

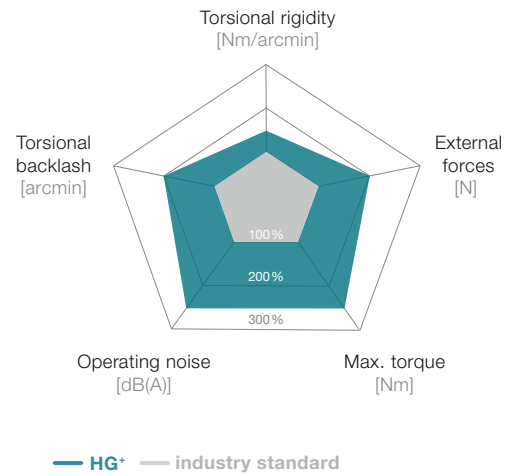
# HG+ – Precise hollow shaft solution



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.

The HG+ compared to the industry standard



**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



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

# HG+ 060 MF 1-/2-stage

			1-stage					2-stage										
Ratio	<i>i</i>		3	4	5	7	10	12	16	20	25	28	35	40	50	70	100	
Max. torque <sup>a) b)</sup>	$T_{2a}$	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	319	221	177
Max. acceleration torque <sup>b)</sup> (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	266	221	177
Nominal torque (at $n_n$ )	$T_{2N}$	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	195	177	133
Emergency stop torque <sup>a) b)</sup> (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	443	398	354
Permitted average input speed (at $T_{2a}$ and 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	$n_{1T}$	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 <sup>b)</sup> (at $n_i = 3000$ 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 <sup>b)</sup>	$C_{t21}$	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	20	21	19	17
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N	2400															
		lb <sub>f</sub>	540															
Max. lateral force <sup>c)</sup>	$F_{2QMax}$	N	2700															
		lb <sub>f</sub>	608															
Max. tilting moment	$M_{2KMax}$	Nm	251															
		in.lb	2222															
Efficiency at full load	$\eta$	%	96					94										
Service life <sup>f)</sup>	$L_h$	h	> 20000															
Weight (incl. standard adapter plate)	$m$	kg	2.9					3.2										
		lb <sub>m</sub>	6					7										
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	≤ 64															
		°C	+90															
Max. permitted housing temperature	$F$	°C	194															
		°C	0 to +40															
Ambient temperature	$F$	°C	32 to 104															
		°C	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	$J_i$	kgcm <sup>2</sup>	-	-	-	-	-	0.09	0.09	0.07	0.07	0.06	0.06	0.06	0.06	
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	0.08	0.08	0.06	0.06	0.05	0.05	0.05	0.05	0.05
	C	14	$J_i$	kgcm <sup>2</sup>	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
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	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
	E	19	$J_i$	kgcm <sup>2</sup>	0.87	0.79	0.75	0.71	0.7	-	-	-	-	-	-	-	-	-
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	0.77	0.7	0.66	0.63	0.62	-	-	-	-	-	-	-	-	-

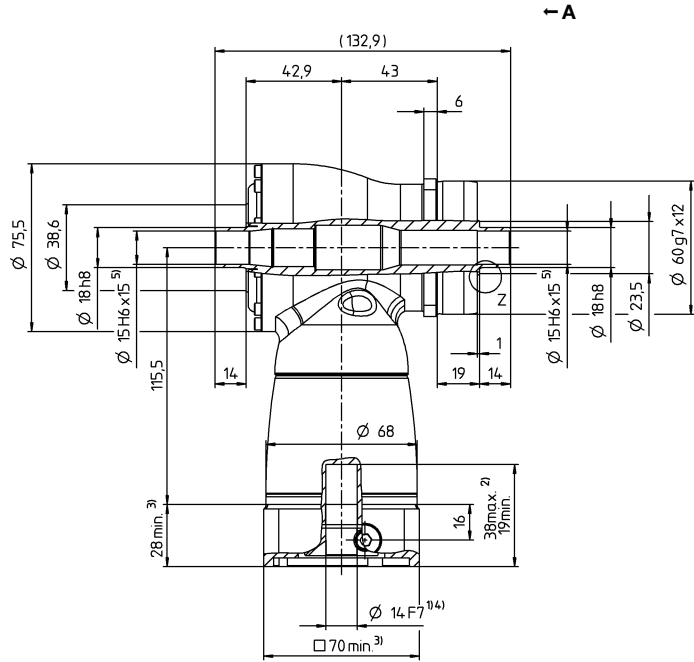
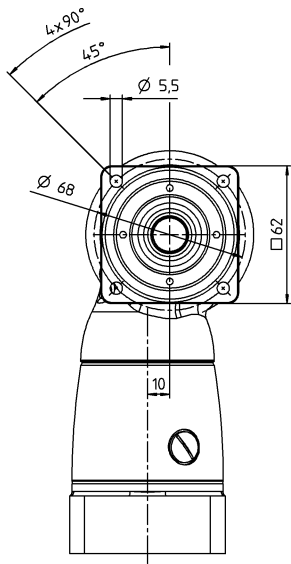
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Please contact us for optimum sizing at S1 conditions (Continuous operation).

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

View A

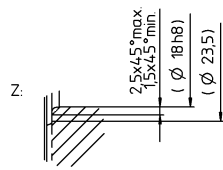
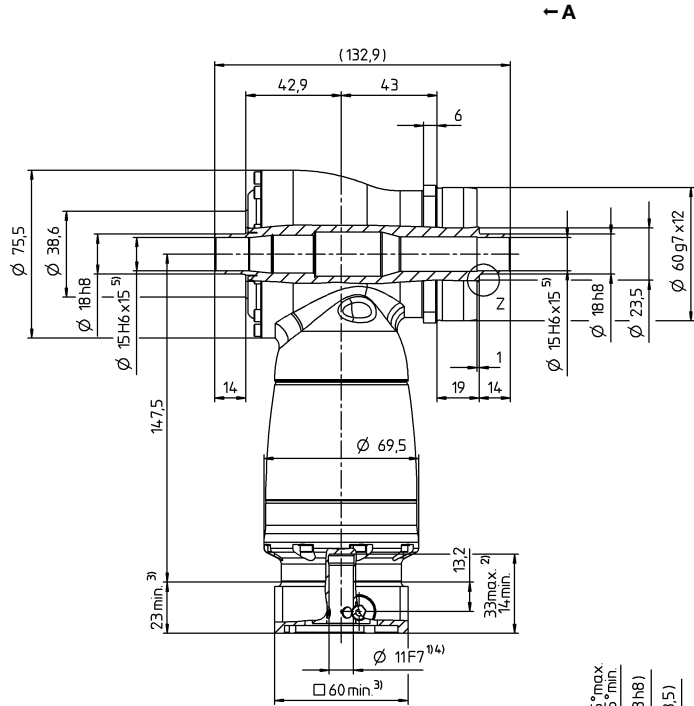
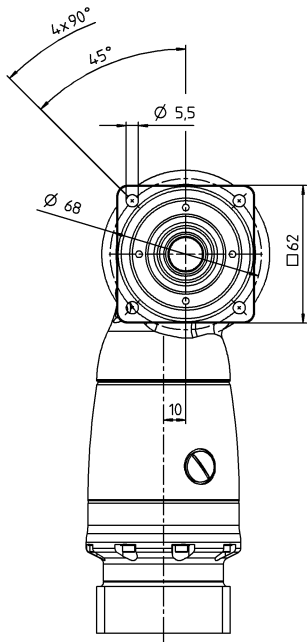
# 1-stage

up to 14/19<sup>4)</sup>  
(C<sup>6)</sup>/E) clamping  
hub diameter



# 2-stage

up to 11/14<sup>4)</sup>  
(B<sup>6)</sup>/C) clamping  
hub diameter



Motor shaft diameter [mm]

Hypoid gearboxes

HG<sup>+</sup>

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

Non-tolerated dimensions are nominal dimensions  
<sup>1)</sup> Check motor shaft fit  
<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.  
<sup>3)</sup> The dimensions depend on the motor  
<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm  
<sup>5)</sup> Tolerance h6 for mounted shaft.  
<sup>6)</sup> Standard clamping hub diameter

# HG+ 075 MF 1-/2-stage

			1-stage					2-stage											
Ratio	<i>i</i>		3	4	5	7	10	12	16	20	25	28	35	40	50	70	100		
Max. torque <sup>a) b)</sup>	$T_{2a}$	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	743	531	443	
Max. acceleration torque <sup>b)</sup> (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	620	531	443	
Nominal torque (at $n_n$ )	$T_{2N}$	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	443	398	354	
Emergency stop torque <sup>a) b)</sup> (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 $T_{2a}$ and 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	$n_{1T}$	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 <sup>b)</sup> (at $n_i = 3000$ 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 $\leq 4$																
Torsional rigidity <sup>b)</sup>	$C_{t21}$	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 <sup>c)</sup>	$F_{2AMax}$	N	3400																
		lb <sub>f</sub>	765																
Max. lateral force <sup>c)</sup>	$F_{2QMax}$	N	4000																
		lb <sub>f</sub>	900																
Max. tilting moment	$M_{2KMax}$	Nm	437																
		in.lb	3868																
Efficiency at full load	$\eta$	%	96					94											
Service life <sup>f)</sup>	$L_h$	h	> 20000																
Weight (incl. standard adapter plate)	$m$	kg	4.8					5.1											
		lb <sub>m</sub>	11					11											
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	$\leq 66$																
		°C	+90																
Max. permitted housing temperature	$F$	°C	194																
		F	0 to +40																
Ambient temperature	$F$	°C	32 to 104																
		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	$J_1$	kgcm <sup>2</sup>	-	-	-	-	-	0.28	0.27	0.23	0.23	0.2	0.2	0.18	0.18	0.18	
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	0.25	0.24	0.2	0.2	0.18	0.18	0.16	0.16	0.16	0.16
	E	19	$J_1$	kgcm <sup>2</sup>	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 <sup>-3</sup> in.lb.s <sup>2</sup>	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	$J_1$	kgcm <sup>2</sup>	2.88	2.61	2.47	2.37	2.31	-	-	-	-	-	-	-	-	-	-
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	2.55	2.31	2.19	2.1	2.04	-	-	-	-	-	-	-	-	-	-

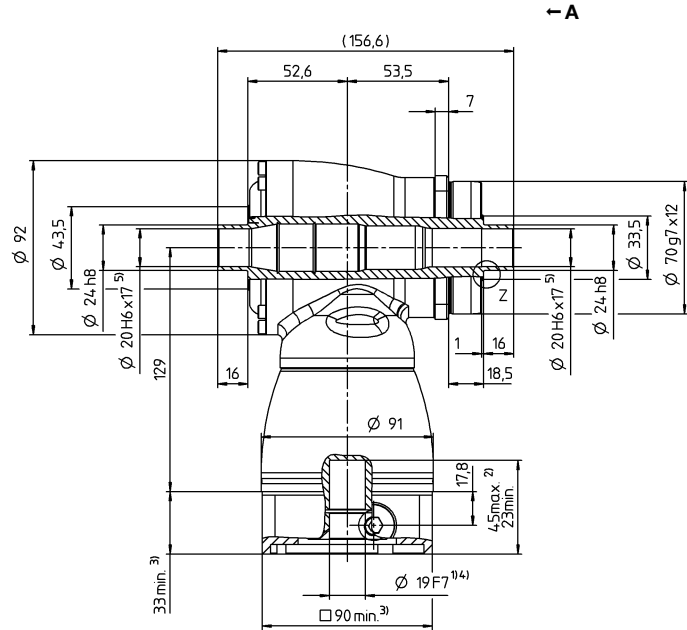
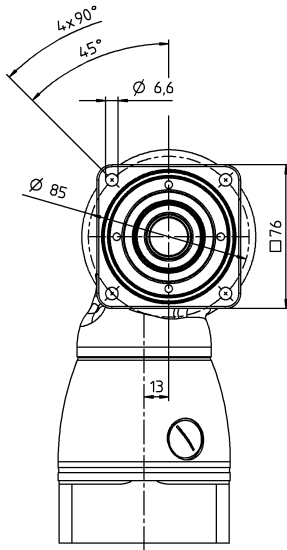
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Please contact us for optimum sizing at S1 conditions (Continuous operation).

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

View A

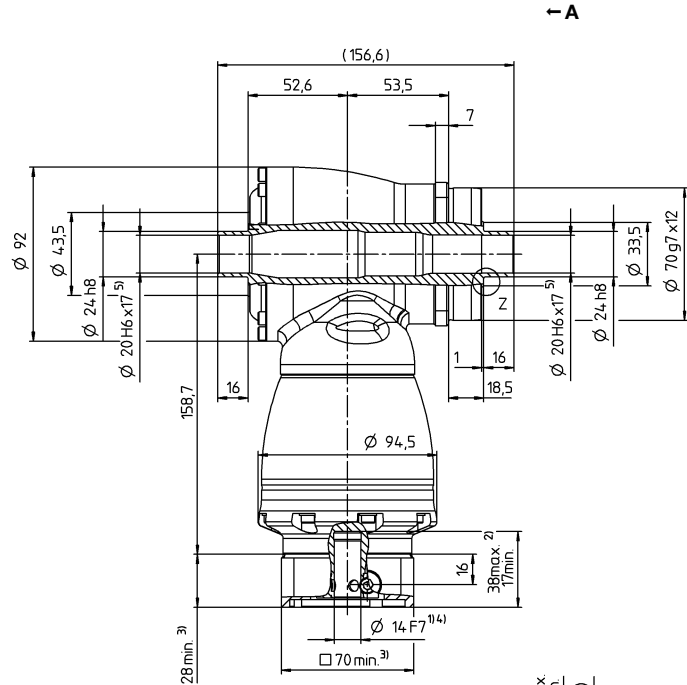
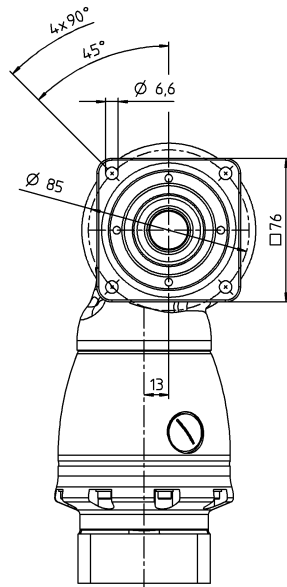
# 1-stage

up to 19/28<sup>4)</sup>  
(E<sup>6)</sup>/H) clamping  
hub diameter



# 2-stage

up to 14/19<sup>4)</sup>  
(C<sup>6)</sup>/E) clamping  
hub diameter



Motor shaft diameter [mm]

Hypoid gearboxes

HG<sup>+</sup>

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

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm

<sup>5)</sup> Tolerance h6 for mounted shaft.

<sup>6)</sup> Standard clamping hub diameter

# HG+ 100 MF 1-/2-stage

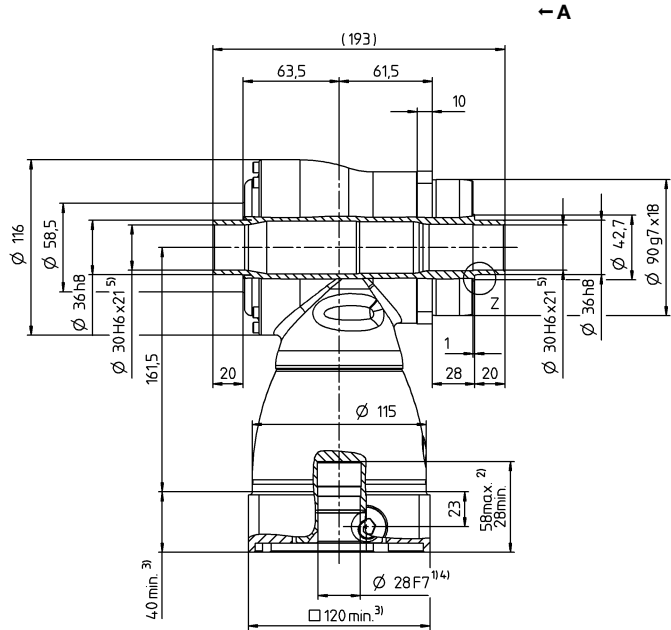
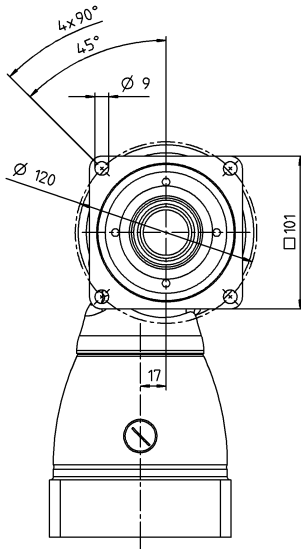
			1-stage					2-stage										
Ratio	<i>i</i>		3	4	5	7	10	12	16	20	25	28	35	40	50	70	100	
Max. torque <sup>a) b)</sup>	$T_{2a}$	Nm	204	204	204	145	125	204	204	204	204	204	204	204	204	145	125	
		in.lb	1806	1806	1806	1283	1106	1806	1806	1806	1806	1806	1806	1806	1806	1806	1283	1106
Max. acceleration torque <sup>b)</sup> (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	1505	1283	1106
Nominal torque (at $n_n$ )	$T_{2N}$	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	885	797	708
Emergency stop torque <sup>a) b)</sup> (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	260	255	250
		in.lb	1947	2301	2301	2257	2213	2301	2301	2301	2301	2301	2301	2301	2301	2301	2257	2213
Permitted average input speed (at $T_{2a}$ and 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	$n_{1T}$	2200	2400	2700	2500	2500	3100	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	4500
Mean no load running torque <sup>b)</sup> (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	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	1.8
Max. backlash	$j_t$	arcmin	Standard $\leq 4$															
Torsional rigidity <sup>b)</sup>	$C_{t21}$	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 <sup>c)</sup>	$F_{2AMax}$	N	5700															
		lb <sub>f</sub>	1283															
Max. lateral force <sup>c)</sup>	$F_{2QMax}$	N	6300															
		lb <sub>f</sub>	1418															
Max. tilting moment	$M_{2KMax}$	Nm	833															
		in.lb	7373															
Efficiency at full load	$\eta$	%	96					94										
Service life <sup>f)</sup>	$L_h$	h	> 20000															
Weight (incl. standard adapter plate)	$m$	kg	9.3					9.5										
		lb <sub>m</sub>	21					21										
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	$\leq 66$															
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 <sup>2</sup>	-	-	-	-	-	1.02	0.97	0.86	0.84	0.75	0.74	0.69	0.69	0.68	0.68
			10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	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 <sup>2</sup>	-	-	-	-	-	2.59	2.54	2.42	2.4	2.31	2.3	2.26	2.25	2.25	2.25
			10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	2.29	2.25	2.14	2.12	2.04	2.04	2	1.99	1.99	1.99
	H 28	$J_1$	kgcm <sup>2</sup>	4.64	3.8	3.34	2.98	2.79	-	-	-	-	-	-	-	-	-	-
			10 <sup>-3</sup> in.lb.s <sup>2</sup>	4.11	3.36	2.96	2.64	2.47	-	-	-	-	-	-	-	-	-	-
	K 38	$J_1$	kgcm <sup>2</sup>	11.9	11	10.6	10.2	10	-	-	-	-	-	-	-	-	-	-
			10 <sup>-3</sup> in.lb.s <sup>2</sup>	10.53	9.74	9.38	9.03	8.85	-	-	-	-	-	-	-	-	-	-

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

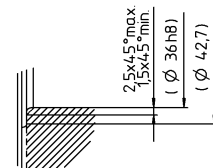
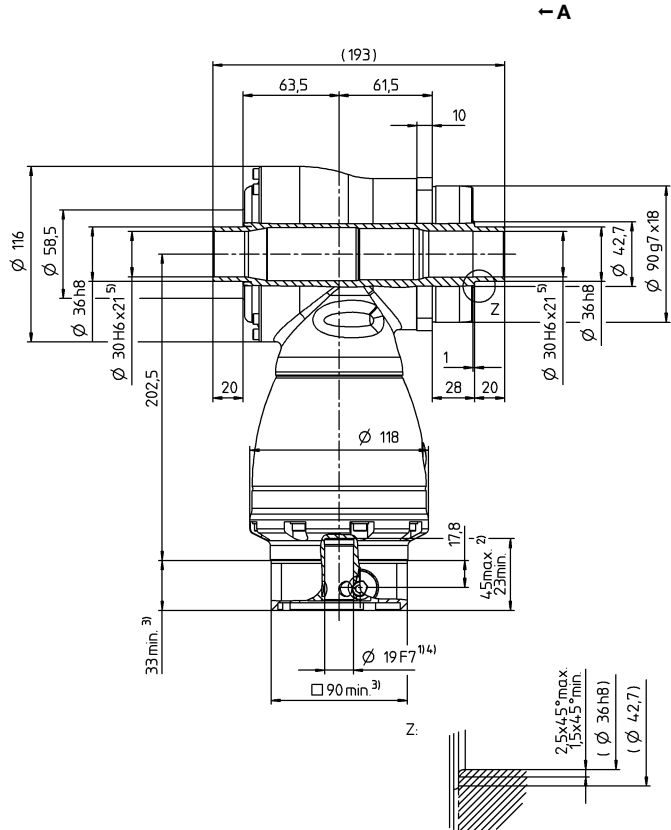
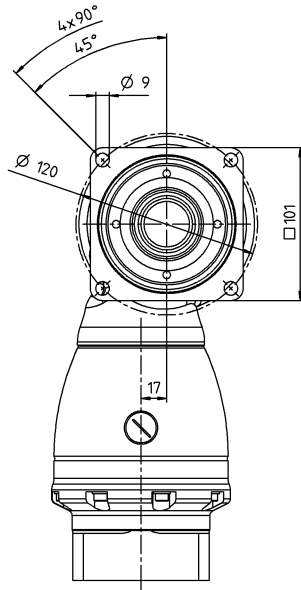
# 1-stage

up to 28/38<sup>4)</sup>  
(H<sup>6)</sup>/K) clamping  
hub diameter



# 2-stage

up to 19/24<sup>4)</sup>  
(E<sup>6)</sup>/G) clamping  
hub diameter



Motor shaft diameter [mm]

Hypoid gearboxes

HG<sup>+</sup>

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

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm

<sup>5)</sup> Tolerance h6 for mounted shaft.

<sup>6)</sup> Standard clamping hub diameter



# HG+ 140 MF 1-/2-stage

			1-stage					2-stage											
Ratio	<i>i</i>		3	4	5	7	10	12	16	20	25	28	35	40	50	70	100		
Max. torque <sup>a) b)</sup>	$T_{2a}$	Nm	360	360	360	250	210	360	360	360	360	360	360	360	360	250	210		
		in.lb	3186	3186	3186	2213	1859	3186	3186	3186	3186	3186	3186	3186	3186	2213	1859		
Max. acceleration torque <sup>b)</sup> (max. 1000 cycles per hour)	$T_{2B}$	Nm	300	300	300	250	210	300	300	300	300	300	300	300	300	250	210		
		in.lb	2655	2655	2655	2213	1859	2655	2655	2655	2655	2655	2655	2655	2655	2213	1859		
Nominal torque (at $n_n$ )	$T_{2N}$	Nm	190	190	190	175	160	190	190	190	190	190	190	190	190	175	160		
		in.lb	1682	1682	1682	1549	1416	1682	1682	1682	1682	1682	1682	1682	1682	1549	1416		
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	400	500	500	450	400	500	500	500	500	500	500	500	500	450	400		
		in.lb	3540	4425	4425	3983	3540	4425	4425	4425	4425	4425	4425	4425	4425	3983	3540		
Permitted average input speed (at $T_{2a}$ and 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	$n_{1T}$	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 <sup>b)</sup> (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	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		
		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 $\leq 4$																
Torsional rigidity <sup>b)</sup>	$C_{t21}$	Nm/arcmin	32	36	41	39	38	36	36	36	36	36	36	36	41	39	38		
		in.lb/arcmin	283	319	363	345	336	319	319	319	319	319	319	319	363	345	336		
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N	9900																
		lb <sub>f</sub>	2228																
Max. lateral force <sup>c)</sup>	$F_{2QMax}$	N	9500																
		lb <sub>f</sub>	2138																
Max. tilting moment	$M_{2KMax}$	Nm	1692																
		in.lb	14976																
Efficiency at full load	$\eta$	%	96					94											
Service life <sup>f)</sup>	$L_h$	h	> 20000																
Weight (incl. standard adapter plate)	$m$	kg	22.6					24											
		lb <sub>m</sub>	50					53											
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	$\leq 68$																
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 <sup>2</sup>	-	-	-	-	-	4.2	3.84	3.27	3.16	2.78	2.73	2.48	2.46	2.43	2.42
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	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 <sup>2</sup>	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 <sup>-3</sup> in.lb.s <sup>2</sup>	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<sup>®</sup> for a detailed sizing – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)  
Please contact us for optimum sizing at S1 conditions (Continuous operation).

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



# HG+ 180 MF 1-/2-stage

			1-stage					2-stage											
Ratio	<i>i</i>		3	4	5	7	10	12	16	20	25	28	35	40	50	70	100		
Max. torque <sup>a) b)</sup>	$T_{2a}$	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	6797	4868	4160	
Max. acceleration torque <sup>b)</sup> (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	5665	4868	4160	
Nominal torque (at $n_n$ )	$T_{2N}$	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	3540	3363	3186	
Emergency stop torque <sup>a) b)</sup> (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 $T_{2a}$ and 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	$n_{1T}$	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 <sup>b)</sup> (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 $\leq 4$																
Torsional rigidity <sup>b)</sup>	$C_{t21}$	Nm/arcmin	71	80	91	89	88	80	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	708	805	788	779	
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N	14200																
		lb <sub>f</sub>	3195																
Max. lateral force <sup>c)</sup>	$F_{2QMax}$	N	14700																
		lb <sub>f</sub>	3308																
Max. tilting moment	$M_{2KMax}$	Nm	3213																
		in.lb	28438																
Efficiency at full load	$\eta$	%	96					94											
Service life <sup>f)</sup>	$L_h$	h	> 20000																
Weight (incl. standard adapter plate)	$m$	kg	45.4					47											
		lb <sub>m</sub>	100					104											
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	$\leq 68$																
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	$J_1$	kgcm <sup>2</sup>	-	-	-	-	-	15.3	14	12.3	12	10.9	10.7	10.1	10	9.95	9.91
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	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	$J_1$	kgcm <sup>2</sup>	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 <sup>-3</sup> in.lb.s <sup>2</sup>	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

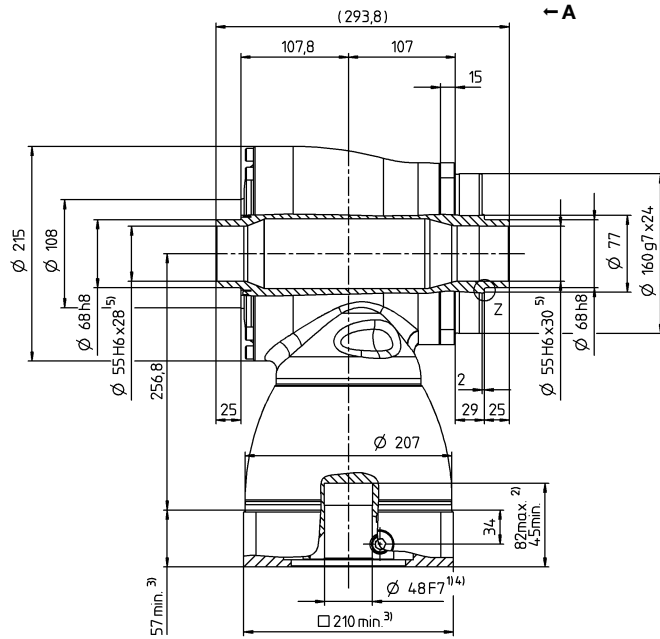
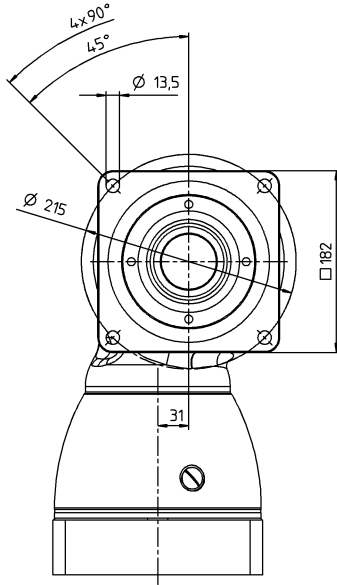
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- <sup>a)</sup> At max. 10 %  $F_{2QMax}$
- <sup>b)</sup> Valid for standard clamping hub diameter
- <sup>c)</sup> Refers to center of the output shaft or flange
- <sup>d)</sup> Please reduce input speed at higher ambient temperatures
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View A

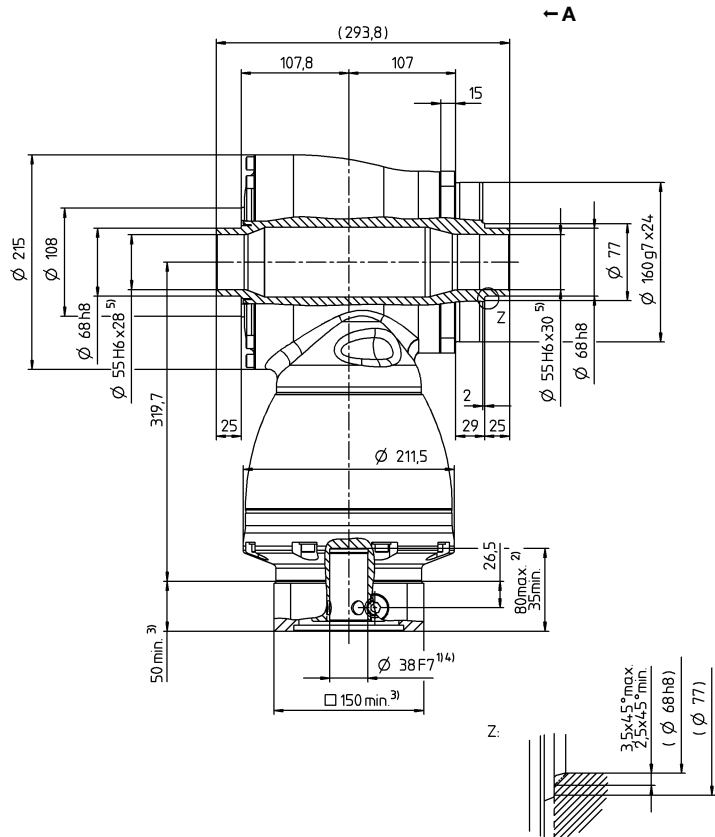
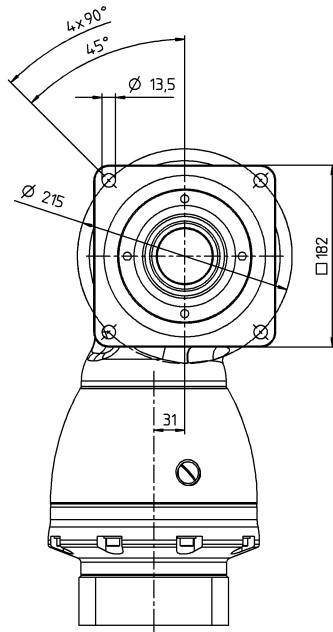
# 1-stage

up to 48<sup>4)</sup> (M)<sup>6)</sup>  
clamping hub diameter



# 2-stage

up to 38/48<sup>4)</sup>  
(K<sup>6)</sup>/M) clamping hub diameter



Motor shaft diameter [mm]

Hypoid gearboxes

HG+

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

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit

<sup>2)</sup> Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

<sup>3)</sup> The dimensions depend on the motor

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm

<sup>5)</sup> Tolerance h6 for mounted shaft.

<sup>6)</sup> Standard clamping hub diameter