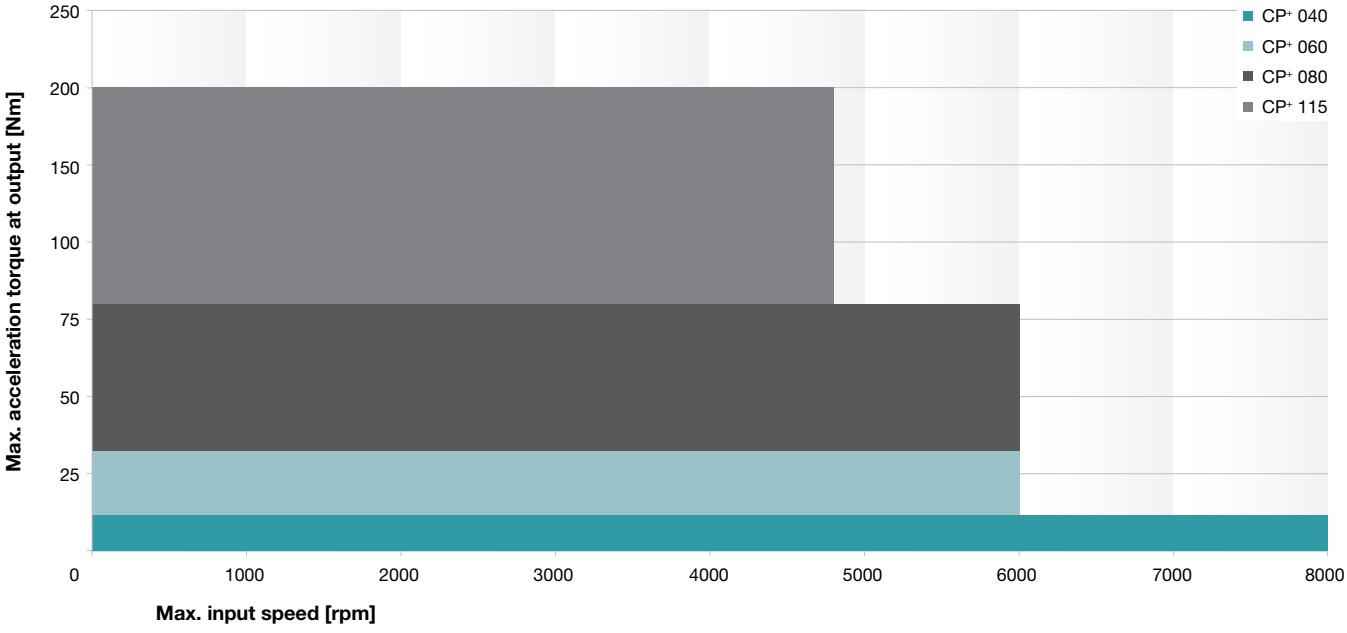
alphira® – The basic class among planetary gearheads

The alphira® gearhead combines proven gearing technology with the cost-effectiveness requirements in the economy servo sector.
The result is a lightweight aluminum gearhead with a high power density and maximum reliability.

Quick size selection

alphira® (example for i = 5)
For applications in cyclic operation (ED ≤ 60%)



Versions and Applications

alphira®

- Economical servo applications
- Cyclic and continuous operation
- High nominal speeds
- Economical positioning accuracy

Comparison

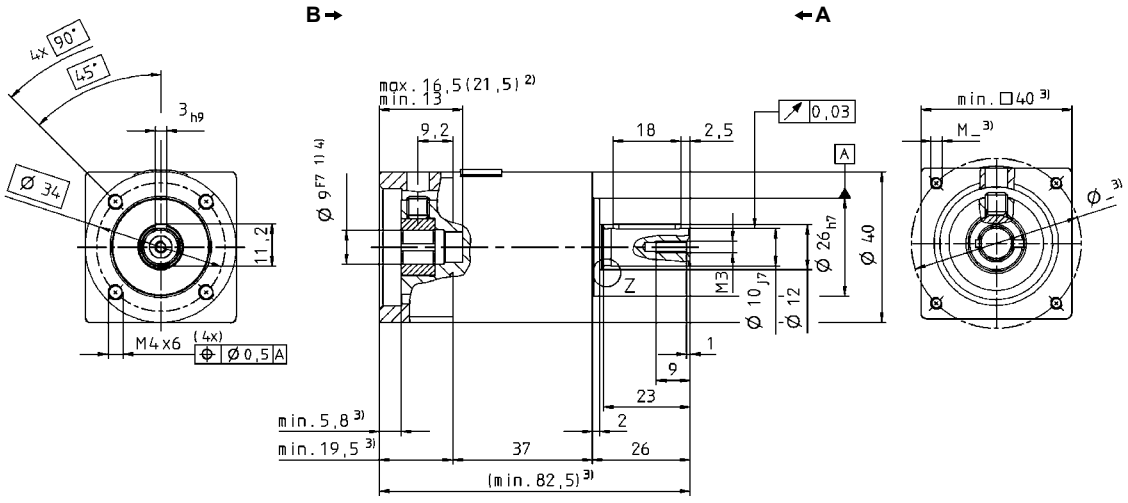
Features		**alphira®** Catalog page 140
Ratios [c]		4 – 100
Torsional backlash [arcmin] [c]	Standard	≤ 20
	Reduced	–
Output type		
Keywayed output shaft		•
Input type		
Motor mounted version		•
Type		
Food-grade lubrication [a] [b]		•
Accessories		
Coupling		•
NEMA flange		•

[a] Power reduction: technical data available upon request [b] Please contact WITTENSTEIN alpha [c] In relation to reference sizes

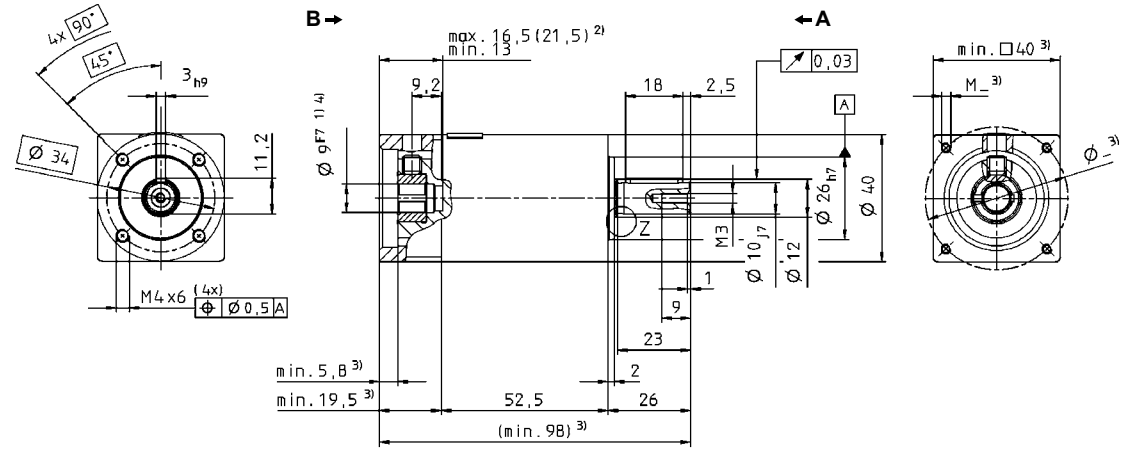
			1-stage				2-stage						
Ratio	***i***		**4**	**5**	**7**	**10**	**16**	**20**	**25**	**35**	**50**	**70**	**100**
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	10.5	11.5	11.5	10.5	10.5	10.5	11.5	11.5	11.5	11.5	10.5
		in.lb	93	102	102	93	93	93	102	102	102	102	93
Nominal output torque (with n_{1N})	T_{2N}	Nm	5.2	5.7	5.7	5.2	5.2	5.2	5.7	5.7	5.7	5.7	5.2
		in.lb	46	50	50	46	46	46	50	50	50	50	46
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	T_{2Not}	Nm	26	26	26	26	26	26	26	26	26	26	26
		in.lb	230	230	230	230	230	230	230	230	230	230	230
Nominal input speed (with T_{2N} and 20°C ambient temperature) [a]	n_{1N}	rpm	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
Max. input speed	n_{1Max}	rpm	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
Mean no load running torque (with n_1 = 3000 rpm and 20°C gearhead temperature)	T_{012}	Nm	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
		in.lb	0.05	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Max. torsional backlash	j_t	arcmin	≤ 20				≤ 25						
Torsional rigidity	C_{t21}	Nm/ arcmin	0.58	0.58	0.58	0.52	0.58	0.58	0.58	0.58	0.58	0.58	0.52
		in.lb/ arcmin	5.1	5.1	5.1	4.6	5.1	5.1	5.1	5.1	5.1	5.1	4.6
Max. axial force [b]	F_{2AMax}	N	230				230						
		lb_f	51				51						
Max. radial force [b]	F_{2RMax}	N	200				200						
		lb_f	45				45						
Efficiency at full load	η	%	97				95						
Service life (For calculation, see the Chapter “Information”)	L_h	h	> 20000				> 20000						
Weight incl. standard adapter plate	m	kg	0.31				0.52						
		lb_m	0.69				1.15						
Operating noise (with n_1 = 3000 rpm no load)	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										
Paint			Aluminum										
Direction of rotation			Motor and gearhead same direction										
Protection class			IP 64										
Moment of inertia (relates to the drive)	J_1	$kgcm^2$	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
		10^{-3} in.lb.s²	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036

[a] For higher ambient temperatures, please reduce input speed
[b] Relates to center of the output shaft or flange, at 100 rpm

1-stage:



2-stage:



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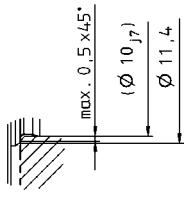


Non-tolerated dimensions ±1mm

1) Check motor shaft fit.
2) Min./Max. permissible motor shaft length. Longer motor shafts are adaptable, please contact us.
3) The dimensions depend on the motor.
4) Smaller motor shaft diameter is compensated by a bushing.

CAD data is available under www.wittenstein-alpha.com

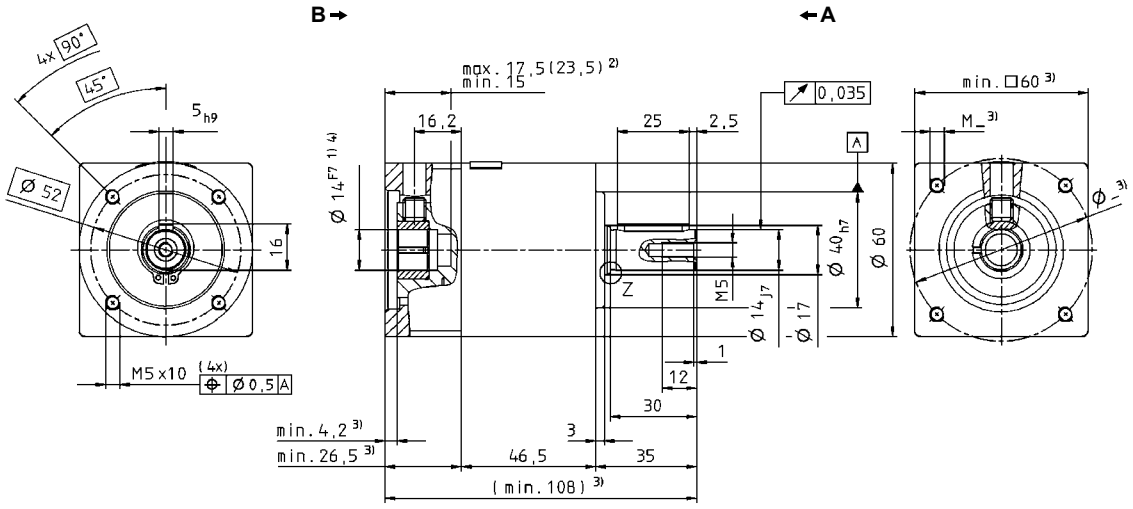
Motor mounting according to operating manual

			1-stage				2-stage						
Ratio	***i***		**4**	**5**	**7**	**10**	**16**	**20**	**25**	**35**	**50**	**70**	**100**
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	32	32	32	29	32	32	32	32	32	32	29
		in.lb	283	283	283	257	283	283	283	283	283	283	257
Nominal output torque (with n_{1N})	T_{2N}	Nm	16	16	16	15	16	16	16	16	16	16	15
		in.lb	142	142	142	133	142	142	142	142	142	142	133
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	T_{2Not}	Nm	75	75	75	75	75	75	75	75	75	75	75
		in.lb	664	664	664	664	664	664	664	664	664	664	664
Nominal input speed (with T_{2N} and 20°C ambient temperature) [a]	n_{1N}	rpm	3700	3700	3700	3700	3700	3700	3700	3700	3700	3700	3700
Max. input speed	n_{1Max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Mean no load running torque (with n_1 = 3000 rpm and 20°C gearhead temperature)	T_{012}	Nm	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
		in.lb	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Max. torsional backlash	j_t	arcmin	≤ 20				≤ 25						
Torsional rigidity	C_{t21}	Nm/ arcmin	2.1	2.1	2.1	1.9	2.1	2.1	2.1	2.1	2.1	2.1	1.9
		in.lb/ arcmin	19	19	19	17	19	19	19	19	19	19	17
Max. axial force [b]	F_{2AMax}	N	750				750						
		lb_f	169				169						
Max. radial force [b]	F_{2RMax}	N	650				650						
		lb_f	146				146						
Efficiency at full load	η	%	97				95						
Service life (For calculation, see the Chapter "Information")	L_h	h	> 20000				> 20000						
Weight incl. standard adapter plate	*m*	kg	0.88				1.1						
		lb_m	1.9				2.4						
Operating noise (with n_1 = 3000 rpm no load)	L_{PA}	dB(A)	≤ 68										
Max. permitted housing temperature		°C	+90										
		F	194										
Ambient temperature		°C	-15 to +40										
		F	5 to 104										
Lubrication			Lubricated for life										
Paint			Aluminum										
Direction of rotation			Motor and gearhead same direction										
Protection class			IP 64										
Moment of inertia (relates to the drive)	J_1	$kgcm^2$	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
		10^{-3} in.lb.s²	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15

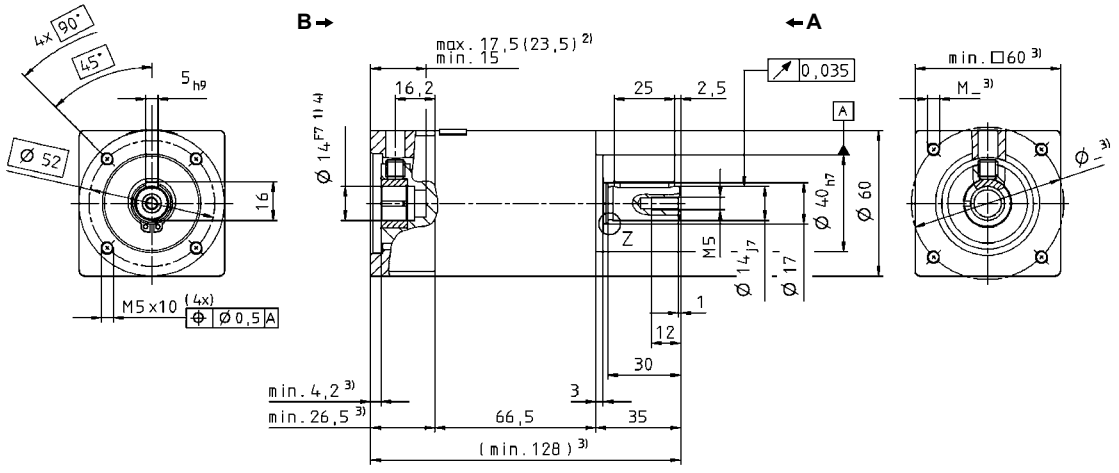
[a] For higher ambient temperatures, please reduce input speed

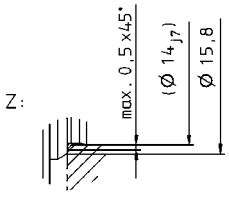
[b] Relates to center of the output shaft or flange, at 100 rpm

1-stage:



2-stage:





Non-tolerated dimensions ±1mm

1) Check motor shaft fit.
2) Min./Max. permissible motor shaft length. Longer motor shafts are adaptable, please contact us.
3) The dimensions depend on the motor.
4) Smaller motor shaft diameter is compensated by a bushing.

CAD data is available under www.wittenstein-alpha.com

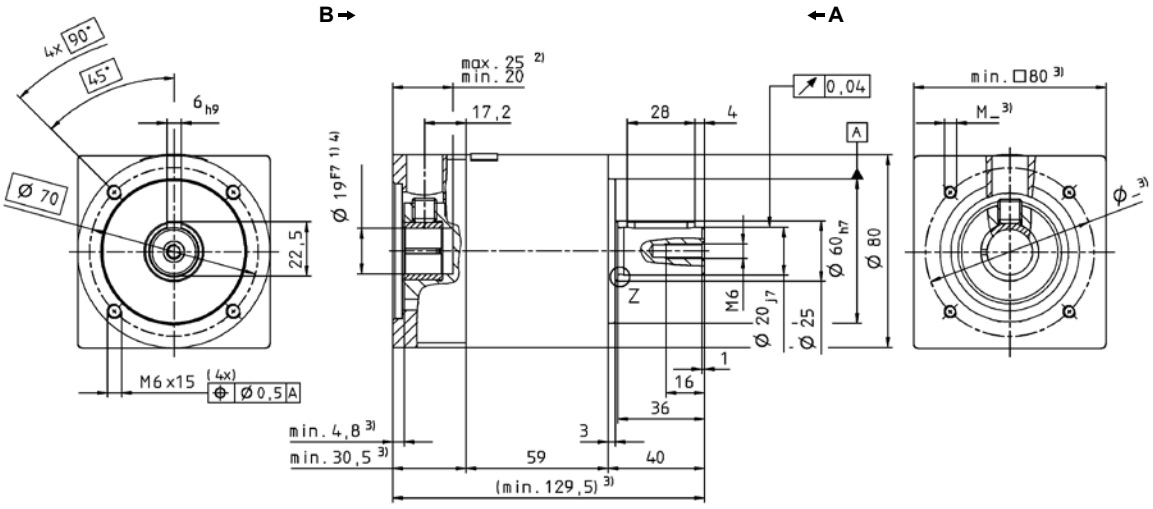
Motor mounting according to operating manual

			1-stage				2-stage						
Ratio	***i***		**4**	**5**	**7**	**10**	**16**	**20**	**25**	**35**	**50**	**70**	**100**
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	80	80	80	72	80	80	80	80	80	80	72
		in.lb	708	708	708	637	708	708	708	708	708	708	637
Nominal output torque (with n_{1N})	T_{2N}	Nm	40	40	40	35	40	40	40	40	40	40	35
		in.lb	354	354	354	310	354	354	354	354	354	354	310
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	T_{2Not}	Nm	190	190	190	190	190	190	190	190	190	190	190
		in.lb	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
Nominal input speed (with T_{2N} and 20°C ambient temperature) [a]	n_{1N}	rpm	3400	3400	3400	3400	3400	3400	3400	3400	3400	3400	3400
Max. input speed	n_{1Max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Mean no load running torque (with n_1 = 3000 rpm and 20°C gearhead temperature)	T_{012}	Nm	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
		in.lb	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Max. torsional backlash	j_t	arcmin	≤ 20				≤ 25						
Torsional rigidity	C_{t21}	Nm/ arcmin	6.1	6.1	6.1	5.5	6.1	6.1	6.1	6.1	6.1	6.1	5.5
		in.lb/ arcmin	54	54	54	49	54	54	54	54	54	54	49
Max. axial force [b]	F_{2AMax}	N	1600				1600						
		lb_f	360				360						
Max. radial force [b]	F_{2RMax}	N	1200				1200						
		lb_f	270				270						
Efficiency at full load	η	%	97				95						
Service life (For calculation, see the Chapter "Information")	L_h	h	> 20000				> 20000						
Weight incl. standard adapter plate	*m*	kg	2.1				2.8						
		lb_m	4.6				6.2						
Operating noise (with n_1 = 3000 rpm no load)	L_{PA}	dB(A)	≤ 70										
Max. permitted housing temperature		°C	+90										
		F	194										
Ambient temperature		°C	-15 to +40										
		F	5 to 104										
Lubrication			Lubricated for life										
Paint			Aluminum										
Direction of rotation			Motor and gearhead same direction										
Protection class			IP 64										
Moment of inertia (relates to the drive)	J_1	kgcm²	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
		10^{-3} in.lb.s²	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48

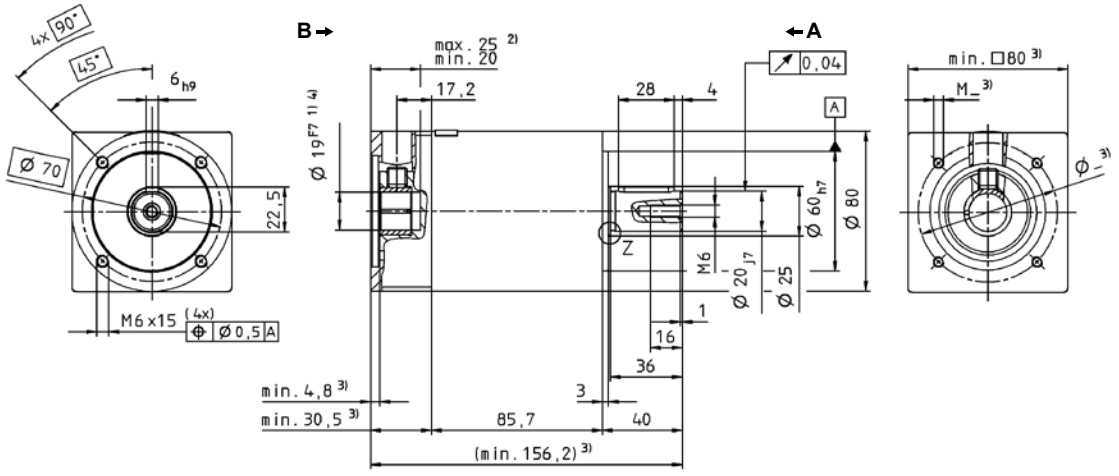
[a] For higher ambient temperatures, please reduce input speed
[b] Relates to center of the output shaft or flange, at 100 rpm

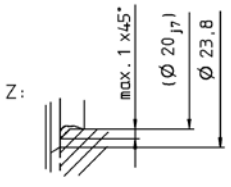
View A View B

1-stage:



2-stage:





Non-tolerated dimensions ±1mm

1) Check motor shaft fit.
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3) The dimensions depend on the motor.
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Motor mounting according to operating manual

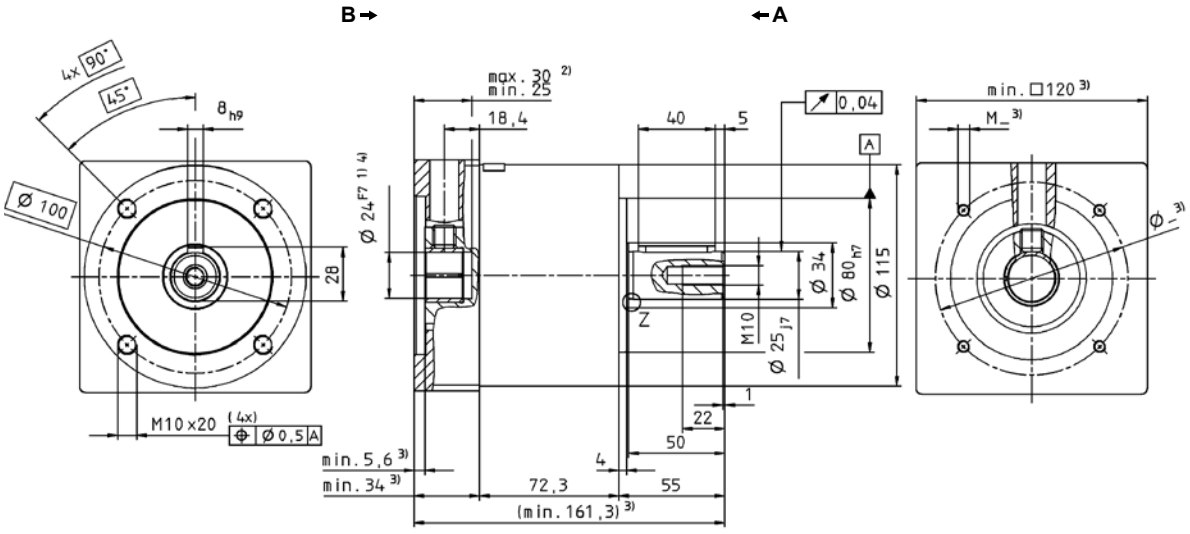
			1-stage				2-stage						
Ratio	***i***		**4**	**5**	**7**	**10**	**16**	**20**	**25**	**35**	**50**	**70**	**100**
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	200	200	200	180	200	200	200	200	200	200	180
		in.lb	1770	1770	1770	1593	1770	1770	1770	1770	1770	1770	1593
Nominal output torque (with n_{1N})	T_{2N}	Nm	100	100	100	90	100	100	100	100	100	100	90
		in.lb	885	885	885	797	885	885	885	885	885	885	797
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	T_{2Not}	Nm	480	480	480	480	480	480	480	480	480	480	480
		in.lb	4248	4248	4248	4248	4248	4248	4248	4248	4248	4248	4248
Nominal input speed (with T_{2N} and 20°C ambient temperature) [a]	n_{1N}	rpm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
Max. input speed	n_{1Max}	rpm	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
Mean no load running torque (with n_1 = 3000 rpm and 20°C gearhead temperature)	T_{012}	Nm	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
		in.lb	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
Max. torsional backlash	j_t	arcmin	≤ 20				≤ 25						
Torsional rigidity	C_{t21}	Nm/ arcmin	16.5	16.5	16.5	14.5	16.5	16.5	16.5	16.5	16.5	16.5	14.5
		in.lb/ arcmin	146	146	146	128	146	146	146	146	146	146	128
Max. axial force [b]	F_{2AMax}	N	2100				2100						
		lb_f	472				472						
Max. radial force [b]	F_{2RMax}	N	1550				1550						
		lb_f	349				349						
Efficiency at full load	η	%	97				95						
Service life (For calculation, see the Chapter "Information")	L_h	h	> 20000				> 20000						
Weight incl. standard adapter plate	m	kg	5.2				6.9						
		lb_m	11.5				15.2						
Operating noise (with n_1 = 3000 rpm no load)	L_{PA}	dB(A)	≤ 72										
Max. permitted housing temperature		°C	+90										
		F	194										
Ambient temperature		°C	-15 to +40										
		F	5 to 104										
Lubrication			Lubricated for life										
Paint			Aluminum										
Direction of rotation			Motor and gearhead same direction										
Protection class			IP 64										
Moment of inertia (relates to the drive)	J_1	$kgcm^2$	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
		10^{-3} in.lb.s²	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6

[a] For higher ambient temperatures, please reduce input speed

[b] Relates to center of the output shaft or flange, at 100 rpm

View A View B

1-stage:



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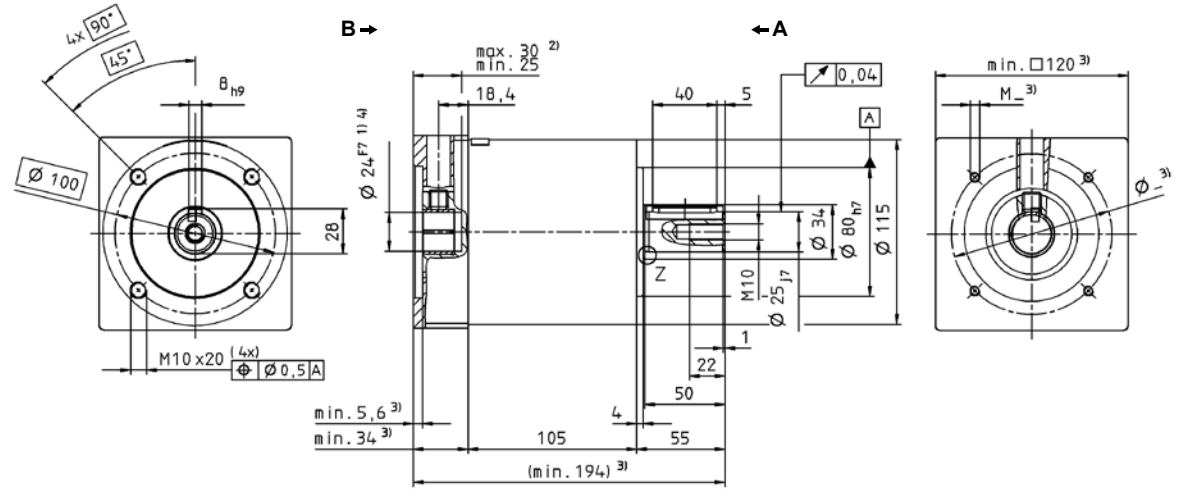

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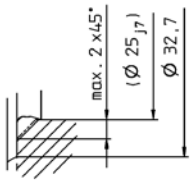

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