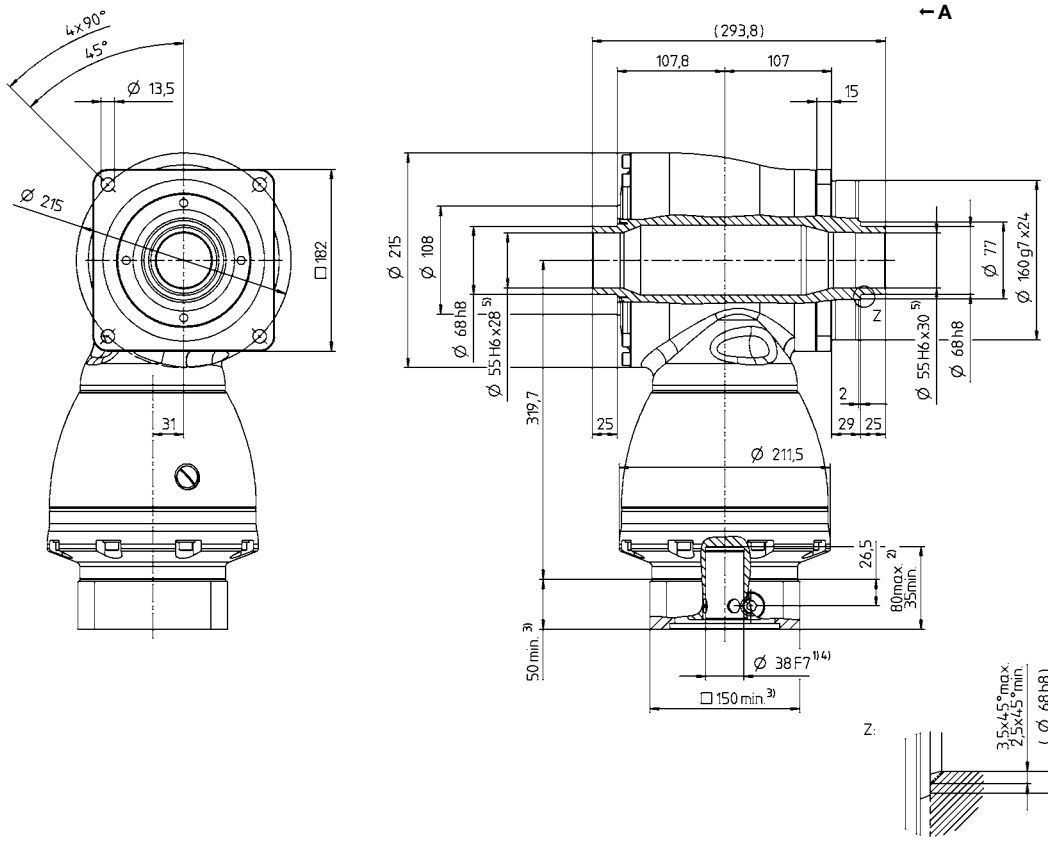
1-stage

up to 48 [4] (M) [6] clamping hub diameter



2-stage

up to 38/48 [4] (K [6]/M) clamping hub diameter



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

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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) Tolerance h6 for mounted shaft.
6) Standard clamping hub diameter