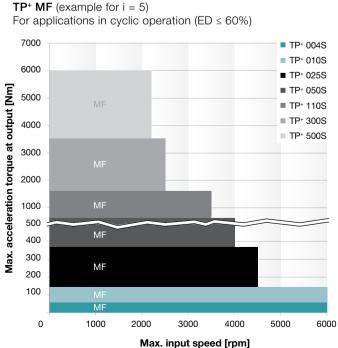
TP+/TP+ HIGH TORQUE - Compact precision



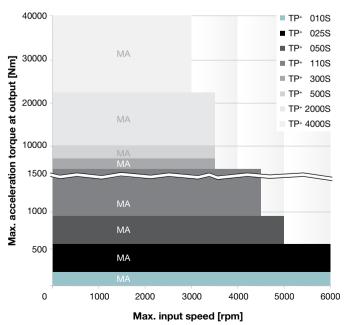
Compact top performers with output flange. The standard version is ideally suited for high positioning accuracy and highly dynamic cyclic operation.

The TP+ HIGH TORQUE is particularly well suited for high-precision applications in which high torsional rigidity is required.

Quick size selection



TP⁺ **HIGH TORQUE MA** (example for i = 22) For applications in cyclic operation (ED \leq 60%)



Planetary gearheads

Versions and Applications

Features	TP⁺ MF version page 34	TP⁺ HIGH TORQUE MA version page 58
Power density	••	•••
Positioning accuracy (e.g. clamped drives)	••	•••
Highly dynamic applications (e.g. Delta robot)	•••	•••
Torsional rigidity	••	•••
Space-saving design	••	•••
Stringent safety requirement (e.g. vertical axes)	••	•••

Product features

Ratios c)		4 - 100	22 - 302,5
Torsional backlash	Standard	≤ 3	≤1
[arcmin] ^{c)}	Reduced	≤1	-
Output type			
Output flange		•	•
System output with p	inion	•	•
Input type			
Motor mounted version	on	•	•
Input shaft		•	
Туре			
Food-grade lubrication	on ^{a) b)}	•	•
Corrosion resistant a)	b)	•	•
Optimized mass mon	nent of inertia ^{a)}	•	•
Accessories			
Coupling		•	•
Rack		•	•
Pinion		•	•
torqXis sensor flange		•	•
Flange shaft		•	•
Intermediate plate for o	cooling connection	•	•
For Delta robot applic	cations	•	•

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



₹

¥Σ

TP* 004 MF 1-stage

						1-s	tage								
Ratio ^{a)}			i		4	5	7	10							
cymex®-optimized acceleration to	rque		<i>T</i>	Nm	60	62	60	-							
(please contact us regarding the sizing)	·		$T_{_{2Bcym}}$	in.lb	531	549	531	-							
Max. acceleration torque			_	Nm	55	55	55	35							
(max. 1000 cycles per hour)			$T_{_{2B}}$	in.lb	487	487	487	310							
Nominal output torque			-	Nm	28	28	28	18							
(with $n_{_{N}}$)			T_{2N}	in.lb	248	248	248	159							
Emergency stop torque			-	Nm	100	100	100	100							
(permitted 1000 times during the service life of the	e gearhead)		T _{2Not}	in.lb	885	885	885	885							
Nominal input speed (with T_{2N} and 20 °C ambient temperature) b)			n _{1N}	rpm	3300	3300	4000	4000							
Max. input speed			n _{1Max}	rpm	6000	6000	6000	6000							
Mean no load running torque			т	Nm	0.95	0.80	0.60	0.45							
(with n,=3000 rpm and 20 °C gearhead tempera	ature) ^{c)}		T ₀₁₂	in.lb	8.41	7.08	5.31	3.98							
Max. torsional backlash			j _t	arcmin		Standard ≤ 4	/ Reduced ≤ 2								
			_	Nm/ arcmin	12	12	11	8							
Torsional rigidity c)			C_{t21}	in.lb/ arcmin	106	106	97	71							
				Nm/ arcmin											
Tilting rigidity			C_{2K}	in.lb/ arcmin			_								
				N		16	530								
Max. axial force d			$F_{\scriptscriptstyle 2AMax}$	lb,	367										
				Nim	110										
Max. tilting moment			$M_{_{2KMax}}$	in.lb	974										
Efficiency at full load			η	%	97										
Service life (For calculation, see the Chapter "Information")			L _h	h		> 24	0000								
				kg			.4								
Weight incl. standard adapter plat	te		m	lb _m		3	5.1								
Operating noise (with i=10 and n,=3000 rpm no load)			L _{PA}	dB(A)		≤	58								
				°C		+	90								
Max. permitted housing temperat	ure			F		,	94								
				°C		,	o +40								
Ambient temperature				F			104								
Lubrication						Lubricat	ed for life								
Paint					Blue RAL 5002										
Direction of rotation						Motor and gearhe	ead same direction								
Protection class					IP 65										
Managed of to 12				kgcm ²	0.17	0.14	0.11	0.09							
Moment of inertia (relates to the drive)	В	11	$J_{_1}$	10 ⁻³ in.lb.s ²	0.15	0.12	0.10	0.08							
rolates to the unver		14		kgcm ²	0.25	0.21	0.18	0.17							
Clamping hub diameter [mm]	hub diameter [mm]		$J_{_{1}}$	10 ⁻³ in.lb.s ²	0.22	0.19	0.16	0.15							
				kgcm ²	0.57	0.54	0.51	0.49							
	E	19	$J_{_{1}}$	10 ⁻³ in.lb.s ²	0.50	0.47	0.45	0.43							

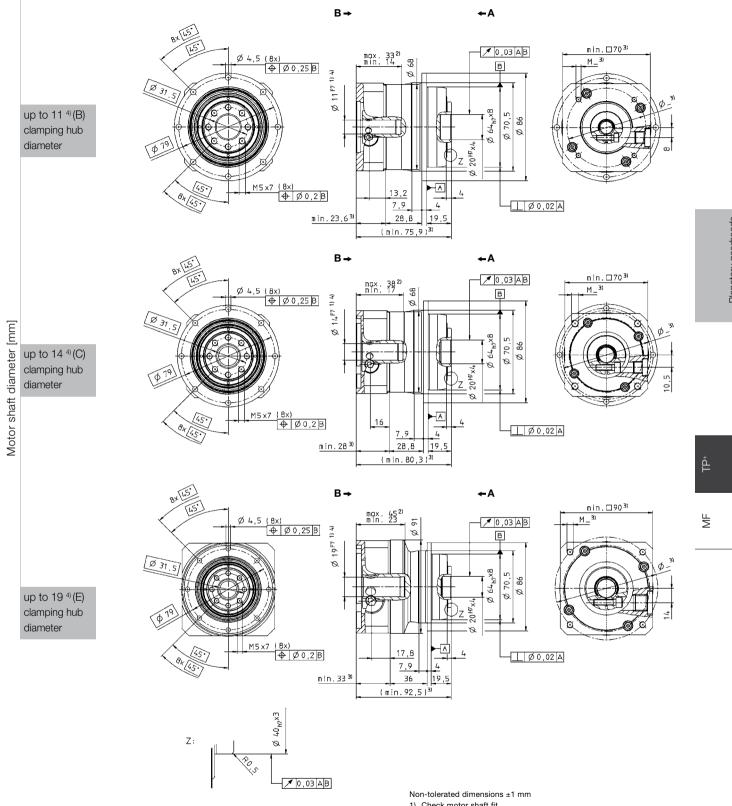
a) Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

c) Valid for clamping hub diameter of 14 mm

d) Refers to center of the output shaft or flange





View A

35

2) Min./Max. permissible motor shaft length. Longer motor shafts are

4) Smaller motor shaft diameter is compensated by a bushing with

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adaptable, please contact us. 3) The dimensions depend on the motor.

a minimum thickness of 1 mm. CAD data is available under

TP* 004 MF 2-stage

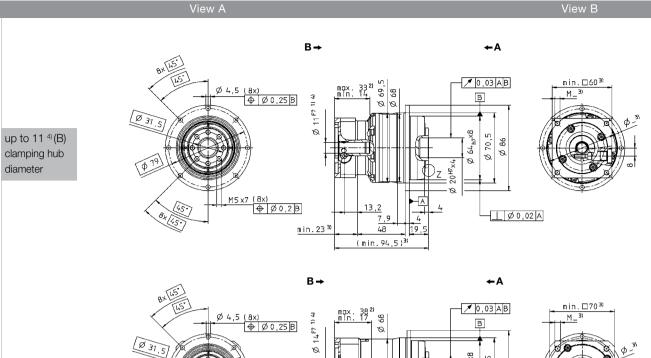
											2-stage)					
Ratio ^{a)}			i		16	20	21	25	28	31	35	40	50	61	70	91	100
cymex®-optimized acceleration torq	ue		T _{2Bcym}	Nm	60	60	-	62	60	-	62	62	62	-	60	-	-
(please contact us regarding the sizing)			² Bcym	in.lb	531	531	-	549	531	-	549	549	549	-	531	-	-
Max. acceleration torque			T _{2B}	Nm	55	55	40	55	55	40	55	55	55	45	55	32	35
(max. 1000 cycles per hour)			* 2B	in.lb	487	487	354	487	487	354	487	487	487	398	487	283	310
Nominal output torque			T _{2N}	Nm	40	40	30	40	40	30	40	40	40	30	40	15	18
(with n _{1N})	_		2N	in.lb	354	354	266	354	354	266	354	354	354	266	354	133	159
Emergency stop torque			T _{2Not}	Nm	100	100	100	100	100	100	100	100	100	100	100	100	100
(permitted 1000 times during the service life of the ge	arhead)		* 2Not	in.lb	885	885	885	885	885	885	885	885	885	885	885	885	885
Nominal input speed (with T_{2N} and 20 °C ambient temperature) b)			n _{1N}	rpm	4000	4000	4000	4000	4000	4000	4000	4000	4800	5500	5500	5500	5500
Max. input speed			n _{1Max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Mean no load running torque			_	Nm	0.55	0.45	0.45	0.45	0.35	0.35	0.30	0.25	0.25	0.20	0.20	0.20	0.20
(with n,=3000 rpm and 20 °C gearhead temperatur	e) ^{c)}		T ₀₁₂	in.lb	4.87	3.98	3.98	3.98	3.10	3.10	2.66	2.21	2.21	1.77	1.77	1.77	1.77
Max. torsional backlash			j_t	arcmin					5	Standard	≤ 4 / Re	duced ≤	2				
	-		_	Nm/ arcmin	12	12	10	12	12	9	12	11	12	9	11	7	8
Torsional rigidity ©			C _{t21}	in.lb/ arcmin	106	106	89	106	106	80	106	97	106	80	97	62	71
			_	Nm/ arcmin							•						
Tilting rigidity			C_{2K}	in.lb/ arcmin							-						
_				N							1630	-		-		-	
Max. axial force d			F _{2AMax}	lb,							367						
				Nm	110												
Max. tilting moment			M _{2KMax}	M _{2KMax} in.lb 974													
Efficiency at full load			η	%							94						
Service life (For calculation, see the Chapter "Information")			L _h	h							> 20000						
	-			kg							1.5						
Weight incl. standard adapter plate			m	lb _m							3.3			-		-	
Operating noise (with i=100 and n,=3000 rpm no load)			L _{PA}	dB(A)							≤ 58						
				°C				-			+90	-			-		
Max. permitted housing temperature	•			F							194						
				°C		-					15 to +4	0					
Ambient temperature				F							5 to 104						
Lubrication										Lubi	ricated fo	or life					
Paint										Blu	ie RAL 5	002					
Direction of rotation				Motor and gearhead same direction													
Protection class				IP 65													
	_																
Moment of inertia	В	11	$J_{_1}$	kgcm ²	0.078	0.070	0.074	0.068	0.062	0.072	0.061	0.051	0.057	0.058	0.056	0.057	0.056
(relates to the drive)		_	- 1	10 ⁻³ in.lb.s ²	0.069	0.062	0.066	0.060	0.054	0.064	0.054	0.051	0.050	0.051	0.050	0.051	0.050
Clamping hub diameter [mm]	С	14	$J_{_{1}}$	kgcm ²	0.17	0.17	0.17	0.16	0.16	0.17	0.16	0.15	0.15	0.15	0.15	0.15	0.15
			,	10 ⁻³ in.lb.s ²	0.15	0.15	0.15	0.14	0.14	0.15	0.14	0.14	0.13	0.13	0.13	0.13	0.13

a) Other ratios available on request

 $^{^{\}rm b)}$ For higher ambient temperatures, please reduce input speed

c) Valid for clamping hub diameter of 11 mm

d) Refers to center of the output shaft or flange



16

min.28³⁾

7,9

19

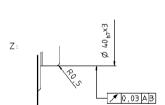
50,5

(min.102)³⁾

up to 14 4) (C) clamping hub diameter

Ø 31.5

Motor shaft diameter [mm]



M5 x7 (8x) ⊕ Ø 0,2 B

Non-tolerated dimensions $\pm 1~\text{mm}$

- 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.

8×24 79 Ø Ø 70,5

___ Ø 0,02 A

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.



CAD data is available under

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

TP* 010 MF 1-stage

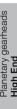
						1-s	tage									
Ratio ^{a)}			i		4	5	7	10								
cymex®-optimized acceleration to	rque		_	Nm	150	162	162	-								
(please contact us regarding the sizing)			T _{2Bcym}	in.lb	1328	1434	1434	-								
Max. acceleration torque			T	Nm	143	143	143	105								
(max. 1000 cycles per hour)			T _{2B}	in.lb	1266	1266	1266	929								
Nominal output torque			T _{2N}	Nm	75	75	75	60								
(with n,,)			* 2N	in.lb	664	664	664	531								
Emergency stop torque			T _{2Not}	Nm	250	250	250	250								
(permitted 1000 times during the service life of the	gearhead)		ZIVOT	in.lb	2213	2213	2213	2213								
Nominal input speed (with T_{2N} and 20 °C ambient temperature) b)			n _{1N}	rpm	2600	2900	3100	3100								
Max. input speed			n _{1Max}	rpm	6000	6000	6000	6000								
Mean no load running torque			_	Nm	1.6	1.3	1.0	0.7								
(with n,=3000 rpm and 20 °C gearhead tempera	iture) ^{c)}		T ₀₁₂	in.lb	14.2	11.5	8.85	6.20								
Max. torsional backlash			j_t	arcmin		Standard ≤ 3	/ Reduced ≤ 1									
-				Nm/ arcmin	32	33	30	23								
Torsional rigidity ©			C ₁₂₁	in.lb/ arcmin	283 292 266 204											
Tilain a uinislia.			_	Nm/ arcmin		2	25									
Tilting rigidity			C_{2K}	in.lb/ arcmin	1991											
Max. axial force d			F _{2AMax}	N		2	150									
iviax. axiai iorce			² AMax	lb _f	484											
Max. tilting moment			M _{2KMax}	Nm	270											
			2KMax	in.lb	2390											
Efficiency at full load			η	%	97											
Service life (For calculation, see the Chapter "Information")			L	h		> 2	0000									
Mainbeine atomaloud adomes uslat				kg		3	1.8									
Weight incl. standard adapter plat	e		m	lb _m		8	5.4									
Operating noise (with <i>i</i> =10 and <i>n</i> ,=3000 rpm no load)			L _{PA}	dB(A)		≤	59									
Manager and the state of the st				°C		+	90									
Max. permitted housing temperate	ure			F		1	94									
Ambient temperature				°C		-15 t	o +40									
Ambient temperature				F		5 to	104									
Lubrication						Lubricat	ed for life									
Paint					Blue RAL 5002											
Direction of rotation					Motor and gearhead same direction											
Protection class					IP 65											
				kgcm ²	0.78	0.62	0.48	0.40								
Moment of inertia (relates to the drive)	С	14	$J_{_{1}}$	10 ⁻³ in.lb.s ²	0.69	0.55	0.42	0.35								
		19		kgcm ²	0.95	0.79	0.64	0.57								
Clamping hub diameter [mm]	g hub diameter [mm]		$J_{_{1}}$	10 ⁻³ in.lb.s ²	0.84	0.70	0.57	0.50								
		0.4	,	kgcm ²	2.32	2.16	2.02	1.94								
	G	24	$J_{_{1}}$	10 ⁻³ in.lb.s ²	2.05	1.91	1.78	1.72								

a) Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

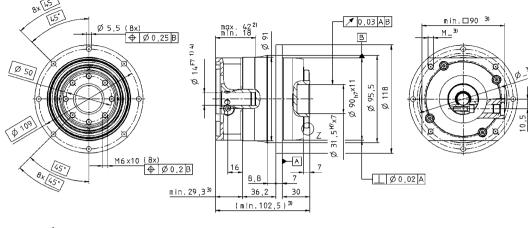
o) Valid for clamping hub diameter of 19 mm
d) Refers to center of the output shaft or flange





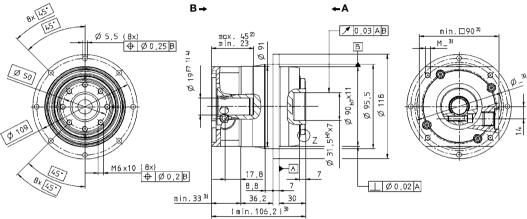
 \mathbb{H}



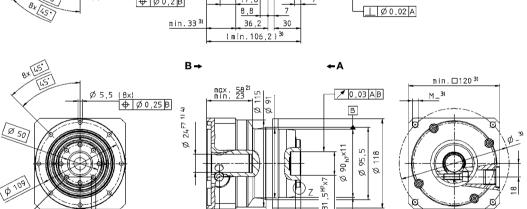


←A

B→

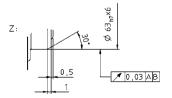






47,2 (min.124,2)³⁾

up to 24 4) (G) clamping hub diameter



<u>min.40</u>3)

View A

Non-tolerated dimensions $\pm 1~\text{mm}$

Ø

- 2) Min./Max. permissible motor shaft length. Longer motor shafts are adaptable, please contact us.

___ Ø 0.02 A

- 3) The dimensions depend on the motor.
- 4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.



CAD data is available under

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

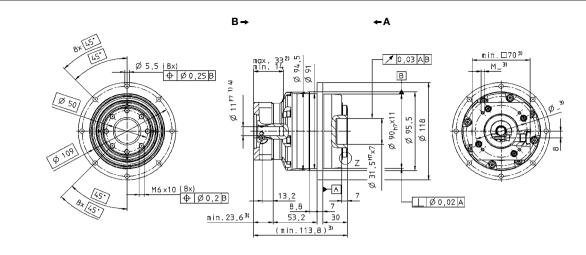
TP* 010 MF 2-stage

											2-stage)						
Ratio ^{a)}			i		16	20	21	25	28	31	35	40	50	61	70	91	100	
cymex®-optimized acceleration torq	ue		T _{2Bcym}	Nm	162	162	-	162	162	-	162	-	162	-	162	-	-	
(please contact us regarding the sizing)			* 2Bcym	in.lb	1434	1434	-	1434	1434	-	1434	-	1434	_	1434	-	-	
Max. acceleration torque			T _{2B}	Nm	143	143	100	143	143	110	143	140	143	110	143	80	105	
(max. 1000 cycles per hour)			28	in.lb	1266	1266	885	1266	1266	974	1266	1239	1266	974	1266	708	929	
Nominal output torque (with n_{in})			T_{2N}	Nm	90	90	80	90	90	70	90	80	90	70	90	35	60	
				in.lb Nm	797 250	797 250	708 250	797 250	797 250	620 250	797 250	708 250	797 250	620 250	797 250	310 250	531 250	
Emergency stop torque (permitted 1000 times during the service life of the ge	arhead)		T _{2Not}	in.lb	2213	2213	2213	2213	2213	2213	2213	2213	2213	2213	2213	2213	2213	
Nominal input speed (with T_{2N} and 20 °C ambient temperature) ^{b)}			n _{1N}	rpm	3500	3500	3500	3500	3500	3500	3500	3500	3800	4500	4500	4500	4500	
Max. input speed			n _{1Max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
Mean no load running torque			T ₀₁₂	Nm	0.90	0.75	0.70	0.65	0.55	0.50	0.50	0.40	0.35	0.35	0.35	0.30	0.30	
(with n,=3000 rpm and 20 °C gearhead temperature	e) ^{c)}		012	in.lb	7.97	6.64	6.20	5.75	4.87	4.43	4.43	3.54	3.10	3.10	3.10	2.66	2.66	
Max. torsional backlash			j_t	arcmin			I			Standard	≤ 3 / Re	duced ≤	1					
Torsional rigidity c)			C _{t21}	Nm/ arcmin														
			121	in.lb/ arcmin	283	283	230	283	274	212		266	266	212	248	186	195	
Tilting rigidity			C _{2K}	Nm/ arcmin							225							
	c axial force ^{d)}			in.lb/ arcmin							1991 2150			-				
fax. axial force d			F _{2AMax}	lb,														
			Nm	484 270														
Max. tilting moment			M _{2KMax}	M _{2KMax} in.lb 2390														
Efficiency at full load			η	%														
Service life (For calculation, see the Chapter "Information")			L _h	h							> 20000							
Mainting standard adoptor plate				kg							3.6			•				
Weight incl. standard adapter plate			m	lb _m							8.0							
Operating noise (with <i>i</i> =100 and <i>n</i> _{<i>i</i>} =3000 rpm no load)			L _{PA}	dB(A)							≤ 59							
Max parmitted bausing temperatur				°C							+90							
Max. permitted housing temperature	-			F							194							
Ambient temperature				°C						-	15 to +4	0						
7 in blond to in polatical c				F							5 to 104							
Lubrication										Lubi	ricated fo	or life						
Paint										Blu	ie RAL 5	002						
Direction of rotation					Motor and gearhead same direction													
Protection class											IP 65							
Moment of inertia	В	11	J ₁	J ₁ kgcm ²		0.14 0.12	0.15 0.13	0.13 0.12	0.11	0.13 0.12	0.10	0.09	0.09	0.09	0.09	0.09	0.09	
(relates to the drive)				kgcm ²	0.15	0.12	0.22	0.20	0.18	0.12	0.18	0.17	0.17	0.17	0.16	0.16	0.16	
Clamping hub diameter [mm]	С	14	$J_{\scriptscriptstyle 1}$	10 ⁻³ in.lb.s ²	0.21	0.19	0.19	0.19	0.16	0.18	0.16	0.15	0.15	0.15	0.14	0.15	0.14	
		40	J,	kgcm ²	0.56	0.53	0.55	0.53	0.51	0.53	0.50	0.49	0.49	0.49	0.49	0.49	0.49	
	E 19			10 ⁻³ in.lb.s ²	0.50	0.47	0.49	0.47	0.45	0.47	0.44	0.43	0.43	0.43	0.43	0.43	0.43	

a) Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

o) Valid for clamping hub diameter of 14 mm d) Refers to center of the output shaft or flange

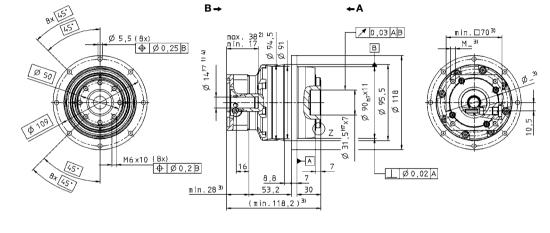


View A

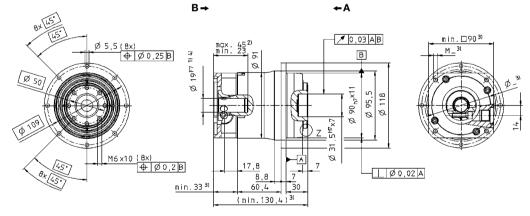
Motor shaft diameter (m) up to 14 4 (C) clamping hub diameter

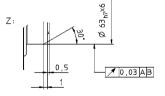
up to 11 4) (B)

clamping hub diameter



up to 19 ⁴⁾ (E) clamping hub diameter





Non-tolerated dimensions $\pm 1 \text{ mm}$

- 1) Check motor shaft fit.
- 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 with a minimum thickness of 1 mm.



CAD data is available under

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

TP* 025 MF 1-stage

						1-s ⁻	tage									
Ratio ^{a)}			i		4	5	7	10								
cymex®-optimized acceleration tor	que		т	Nm	390	420	350	275								
(please contact us regarding the sizing)			T _{2Bcym}	in.lb	3452	3717	3098	2434								
Max. acceleration torque			T _{2B}	Nm	350	380	330	265								
(max. 1000 cycles per hour)			28	in.lb	3098	3363	2921	2345								
Nominal output torque			T_{2N}	Nm · ··	170	170	170	120								
(with $n_{_{1N}}$)				in.lb Nm	1505 625	1505 625	1505 625	1062 625								
Emergency stop torque (permitted 1000 times during the service life of the g	earhead)		T _{2Not}	in.lb	5531	5531	5531	5531								
Nominal input speed (with T_{2N} and 20 °C ambient temperature) b)			n _{1N}	rpm	2300	2500	2500	2500								
Max. input speed			n _{1Max}	rpm	4500	4500	4500	4500								
Mean no load running torque			_	Nm	3.3	2.7	2.0	1.4								
(with n,=3000 rpm and 20 °C gearhead temperat	ure) ^{c)}		T ₀₁₂	in.lb	29.2	23.9	17.7	12.4								
Max. torsional backlash			j_t	arcmin		Standard ≤ 3	/ Reduced ≤ 1									
Torsional rigidity c)			C	Nm/ arcmin	80	86	76	62								
Torsional rigidity 7			C _{t21}	in.lb/ arcmin	708	761	673	549								
Tilting rigidity			C _{2K}	Nm/ arcmin			50									
			- 2K	in.lb/ arcmin			368									
Max. axial force d			F _{2AMax}	N 	4150 934											
				lb _f												
Max. tilting moment			M _{2KMax}	Nm in.lb			40 394									
Efficiency at full load			η	%)7									
Service life (For calculation, see the Chapter "Information")			L _h	h		> 20	0000									
(kg		6	.5									
Weight incl. standard adapter plate)		m	lb _m		,	4.4									
Operating noise (with i=10 and n,=3000 rpm no load)			L _{PA}	dB(A)		≤	64									
Management of the state of the second of the				°C		+	90									
Max. permitted housing temperatu	re			F		1	94									
Ambient temperature				°C		-15 t	o +40									
Jone tomporaturo				F		5 to	104									
Lubrication						Lubricat	ed for life									
Paint					Blue RAL 5002											
Direction of rotation						Motor and gearhe	ead same direction									
Protection class							65									
Moment of inertia	Е	19	$J_{_{1}}$	kgcm ²	2.59	2.11	1.69	1.45								
(relates to the drive)			'	10 ⁻³ in.lb.s ²	2.29	1.87	1.50	1.28								
Clamping hub diameter [mm]	G	24	$J_{_{1}}$	kgcm ²	3.28	2.80	2.38	2.14								
				10 ⁻³ in.lb.s ²	2.90	2.48	2.11	1.89 1.75								
	Н	28	J_{1}	kgcm ²	2.89	2.41	1.99 1.76	1.75								
				kgcm ²	10.3	9.87	9.45	9.21								
	K	38	J_{1}	10 ⁻³ in.lb.s ²	9.11	8.73	8.36	8.15								

a) Other ratios available on request

b) For higher ambient temperatures, please reduce input speed

c) Valid for clamping hub diameter of 24 and 28 mm

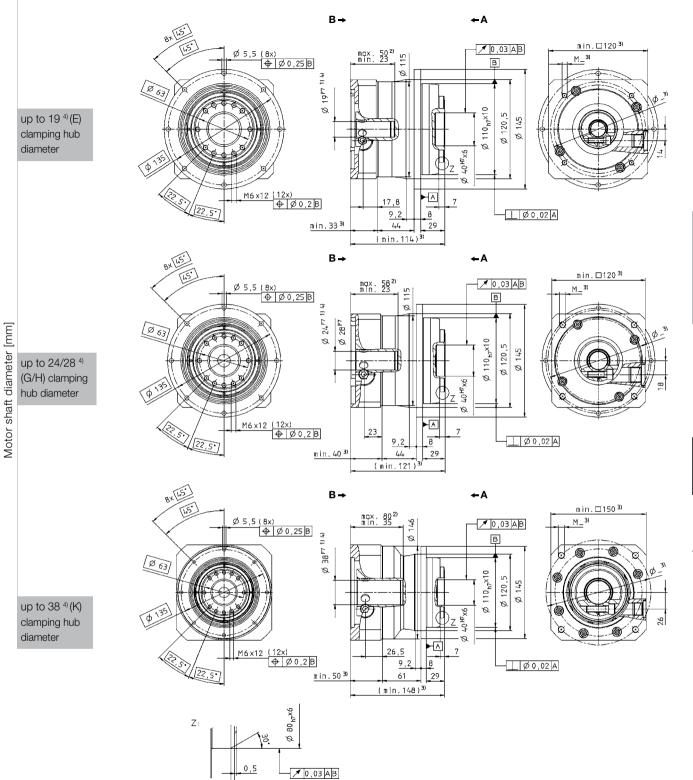
 $^{^{\}mbox{\tiny d)}}$ Refers to center of the output shaft or flange

wittenstein alp



тф

 \mathbb{A}



View A

Non-tolerated dimensions $\pm 1 \text{ mm}$

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



CAD data is available under

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

TP+ **025 MF** 2-stage

				2-stage 16 20 21 25 28 31 35 40 50 61 70 91 100														
Ratio ^{a)}			i		16	20	21	25	28	31	35	40	50	61	70	91	100	
cymex®-optimized acceleration torqu	ıe		т	Nm	390	390	-	420	390	-	420	390	420	-	350	-	275	
(please contact us regarding the sizing)			T _{2Bcym}	in.lb	3452	3452	-	3717	3452	-	3717	3452	3717	-	3098	-	2434	
Max. acceleration torque			T _{2B}	Nm	350	350	300	380	350	300	380	350	380	280	330	250	265	
(max. 1000 cycles per hour)			* 2B	in.lb	3098	3098	2655	3363	3098	2655	3363	3098	3363	2478	2921	2213	2345	
Nominal output torque			T _{2N}	Nm	200	210	170	200	210	190	220	200	220	170	200	100	120	
(with n _{1N})			* 2N	in.lb	1770	1859	1505	1770	1859	1682	1947	1770	1947	1505	1770	885	1062	
Emergency stop torque (permitted 1000 times during the service life of the gea	ırhead)		T _{2Not}	Nm in.lb	625 5531	625 5531	625 5531	625 5531	625 5531	625 5531	625 5531	625 5531	625 5531	625 5531	625 5531	625 5531	625 5531	
Nominal input speed (with T _{2N} and 20 °C ambient temperature) b)	,		n _{1N}	rpm	2800	2800	2800	2800	2800	2800	2800	2800	3100	3500	3500	4200	4200	
Max. input speed			n _{1Max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
Mean no load running torque				Nm	1.8	1.5	1.4	1.4	1.1	1.1	1.0	0.8	0.8	0.7	0.7	0.6	0.6	
(with n_1 = 3000 rpm and 20 °C gearhead temperature	e) ^{c)}		T ₀₁₂	in.lb	15.9	13.3	12.4	12.4	9.7	9.7	8.9	7.1	7.1	6.2	6.2	5.3	5.3	
Max. torsional backlash			j_t	arcmin					5	Standard	≤ 3 / Re	duced ≤	1					
Tourism of visitifical			_	Nm/ arcmin	81	81	70	83	80	54	82	76	80	61	71	55	60	
Torsional rigidity c)			C ₁₂₁	in.lb/ arcmin	717	717	620	735	708	478	726	673	708	540	628	487	531	
Tilting rigidity			C	Nm/ arcmin														
Tilting rigidity			C _{2K}	in.lb/ arcmin														
Max. axial force d			F _{2AMax}	N	4150													
Wax. axia 10100			* 2AMax	lb, 934														
Max. tilting moment			M _{2KMax}	Nm 440														
Efficiency at full load			η	%							94							
Service life (For calculation, see the Chapter "Information")			L	h							> 20000							
Weight incl. standard adapter plate			m	kg							6.7							
Operating noise			L _{PA}	lb _m				,			14.8 ≤ 60							
(with i=100 and n ₁ =3000 rpm no load)			PA											-	-			
Max. permitted housing temperature				°C							+90							
				F							194							
Ambient temperature				°C F							15 to +4 5 to 104							
Lubrication										Lub	ricated fo							
Paint					Blue RAL 5002													
Direction of rotation				Motor and gearhead same direction														
Protection class					IP 65													
			kgcm² (0.66	0.55	0.60	0.53	0.44	0.55	0.43	0.38	0.38	0.39	0.37	0.38	0.37	
Moment of inertia (relates to the drive)	С	14	$J_{_{1}}$	10 ⁻³ in.lb.s ²	0.59	0.49	0.51	0.47	0.39	0.49	0.38	0.34	0.33	0.35	0.33	0.34	0.33	
polates to the unive)				kgcm ²	0.83	0.71	0.77	0.69	0.61	0.72	0.60	0.55	0.54	0.55	0.54	0.54	0.54	
Clamping hub diameter [mm]	Е	19	$J_{_1}$	10 ⁻³ in.lb.s ²	0.73	0.63	0.68	0.61	0.54	0.64	0.53	0.49	0.48	0.4	0.48	0.48	0.48	
	_	-		kgcm²	2.20	2.08	2.14	2.06	1.98	2.09	1.97	1.92	1.92	1.92	1.91	1.92	1.91	
	G	24	J_{1}	10 ⁻³ in.lb.s ²	1.95	1.84	1.89	1.82	1.75	1.85	1.74	1.70	1.70	1.70	1.69	1.70	1.69	

a) Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

c) Valid for clamping hub diameter of 19 mm

d) Refers to center of the output shaft or flange

View A



min.□90³)

Ø 118 В Ø 14F7 1141 Ø 110_{h7}×10 up to 14 4) (C) 120, clamping hub diameter M6 x12 (12x) ⊕ Ø 0,2 B ____ Ø 0,02 A 8 min.29,3³⁾ 29 68 (min. 134,3)³⁾

B→

В→

up to 19⁴⁾(E) clamping hub diameter

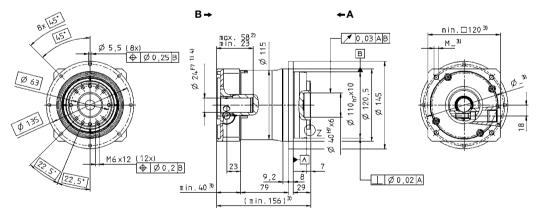
Motor shaft diameter [mm]

min.□90³) - Ø,03 AB Ø 5.5 (8x) ⊕ Ø 0.25 B M_3) Ø 63 Ø 110_{h7}×10 M6 x12 (12x) ⊕ Ø 0,2 B 9, ____ Ø 0,02 A min.33³⁾ 29 68 (min.138)³⁾

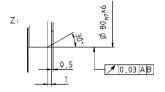
←A

←A

▼ 0,03 AB



up to 24 4) (G) clamping hub diameter



Non-tolerated dimensions $\pm 1~\text{mm}$

- 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 with a minimum thickness of 1 mm.



CAD data is available under

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

Motor mounting according to operating manual

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TP* 050 MF 1-stage

						1-st	age								
Ratio ^{a)}			i		4	5	7	10							
cymex®-optimized acceleration to	rque		T	Nm	750	800	-	600							
(please contact us regarding the sizing)			T _{2Bcym}	in.lb	6638	7080	-	5310							
Max. acceleration torque			T _{2B}	Nm	700	700	700	540							
(max. 1000 cycles per hour)			2B	in.lb	6195	6195	6195	4779							
Nominal output torque			T _{2N}	Nm	370	370	370	240							
(with n _{1N})			2N	in.lb	3275	3275	3275	2124							
Emergency stop torque			T _{2Not}	Nm · ··	1250	1250	1250	1250							
(permitted 1000 times during the service life of the	gearnead)		27101	in.lb	11063	11063	11063	11063							
Nominal input speed (with T _{2N} and 20 °C ambient temperature) b)			n _{1N}	rpm	1900	2000	2500	2500							
Max. input speed			n _{1Max}	rpm	4000	4000	4000	4000							
Mean no load running torque			_	Nm	8.1	6.6	4.8	3.5							
(with n,=3000 rpm and 20 °C gearhead tempera	ture) ^{c)}		T ₀₁₂	in.lb	71.7	58.4	42.5	31.0							
Max. torsional backlash			j_t	arcmin		Standard ≤ 3 /	['] Reduced ≤ 1								
Tausianal visidiko (2)			0	Nm/ arcmin	190	187	159	123							
Torsional rigidity c)			C ₁₂₁	in.lb/ arcmin	1682	1655	1407	1089							
Tilting rigidity			C _{2K}	Nm/ arcmin		56	60								
- Inting rigidity			2K	in.lb/ arcmin		49	56								
Max. axial force d			F _{2AMax}	N		61									
			ZAMAX	lb _f		13									
Max. tilting moment			M _{2KMax}	Nm		13									
			ZNWBA	in.lb	11815										
Efficiency at full load			η	%	97										
Service life (For calculation, see the Chapter "Information")			L	h		> 20	0000								
Weight incl. standard adapter plate			m	kg		14	.0								
Weight incl. Standard adapter plati			""	lb _m		30	1.9								
Operating noise (with <i>i</i> =10 and <i>n</i> ,=3000 rpm no load)			L _{PA}	dB(A)		≤ (65								
Max. permitted housing temperatu	ıre			°C		+(90								
max. pomitted nodoling temperatt				F		19									
Ambient temperature				°C		-15 to									
Lubrication				F		5 to									
Labridation						Lubildate	od for mo								
Paint					Blue RAL 5002										
Direction of rotation						Motor and gearhe	ad same direction								
Protection class						IP	65								
Mamont of inartic		0.4	,	kgcm ²	9.47	7.85	6.39	5.54							
Moment of inertia (relates to the drive)	G	24	$J_{_1}$	10 ⁻³ in.lb.s ²	8.38	6.95	5.66	4.90							
		32	,	kgcm ²	12.6	11.0	9.55	8.71							
Clamping hub diameter [mm]		32	J ₁	10 ⁻³ in.lb.s ²	11.1	9.74	8.45	7.70							
	K	38	$J_{_1}$	kgcm ²	13.7	12.1	10.6	9.78							
	- 1	30	J ₁	10 ⁻³ in.lb.s ²	12.1	10.7	9.38	8.65							
	M	48	$J_{_{1}}$	kgcm ²	28.3	26.7	25.3	24.4							
			- 1	10 ⁻³ in.lb.s ²	25.0	23.6	22.4	21.6							

a) Other ratios available on request

b) For higher ambient temperatures, please reduce input speed

c) Valid for clamping hub diameter of 32 and 38 mm

 $^{^{\}mbox{\tiny d)}}$ Refers to center of the output shaft or flange

View A View



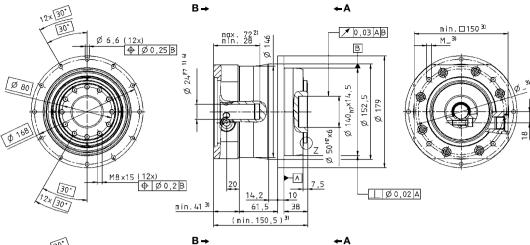
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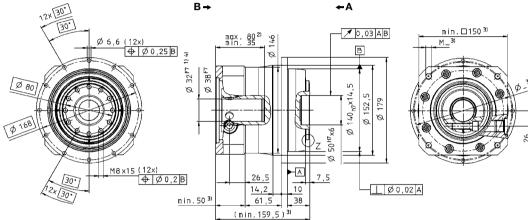


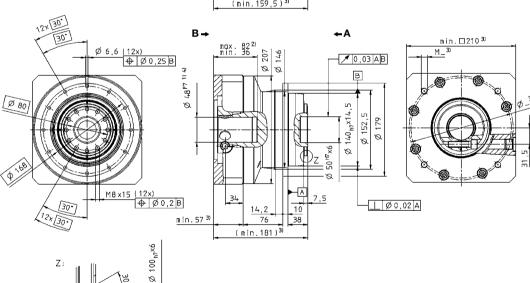
up to 32/38 4)

diameter

(I/K) clamping hub







up to 48 ⁴⁾ (M) clamping hub diameter

Motor shaft diameter [mm]

Non-tolerated dimensions $\pm 1 \text{ mm}$

-) 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.
- Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.



▼0,03 AB

CAD data is available under

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

TP* 050 MF 2-stage

				2-stage i 16 20 21 25 28 31 35 40 50 61 70 91 10															
Ratio ^{a)}			i		16	20	21	25	28	31	35	40	50	61	70	91	100		
cymex®-optimized acceleration torqu	ue		т	Nm	800	800	-	800	800	-	800	800	800	-	-	-	600		
(please contact us regarding the sizing)			T _{2Bcym}	in.lb	7080	7080	-	7080	7080	-	7080	7080	7080	-	-	-	5310		
Max. acceleration torque			T _{2B}	Nm	750	750	600	750	750	620	750	750	750	550	700	500	540		
(max. 1000 cycles per hour)			* 2B	in.lb	6638	6638	5310	6638	6638	5487	6638	6638	6638	4868	6195	4425	4779		
Nominal output torque			T _{2N}	Nm	400	400	350	400	400	400	400	400	400	350	400	220	240		
(with n _{1N})			* 2N	in.lb	3540	3540	3098	3540	3540	3540	3540	3540	3540	3098	3540	1947	2124		
Emergency stop torque			T _{2Not}	Nm	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250		
(permitted 1000 times during the service life of the gea	arhead)		21101	in.lb	11063	11063	11063	11063	11063	11063	11063	11063	11063	11063	11063	11063	11063		
Nominal input speed (with T _{2W} and 20 °C ambient temperature) b)			n _{1N}	rpm	2900	2900	2900	2900	2900	2900	2900	2900	3200	3200	3200	3900	3900		
Max. input speed			n _{1Max}	rpm	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000		
Mean no load running torque			T	Nm	4.2	3.4	3.3	3.1	2.5	2.4	2.3	1.8	1.7	1.5	1.5	1.4	1.3		
(with n_1 =3000 rpm and 20 °C gearhead temperature	e) ^{c)}		T ₀₁₂	in.lb	37.2	30.1	29.2	27.4	22.1	21.2	20.4	15.9	15.1	13.3	13.3	12.4	11.5		
Max. torsional backlash			\dot{J}_t	arcmin					5	Standard	≤ 3 / Red	duced ≤ '	1						
			_	Nm/ arcmin															
Torsional rigidity c)			C _{t21}	in.lb/ arcmin	in 1593 1637 1283 1593 1593 1151 1549 1549 1549 1089 1283 885 1018														
Tilting vigidity				Nm/ arcmin															
Tilting rigidity			C_{2K}	in.lb/ arcmin							4956								
Max. axial force d			F _{2AMax}	N							6130								
IVIAX. AXIAI TOTCE			2AMax	lb _f	1379														
Max. tilting moment			M _{2KMax}	Nm	1335														
3 1 1			2KMax	in.lb	11815														
Efficiency at full load			η	%	94														
Service life (For calculation, see the Chapter "Information")			L	h							> 20000								
Weight incl. standard adapter plate			m	kg							14.1								
Weight file. Standard adapter plate			111	lb _m							31.2								
Operating noise (with <i>i</i> =100 and <i>n</i> ₁ =3000 rpm no load)			L _{PA}	dB(A)							≤ 63								
Management of the state of the				°C							+90								
Max. permitted housing temperature	,			F							194								
Ambient temperature				°C						-	15 to +4	0							
Ambient temperature				F							5 to 104								
Lubrication										Lubi	ricated fo	r life							
Paint										Blu	ie RAL 50	002							
Direction of rotation					Motor and gearhead same direction														
Protection class					IP 65														
			kgcm ²	2.53	2.07	2.30	2.01	1.67	2.12	1.64	1.44	1.42	1.46	1.41	1.43	1.40			
Moment of inertia	Е	19	$J_{\scriptscriptstyle 1}$	10 ⁻³ in.lb.s ²	2.24	1.83	2.04	1.78	1.48	1.88	1.45	1.27	1.42	1.29	1.25	1.27	1.24		
(relates to the drive)				kgcm ²	3.22	2.77	2.99	2.70	2.36	2.81	2.33	2.13	2.12	2.15	2.10	2.12	2.09		
Clamping hub diameter [mm]	G	24	$J_{_1}$	10 ⁻³ in.lb.s ²	2.85	2.45	2.65	2.39	2.09	2.49	2.06	1.89	1.88	1.90	1.86	1.88	1.85		
				kgcm ²	10.3	9.83	10.1	9.77	9.43	9.88	9.40	9.20	9.18	9.22	9.17	9.19	9.16		
K 38			J_{1}	10 ⁻³ in.lb.s ²	9.11	8.70	8.94	8.64	8.35	8.74	8.32	8.14	8.12	8.16	8.12	8.13	8.11		

a) Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

o) Valid for clamping hub diameter of 24 mm d) Refers to center of the output shaft or flange

←A

←A

7 0,03 AB

179 152,

___ Ø 0,02 A

Ø

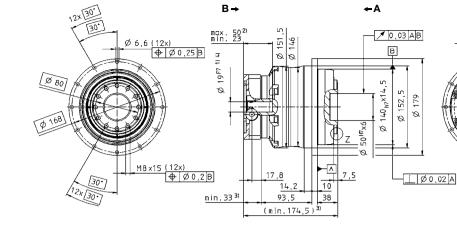
В

Ø 140_{h7}×14,5

min.□120³)

min.□120³⁾

M_3)



B→

max. min.

17 (1 Ø 24F7

min. 40 3)

B→

up to 24 4) (G) clamping hub diameter

Motor shaft diameter [mm]

12×30.

Ø 80

up to 19 4) (E)

clamping hub

diameter

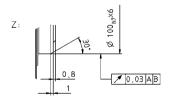
23,5 38 (min.181,5)³⁾ B→ ←A 12×30. min.□150³⁾ max. 80²⁾ **№** 0.03 AB Ø 146 38 F7 1) 4) Ø 801 a Ø 140 h7×14, 152 Ø 168 Ø M8×15 (12×) ⊕ Ø0,2 B 26,5 7,5 - Ø 0,02 A 10 min.50³⁾ 38 110,5 (min. 208,5)3)

10

Ø 146

14,2

up to 38 4) (K) clamping hub diameter



Non-tolerated dimensions $\pm 1~\text{mm}$

- 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 with a minimum thickness of 1 mm.



CAD data is available under

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

TP* 110 MF 1-stage

						1-s	tage								
Ratio ^{a)}			i		4	5	7	10							
cymex®-optimized acceleration to	rque		_	Nm	1900	2000	1900	1500							
(please contact us regarding the sizing)			T _{2Bcym}	in.lb	16815	17700	16815	13275							
Max. acceleration torque			_	Nm	1600	1600	1600	1400							
(max. 1000 cycles per hour)			$T_{_{2B}}$	in.lb	14160	14160	14160	12390							
Nominal output torque			T	Nm	700	750	750	750							
(with n _{1N})			T_{2N}	in.lb	6195	6638	6638	6638							
Emergency stop torque			T _{2Not}	Nm	2750	2750	2750	2750							
permitted 1000 times during the service life of the	gearhead)		2Not	in.lb	24338	24338	24338	24338							
Nominal input speed (with T_{2N} and 20 °C ambient temperature) b)			n _{1N}	rpm	1400	1500	2000	2000							
Max. input speed			n _{1Max}	rpm	3500	3500	3500	3500							
Mean no load running torque			т	Nm	15.6	12.7	9.4	7.0							
with n,=3000 rpm and 20 °C gearhead tempera	ature) ^{c)}		T ₀₁₂	in.lb	138.1	112.4	83.2	62.0							
Max. torsional backlash			j_t	arcmin		Standard ≤ 3	/ Reduced ≤ 1								
Torsional rigidity ©			C	Nm/ arcmin	610	610	550	445							
Torsional rigidity 9			C ₁₂₁	in.lb/ arcmin	5399	5399	4868	3938							
Tilting rigidity			C_{2K}	Nm/ arcmin		14	152								
Tilling rigidity			O _{2K}	in.lb/ arcmin		12	850								
Max. axial force d			F _{2AMax}	N	10050										
wiax. axiai ioroc			* 2AMax	lb _f	2261										
Max. tilting moment			M _{2KMax}	Nm		3280									
			2KMax	in.lb	29028										
Efficiency at full load			η	%	97										
Service life (For calculation, see the Chapter "Information")			L	h		> 21	0000								
Weight incl. standard adapter plat			m	kg		30	0.0								
Weight incl. Standard adapter plat			""	lb _m		(66								
Operating noise (with $i=10$ and $n_1=3000$ rpm no load)			L _{PA}	dB(A)		≤	66								
Max. permitted housing temperate	ure			°C		+	90								
max. pormitted flouding temperati				F		1	94								
Ambient temperature				°C			o +40								
				F		5 to	104								
Lubrication						Lubricat	ed for life								
Paint					Blue RAL 5002										
Direction of rotation					Motor and gearhead same direction										
Protection class						IP 65									
Mamont of inside	1.0	00	,	kgcm ²	44.5	34.6	25.5	20.6							
Moment of inertia (relates to the drive)	K	38	$J_{_1}$	10 ⁻³ in.lb.s ²	39.4	30.6	22.6	18.2							
	,		,	kgcm ²	51.8	41.9	32.9	28.0							
Clamping hub diameter [mm]	· ·		$J_{_1}$	10 ⁻³ in.lb.s ²	45.8	37.1	29.1	24.8							
	N	E E	,	kgcm ²	61,5	51,5	42,3	37,3							
	IA	55	$J_{_{1}}$	10 ⁻³ in.lb.s ²	54,4	45,6	37,5	33,0							

a) Other ratios available on request

^{b)} For higher ambient temperatures, please reduce input speed

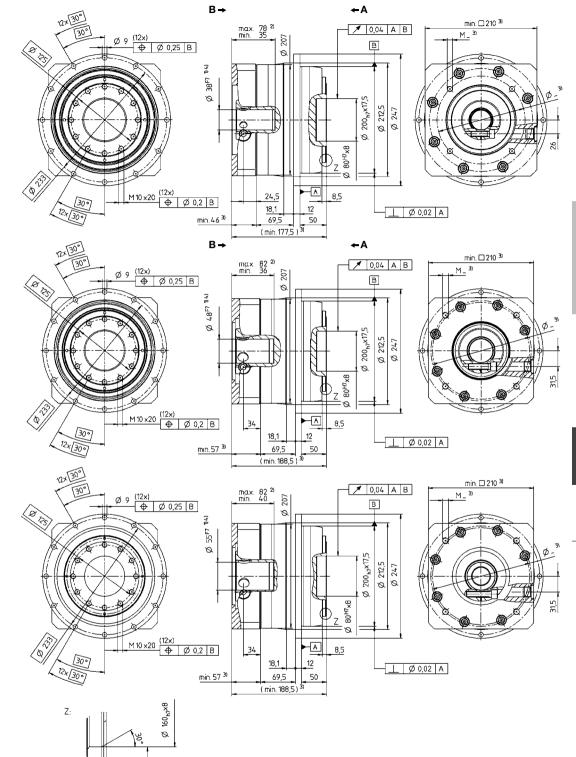
o) Valid for clamping hub diameter of 48 mm d) Refers to center of the output shaft or flange







up to 55 4) (N) clamping hub diameter



Non-tolerated dimensions ±1 mm

- 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 with a minimum thickness of 1 mm.



CAD data is available under

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

Motor mounting according to operating manual

 \mathbb{H}

TP+ **110 MF** 2-stage

											2-stage)							
Ratio ^{a)}			i		16	20	21	25	28	31	35	40	50	61	70	91	100		
cymex®-optimized acceleration toro	lue		T _{2Bcym}	Nm	2000	2000	-	2000	2000	-	2000	1800	1800	-	1800	-	1500		
Max. acceleration torque				in.lb Nm	17700 1600	17700 1600	1400	17700	17700 1600	1600	17700 1600	15930 1600	15930 1600	1400	15930 1600	1300	13275 1400		
(max. 1000 cycles per hour)			T _{2B}	in.lb	14160	14160	12390	14160	14160	14160	14160	14160	14160	12390	14160	11505	12390		
Nominal output torque (with n_m)			T _{2N}	Nm in.lb	980 8673	980 8673	850 7523	1050 9293	1050 9293	1250 11063	1250 11063	850 7523	1050 9293	1100 9735	900 7965	700 6195	800 7080		
Emergency stop torque			_	Nm	2750	2750	2750	2750	2750	2750	2750	2750	2750	2750	2750	2750	2750		
(permitted 1000 times during the service life of the ge	earhead)		T _{2Not}	in.lb	24338	24338	24338	24338	24338	24338	24338	24338	24338	24338	24338	24338	24338		
Nominal input speed (with T _{2N} and 20 °C ambient temperature) b)			n _{1N}	rpm	2500	2500	2500	2500	2500	2500	2500	2500	2900	3200	3200	3400	3400		
Max. input speed ©			n _{1Max}	rpm	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500		
Mean no load running torque	۵)		T ₀₁₂	Nm	6.9	5.6	5.5	5.0	4.1	3.9	3.7	3.0	2.7	2.5	2.4	2.2	2.2		
(with n,=3000 rpm and 20 °C gearhead temperatu	re) ^{c)}		012	in.lb	61.1	49.6	48.7	44.3	36.3	34.5	32.7	26.6	23.9	22.1	21.2	19.5	19.5		
Max. torsional backlash			j_t	arcmin					\$	Standard	≤ 3 / Red	duced ≤ '	1						
Torsional rigidity c)			C _{t21}	Nm/ arcmin															
				in.lb/ arcmin	51//	5133	4115	5045	4956	3894	1452	4602	4646	3673	4248	3186	3496		
Tilting rigidity			C_{2K}	in.lb/ arcmin	nin 12850														
May avial fares (I)			_	N							10050								
Max. axial force d			F _{2AMax}	lb _f							2261								
Max. tilting moment		M _{2KMax}	Nm	3280 29028															
			2KMax	in.lb	29028														
Efficiency at full load			η	%	6 94														
Service life (For calculation, see the Chapter "Information")			L	h	> 20000														
Weight incl. standard adapter plate			m	kg							34.0								
				lb _m							75.1								
Operating noise (with i=100 and n,=3000 rpm no load)	_		L _{PA}	dB(A)							≤ 66								
Max. permitted housing temperature	е			°C F							+90 194								
				°C							-194 -15 to +4	0							
Ambient temperature				F							5 to 104								
Lubrication										Lub	ricated fo	or life							
Paint										Blu	ie RAL 50	002							
Direction of rotation									Moto	or and ge	arhead s	ame dire	ction						
Protection class											IP 65								
Moment of inertia	ertia G			kgcm ²	8.51	8.21	8.98	7.82	6.57	8.09	6.37	5.63	5.54	5.63	5.44	5.50	5.39		
(relates to the drive)	G	24	J ₁	10 ⁻³ in.lb.s ²	7.53	7.27	7.95	6.92	5.81	7.16	5.64	4.99	4.90	4.99	4.82	4.87	4.77		
Clamping hub diameter [mm]	1	32	$J_{\scriptscriptstyle 1}$	kgcm²	11.7	11.4	12.1	11.0	9.73	11.3	9.54	8.80	8.70	8.79	8.61	8.67	8.56		
				10 ⁻³ in.lb.s ² kgcm ²	10.3 12.7	10.1 12.5	10.7	9.72	8.61 10.8	9.96	10.6	7.78 9.87	7.70 9.77	7.78 9.87	7.62 9.68	7.67 9.74	7.57 9.63		
	K	38	$J_{_{1}}$	10 ⁻³ in.lb.s ²	11.3	11.0	11.7	10.7	9.6	10.9	9.39	8.73	8.65	8.73	8.56	8.62	8.52		
		40	1,	kgcm ²	27.4	27.1	27.8	26.7	25.4	26.9	25.3	24.5	24.4	24.5	24.3	24.4	24.3		
	M	48	$J_{\scriptscriptstyle 1}$	10 ⁻³ in.lb.s ²	24.2	24.0	24.6	23.6	22.5	23.8	22.3	21.7	21.6	21.7	21.5	21.6	21.5		

a) Other ratios available on request

b) For higher ambient temperatures, please reduce input speed

o Valid for clamping hub diameter of 32 and 38 mm

d) Refers to center of the output shaft or flange

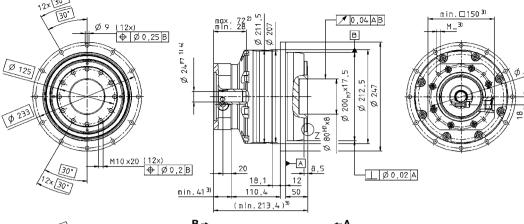
View A View

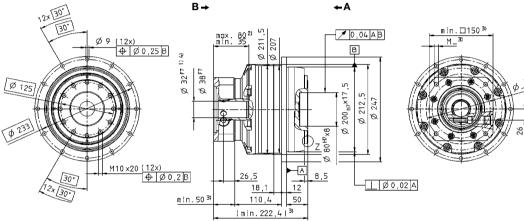
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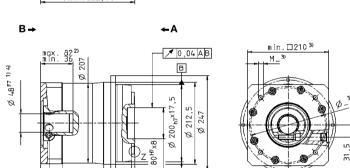




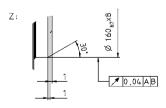




Wotor shaft diameter (I/K) clamping hub diameter diameter



up to 48 ⁴⁾ (M) clamping hub diameter



Ø 9 (12x) ⊕ Ø 0,25 B

> M10 x20 (12x) ⊕ Ø 0,2 B

> > <u>min.57</u>3)

12×30.

Ø 1251

Ø 233

Non-tolerated dimensions $\pm 1 \text{ mm}$

1) Check motor shaft fit.

8,5

 Min./Max. permissible motor shaft length. Longer motor shafts are adaptable, please contact us.

- _ _ Ø 0,02 A

- 3) The dimensions depend on the motor.
- Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.



18,1

124,9 (min. 243,9)³⁾

CAD data is available under

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

Motor mounting according to operating manual

 \mathbb{A}

TP+ 300 MF 1/2-stage

						1-stage						2-st	tage				
Ratio ^{a)}			i		5	7	10	20	21	25	31	35	50	61	70	91	100
Max. acceleration torque			T _{2B}	Nm	3500	3300	1900	3500	3400	3500	3500	3500	3000	2800	3300	2800	2800
(max. 1000 cycles per hour)			20	in.lb	30975	29205	16815	30975	30090	30975	30975	30975	26550	24780	29205	24780	24780
Nominal output torque (with $n_{_{1N}}$)			T _{2N}	Nm in.lb	2200 19470	1800 15930	1000 8850	2300 20355	2100 18585	2400 21240	2200 19470	2500 22125	1900 16815	1600 14160	1800 15930	1600 14160	1600 14160
Emergency stop torque			T _{2Not}	Nm	8750	8750	8750	8750	8750	8750	8750	8750	8750	8750	8750	8750	8750
(permitted 1000 times during the service life of t	he gea	rhead)	ZIVOI	in.lb	77438	77438	77438	77438	77438	77438	77438	77438	77438	77438	77438	77438	77438
Nominal input speed (with $T_{\rm 2N}$ and 20 °C ambient temperature) ^{b)}			n _{1N}	rpm	1000	1400	1700	2000	2000	2000	2000	2000	2300	2400	2400	2500	2500
Max. input speed			n _{1Max}	rpm	2500	2500	2500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500
Mean no load running torque			_	Nm	23	17	11	10	9,5	9,0	7,0	6,0	5,0	4,0	4,0	3,5	3,5
(with n,=2000 rpm and 20 °C gearhead temp	erature	:)	T ₀₁₂	in.lb	204	150	97	89	84	80	62	53	44	35	35	31	31
Max. torsional backlash			j_t	arcmin	Standar	d ≤ 3 / Red	uced ≤ 1			•	Stan	dard ≤ 3	/ Reduce	d ≤ 2			
			_	Nm/ arcmin	1000	900	700	850	800	950	750	900	800	700	800	600	650
Torsional rigidity			C ₁₂₁	in.lb/ arcmin	8850	7965	6195	7523	7080	9408	6638	7965	7080	6195	7080	5310	5753
Tilting rigidity			C _{2K}	Nm/ arcmin							5560 49206						
				N							33000						
Max. axial force c)			F _{2AMax}	lb,							7425						
				Nm		3900					5900						-
Max. tilting moment			M _{2KMax}	in.lb		34515					52215						
Efficiency at full load			η	%		95					93						
Service life (For calculation, see the Chapter "Information	ı")		L _n	h							> 20000						
Weight inclusted adapter of	oto.			kg		60					58.5						
Weight incl. standard adapter pl	ale		m	lb _m		132.6					129.3						
Operating noise (with <i>i</i> =10 and <i>n_i</i> =2000 rpm without load)			L _{PA}	dB(A)							≤ 64						
Management of the state of the				°C							+90						
Max. permitted housing tempera	ature			F							194						
Ambient temperature				°C							-15 to +40	0					
Ambient temperature				F							5 to 104						
Lubrication										Lub	ricated fo	r life					
Paint										Blu	ue RAL 50	002					
Direction of rotation									Mot	or and ge	earhead s	ame dired	ction				
Protection class											IP 65						
				kgcm ²				31.6	27.7	26.6	26.1	25.0	24.1	24.0	23.9	23.9	23.8
Moment of inertia (relates to the drive)	M	48	J_1	10 ⁻³ in.lb.s ²	-	-	-	27.9	24.5	23.5	23.1	22.1	21.4	21.3	21.2	21.1	21.0
	N	55	,	kgcm ²	86.6	63.8	51.4					_				_	
Clamping hub diameter [mm]	1.4	55	J_1	10 ⁻³ in.lb.s ²	76.6	56.5	45.5	_	_	_	_	-		-		-	-

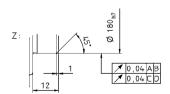
a) Other ratios available on request

b) For higher ambient temperatures, please reduce input speed

c) Refers to center of the output shaft or flange

View A

min.57³⁾



Non-tolerated dimensions ±1,5 mm

- 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 with a minimum thickness of 1 mm.



20

(min. 260,7)3)

66

119,7

CAD data is available under http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

TP+ 500 MF 1/2-stage

						1-stage						2-st	age				
Ratio ^{a)}			i		5	7	10	20	21	25	31	35	50	61	70	91	100
Max. acceleration torque (max. 1000 cycles per hour)			T _{2B}	Nm in.lb	6000 53100	5000 44250	3400 30090	6000 53100	5000 44250	6000 53100	6000 53100	6000 53100	4500 39825	4800 42480	5000 44250	4800 42480	4800 42480
Nominal output torque			T _{2N}	Nm	3250	2800	1700	3350	3200	3800	3700	3800	2900	2900	2800	2900	2900
$(\text{with } n_{\text{\tiny{NN}}})$ Emergency stop torque				in.lb Nm	28763 15000	24780 15000	15045 15000	29648 15000	28320 15000	33630 15000	32745 15000	33630 15000	25665 15000	25665 15000	24780 15000	25665 15000	25665 15000
(permitted 1000 times during the service life of t	the gea	rhead)	T _{2Not}	in.lb	132750	132750	132750	132750	132750	132750	132750	132750	132750	132750	132750	132750	132750
Nominal input speed (with $T_{\rm 2N}$ and 20 °C ambient temperature) b)			n _{1N}	rpm	900	1300	1500	1500	1500	1500	1500	1500	2000	2100	2100	2200	2200
Max. input speed			n _{1Max}	rpm	2500	2500	2500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500
Mean no load running torque			_	Nm	30	22	14	13	12	10	8,0	7,0	6,0	5,0	5,0	4,5	4,5
(with n ₁ =2000 rpm and 20 °C gearhead temp	erature	:)	T ₀₁₂	in.lb	266	195	124	115	106	89	71	62	53	44	44	40	40
Max. torsional backlash			j_t	arcmin	Standar	d ≤ 3 / Red	uced ≤ 1				Stan	dard ≤ 3	/ Reduce	d ≤ 2			
Torsional rigidity			_	Nm/ arcmin	1450	1300	1100	1400	1200	1450	1200	1400	1300	1100	1250	950	1050
Torsional rigidity			C _{t21}	in.lb/ arcmin	12833	11505	9735	12390	10620	12833	10620	12390	11505	9735	11063	8401	9293
Tilting rigidity			C _{2K}	Nm/ arcmin							9480 83898						
Max. axial force c)			Е	N							50000						
iviax. axiai force 5			F _{2AMax}	lb _f							11250						
Max. tilting moment			M _{2KMax}	Nm		5500					8800						
wax. titting moment			2KMax	in.lb		48675					77880			-			
Efficiency at full load			η	%		95					93						
Service life (For calculation, see the Chapter "Information	on")		L	h							> 20000						
Weight incl. standard adapter pl	ate		m	kg lb _m		82 181.2					77.5 171.3						
Operating noise (with i=10 and n,=2000 rpm no load)			L _{PA}	dB(A)							≤ 66						
(with 1 to and m ₁ = 2000 fpin no load)				°C							+90						
Max. permitted housing tempera	ature			F							194						
				°C							-15 to +40)					
Ambient temperature				F							5 to 104						
Lubrication										Lub	ricated fo	r life					
Paint										Blu	ue RAL 50	002					
Direction of rotation						,			Mot	or and ge	earhead s	ame direc	tion				
Protection class											IP 65						
				kgcm ²				35.9	40.2	33.7	35.4	27.4	25.4	25.8	25.0	25.2	24.8
Moment of inertia (relates to the drive)	M	48	$J_{_{1}}$	10 ⁻³ in.lb.s ²	-	-	-	31.7	35.6	29.8	31.3	24.3	22.5	22.8	22.1	22.3	22.0
	0	60	,	kgcm ²	181.9	142.0	119.8	_		_		_		1		1	
Clamping hub diameter [mm]	0	60	$J_{_{1}}$	10 ⁻³ in.lb.s ²	161.0	125.7	106.0	_	_	_	_	_		-		-	_

a) Other ratios available on request

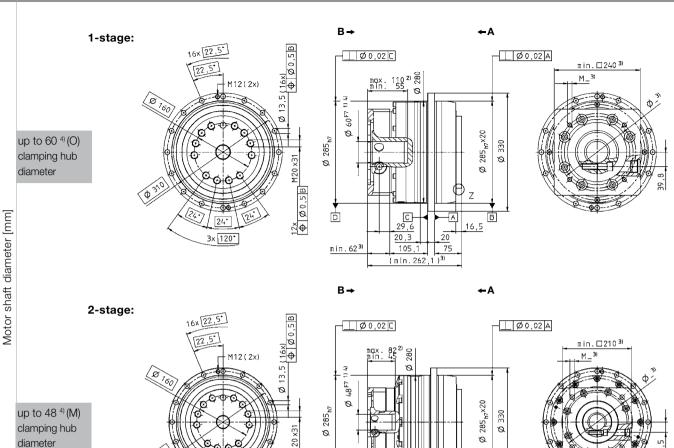
b) For higher ambient temperatures, please reduce input speed

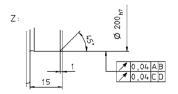
c) Refers to center of the output shaft or flange

View A



 $\mathbb{A}_{\mathbb{F}}$





3x 120°

12x | Ф | Ø 0,5 B

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<u>min.57</u>3)

Non-tolerated dimensions ±1,5 mm

- 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.

16,5 B

20

20

134,6

(min. 286,6)³⁾

4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.



CAD data is available under

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

TP+ 010 MA HIGH TORQUE

Max. acceleration torque Table Non 230 2							2-s	tage			3-st	tage	
Part	Ratio ^{a)}			i		22	27.5	38.5	55	88	110	154	220
Minute 100 1	Max. acceleration torque			T	Nm	230	230	230	230	230	230	230	
Formation Form	(max. 1000 cycles per hour)			· 2B	in.lb	2036	2036	2036	2036	2036	2036	2036	2036
## Second Process 1974 1975 197	Nominal output torque			Т	Nm	150	150	180	110	180	180	180	180
	(with $n_{_{7N}}$)			* 2N	in.lb	1328	1328	1593	974	1593	1593	1593	1593
Nominal input speed	Emergency stop torque			т	Nm	525	525	525	525	525	525	525	525
Max. Input speed	(permitted 1000 times during the service life of the	e geai	rhead)	2Not	in.lb	4646	4646	4646	4646	4646	4646	4646	4646
Max. torsional backlash	Nominal input speed (with $T_{\rm 2N}$ and 20 °C ambient temperature) ^{b)}			n _{1N}	rpm	4000	4000	4000	4000	4500	4500	4500	4500
Max. torsional backlash	Max. input speed			n _{1Max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000
Max. torsional backlash	Mean no load running torque			_	Nm	0.60	0.50	0.45	0.35	0.35	0.35	0.30	0.30
Torsional rigidity ^a Correctional rigidity ^a Correctional rigidity ^a Correctional rigidity ^a Correctional rigidity ^b Correctional rigidity ^a Correctional rigidity ^b Correctional rigidity ^a Correctional rigidity ^b Correctional rigidity ^b Correctional rigidity ^b Correctional rigidity ^a Correctional rigidity ^b Correctional rigidity ^a Correction of rotation Correctional rigidity ^a		rature) ^{c)}	I ₀₁₂	in.lb	5.30	4.40	4.00	3.10	3.10	3.10	2.70	2.70
Triting rigidity Car September Sep	Max. torsional backlash			\dot{J}_t	arcmin		<u></u>	1			≤	1	
Triting rigidity Car September Sep					Nm/ arcmin	43	43	43	42	42	42	42	42
Tilting rigidity	Torsional rigidity c)			C_{t21}	in.lb/ arcmin								
Titling rigidity Max. axial force a					Nm/ arcmin				0.2	0.2			0.2
Max. axial force [®] F _{2Mdate} Max. titting moment M _{20date}	Tilting rigidity			C_{2K}	\vdash								
Max. axial force ⁴⁸			-										
Max. tilting moment Mm 400 400 Efficiency at full load η % 94 92 Service life For calculation, see the Chapter "Information") L _n h > 200000 > 200000 Weight incl. standard adapter plate m kg 3.2 3.6 Weight incl. standard adapter plate m kg 3.2 3.6 Operating noise (wm n, = 3000 rpm no load) L _{PA} dB(A) ≤ 60 ≤ 60 Max. permitted housing temperature F 194 490 Ambient temperature F 194 490 Lubrication Lubricated for life Lubricated for life Paint Blue RAL 5002 Direction of rotation Motor and gearhead same direction Protection class IP 65 Moment of inertia (restate to the drive) C 14 J ₁ kgcm² 0.21 0.18 0.16 0.14 0.16 0.14 0.13 0.12 0.12 0.12	Max. axial force d)			$F_{_{2AMax}}$									
Max. tilting moment Max. permitted housing temperature Ln h > 200000 > 200000 Service life (Fro calculation, see the Chapter *Information*) Ln h > 200000 > 200000 Weight incl. standard adapter plate m kg 3.2 3.6 Weight incl. standard adapter plate Lpsk dB(A) ≤ 60 ≤ 60 Max. permitted housing temperature F 194 4 Ambient temperature F 194 4 Lubrication Lubricated for life Lubricated for life Paint Blue RAL 5002 Blue RAL 5002 Direction of rotation Motor and gearhead same direction Protection class IP 65 Moment of inertia (relative to the drive) C 14 J ₁ kgcm² 0.21 0.18 0.14 0.12 0.14 0.13 0.12 0.12 0.12			-		· ·								
Efficiency at full load	Max. tilting moment			M _{2KMax}	\vdash								
Service life For calculation, see the Chapter "Information"					In.ib		35	940					
For calculation, see the Chapter "Information" L _h	Efficiency at full load			η	%		9	94			9	2	
Note	Service life (For calculation, see the Chapter "Information")			L_h	h		> 20	0000			> 20	0000	
D _m 7.1 8.0 Operating noise (with η, = 3000 rpm no load)	Maintainal standard adoptor als				kg		3	.2			3	.6	
Operating noise (with n, = 3000 rpm no load) L _{PA} dB(A) ≤ 60 ≤ 60 Max. permitted housing temperature F 194 Ambient temperature F 15 to +40 Lubrication F 5 to 104 Lubricated for life Paint Blue RAL 5002 Direction of rotation Motor and gearhead same direction Protection class IP 65 Moment of inertia (relates to the drive) C 14 J ₁ kgcm² 0.21 0.18 0.16 0.14 0.13 0.12 0.12 Classes in the drive) E 19 J kgcm² 0.52 0.50 0.47 0.46	weight incl. standard adapter pla	ite		m	lb _m		7	.1			8	.0	
With n,=3000 rpm no load LpA dB(N) 5 00 5 00	Operating noise												
Max. permitted housing temperature	(with $n_1 = 3000$ rpm no load)			L _{PA}	aR(A)		≤	UO			≤	UO	
F 194	Many manufactural leaves to a state of	L			°C				+	90			
Ambient temperature F 5 to 104 Lubrication Lubricated for life Paint Blue RAL 5002 Direction of rotation Motor and gearhead same direction Protection class IP 65 Moment of inertia (relates to the drive) C 14 J, kgcm² 0.21 0.18 0.16 0.14 0.15 0.14 0.13 0.12 0.12 E 19 J. kgcm² 0.52 0.50 0.47 0.46	wax. permitted nousing temperat	ure			F				1	94			
F 5 to 104	Ameliand damen austinis				°C				-15 t	o +40			
Paint Blue RAL 5002 Direction of rotation Motor and gearhead same direction Protection class IP 65 Moment of inertia (relates to the drive) C 14 J, kgcm² 0.21 0.18 0.16 0.14 0.16 0.15 0.14 0.13 (relates to the drive) E 19 J, kgcm² 0.52 0.50 0.47 0.46	Ambient temperature				F				5 to	104			
Direction of rotation Motor and gearhead same direction	Lubrication								Lubricat	ed for life			
Protection class Protection class IP 65	Paint								Blue R	AL 5002			
Moment of inertia (relates to the drive) C 14 J, kgcm² 0.21 0.18 0.16 0.14 0.16 0.15 0.14 0.13 (relates to the drive) C 14 J, kgcm² 0.19 0.16 0.14 0.12 0.14 0.13 0.12 0.12 (Stamples but dismester [mm]) E 19 J.	Direction of rotation							М	otor and gearhe	ead same direct	tion		
Moment of inertia (relates to the drive) C 14 J, 0.19 0.16 0.14 0.12 0.14 0.13 0.12 0.12 0.12 0.14 0.13 0.12 0.12 0.14 0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15	Protection class								IP	65		-	
Moment of inertia (relates to the drive) C 14 J, 0.19 0.16 0.14 0.12 0.14 0.13 0.12 0.12 0.12 0.14 0.13 0.12 0.12 0.14 0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15					kgcm ²	0.21	0.18	0.16	0.14	0.16	0.15	0.14	0.13
E 19 J.		С	14	$J_{_{1}}$									
Clamping but diameter [mm] E 19 J.	(relates to the drive)									J. 1 1	5.10	J.12	U.12
	Clamping hub diameter [mm]	Е	19	$J_{_1}$	10 ⁻³ in.lb.s ²	0.46	0.44	0.42	0.40	-	-	-	-

a) Other ratios available on request

b) For higher ambient temperatures, please reduce input speed

c) Valid for clamping hub diameter of 14 mm

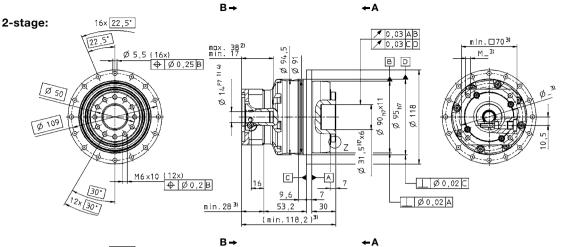
d) Refers to center of the output shaft or flange

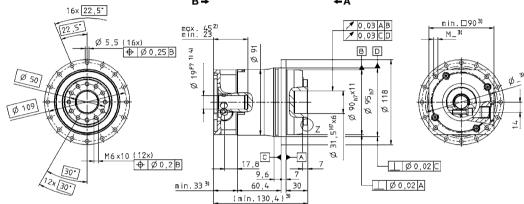
wittenstein alp



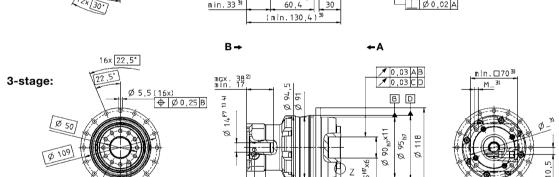




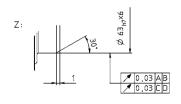




Motor shaft diameter (mm) up to 19 4 (E) clamping hub diameter



up to 14 ⁴⁾ (C) clamping hub diameter



12x 30.

<u>min.28³</u>

Non-tolerated dimensions $\pm 1 \text{ mm}$

D

_30

(min.139,9)

- 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.
- Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm.



CAD data is available under

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

Motor mounting according to operating manual

Σ

TP+ 025 MA HIGH TORQUE

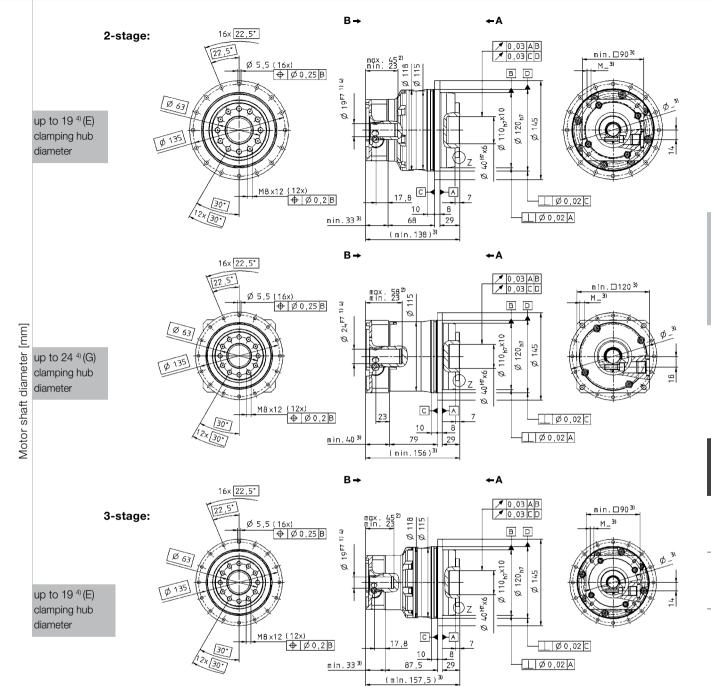
				2-st	tage				3-stage		
Ratio ^{a)}	i		22	27.5	38.5	55	66	88	110	154	220
Max. acceleration torque	_	Nm	530	530	530	530	480	480	480	480	480
(max. 1000 cycles per hour)	T _{2B}	in.lb	4691	4691	4691	4691	4248	4248	4248	4248	4248
Nominal output torque	T	Nm	320	350	375	375	260	260	260	260	260
(with $n_{_{7N}}$)	T _{2N}	in.lb	2832	3098	3319	3319	2301	2301	2301	2301	2301
Emergency stop torque	T	Nm	1200	1200	1200	1200	1200	1200	1200	1200	1200
(permitted 1000 times during the service life of the gearhead)	T _{2Not}	in.lb	10620	10620	10620	10620	10620	10620	10620	10620	10620
Nominal input speed (with $T_{\rm 2N}$ and 20 °C ambient temperature) ^{b)}	n _{1N}	rpm	3500	3500	3500	3500	4000	4000	4000	4000	4000
Max. input speed	n _{1Max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000
Mean no load running torque	_	Nm	1.1	1.0	0.8	0.6	0.7	0.7	0.6	0.4	0.4
(with n_{τ} =3000 rpm and 20 °C gearhead temperature) °C	T ₀₁₂	in.lb	9.7	8.9	7.1	5.3	6.2	6.2	5.3	3.5	3.5
Max. torsional backlash	j_t	arcmin		≤	1				≤ 1		
T : 1 : : 11 : 2		Nm/ arcmin	105	105	105	100	95	95	95	95	95
Torsional rigidity ©	C _{t21}	in.lb/ arcmin	929	929	929	885	841	841	841	841	841
Tilain a vinialia.		Nm/ arcmin		5	50				550		
Tilting rigidity	C _{2K}	in.lb/ arcmin		48	368				4868		
Max. axial force d	_	N		41	50				4150		
Max. axiai force -	F _{2AMax}	lb _f		9:	34				934		
Max. tilting moment	14	Nm		5	50				550		
wax. titting moment	M _{2KMax}	in.lb		48	368				4868		
Efficiency at full load	η	%		g)4				92		
Service life (For calculation, see the Chapter "Information")	L	h		> 20	0000				> 20000		
		kg		5	.6				6.1		
Weight incl. standard adapter plate	m	lb _m		12	2.4				13.5		
Operating noise	,				00				. 00		
(with n,=3000 rpm no load)	L _{PA}	dB(A)		≤	62				≤ 62		
May permitted housing tomporature		°C					+90				
Max. permitted housing temperature		F					194				
Ambient temperature		°C					-15 to +40				
Ambon temperature		F					5 to 104				
Lubrication						Lu	ubricated for l	ife			
Paint						I	Blue RAL 500	2			
Direction of rotation						Motor and	gearhead san	ne direction			
Protection class							IP 65				
		kgcm ²	0.87	0.70	0.60	0.55	0.63	0.56	0.53	0.51	0.50
Moment of inertia E 19 (relates to the drive)	J_1	10 ⁻³ in.lb.s ²	0.77	0.62	0.53	0.49	0.56	0.50	0.47	0.45	0.44
\		kaom²	2.39	2.22							
Clamping hub diameter [mm] G 24	J_1	kgcm ²	2.39	2.22	2.12	2.07		_	_	_	_

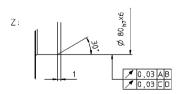
a) Other ratios available on request

b) For higher ambient temperatures, please reduce input speed

c) Valid for clamping hub diameter of 19 mm

d) Refers to center of the output shaft or flange





Non-tolerated dimensions ±1 mm

- 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 with a minimum thickness of 1 mm.



CAD data is available under

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

TP+ 050 MA HIGH TORQUE

					2-st	tage				3-stage		
Ratio a)		i		22	27.5	38.5	55	66	88	110	154	220
Max. acceleration torque		т	Nm	950	950	950	950	950	950	950	950	950
(max. 1000 cycles per hour)		T _{2B}	in.lb	8408	8408	8408	8408	8408	8408	8408	8408	8408
Nominal output torque		т	Nm	575	600	650	675	675	675	675	675	675
(with $n_{_{1N}}$)		T_{2N}	in.lb	5089	5310	5753	5974	5974	5974	5974	5974	5974
Emergency stop torque		т	Nm	2375	2375	2375	2375	2375	2375	2375	2375	2375
(permitted 1000 times during the service life of the ge	arhead)	T _{2Not}	in.lb	21019	21019	21019	21019	21019	21019	21019	21019	21019
Nominal input speed (with T _{2N} and 20 °C ambient temperature) ^{b)}		n _{1N}	rpm	3000	3000	3000	3000	3500	3500	3500	3500	3500
Max. input speed		n _{1Max}	rpm	5000	5000	5000	5000	5000	5000	5000	5000	5000
Mean no load running torque		_	Nm	3.7	2.9	2.0	1.7	2.0	1.6	1.4	0.9	0.7
(with n,=3000 rpm and 20 °C gearhead temperatur	e) ^{c)}	T ₀₁₂	in.lb	32.7	25.7	17.7	15.0	17.7	14.2	12.4	8.0	6.2
Max. torsional backlash		j_t	arcmin		≤	1				≤ 1		
		_	Nm/ arcmin	220	220	220	220	205	205	205	205	205
Torsional rigidity °)		C _{t21}	in.lb/ arcmin	1947	1947	1947	1947	1814	1814	1814	1814	1814
		_	Nm/ arcmin		5	60				560		
Tilting rigidity		C_{2K}	in.lb/ arcmin		49	956				4956		
		_	N		61	130				6130		
Max. axial force d		F _{2AMax}	lb,		13	379				1379		
			Nm		13	335				1335		
Max. tilting moment		M _{2KMax}	in.lb		11	815	,		,	11815		
Efficiency at full load		η	%		S	94				92		
Service life (For calculation, see the Chapter "Information")		L _n	h		> 20	0000				> 20000		
			kg		12	2.5				13.4		
Weight incl. standard adapter plate		m	lb _m		27	7.6				29.6		
Operating noise						24				. 0.4		
(with n ₁ =3000 rpm no load)		L_{PA}	dB(A)		≤	64				≤ 64		
May posmitted be seize to see			°C					+90				
Max. permitted housing temperature			F					194				
Ambient temperature			°C					-15 to +40				
Ambient temperature			F			-		5 to 104				
Lubrication							Lı	ubricated for I	ife			
Paint							ı	Blue RAL 500	2			
Direction of rotation							Motor and	gearhead san	ne direction			
Protection class								IP 65				
			kgcm ²	3.76	3.32	3.01	2.82	2.61	2.42	2.22	2.12	2.07
Moment of inertia G (relates to the drive)	24	$J_{_1}$	10 ⁻³ in.lb.s ²	3.33	2.94	2.66	2.50	2.31	2.14	1.96	1.88	1.83
	00	,	kgcm ²	10.7	10.3	9.92	9.73					
Clamping hub diameter [mm]	38	$J_{_{1}}$	10 ⁻³ in.lb.s ²	9.47	9.11	8.78	8.61	_	_	-	-	-

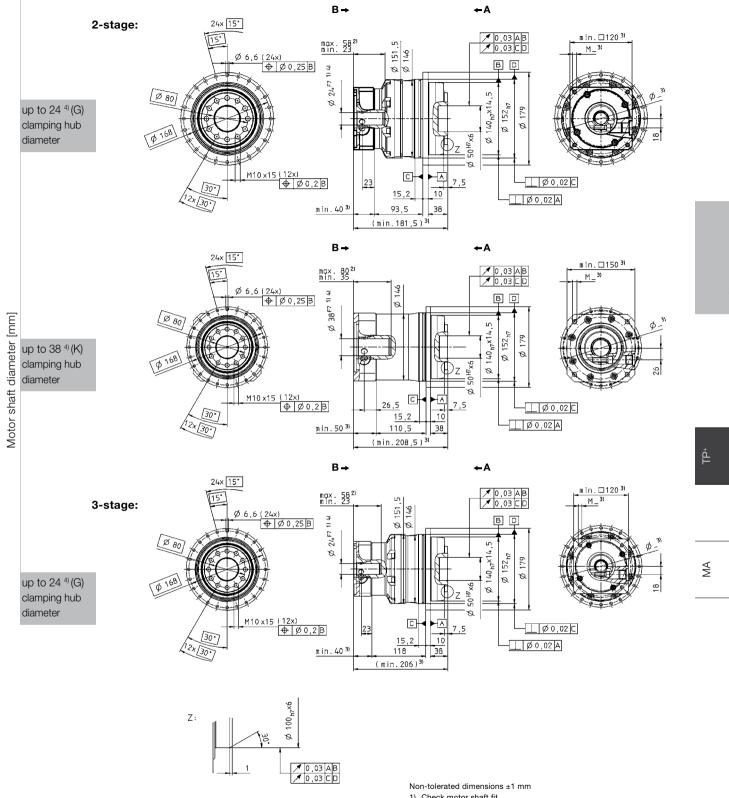
a) Other ratios available on request

 $^{^{\}mbox{\scriptsize b)}}$ For higher ambient temperatures, please reduce input speed

c) Valid for clamping hub diameter of 24 mm

d) Refers to center of the output shaft or flange





- 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 with a minimum thickness of 1 mm.



CAD data is available under

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

TP+ 110 MA HIGH TORQUE

						2- s	tage				3-stage		
Ratio ^{a)}			i		22	27.5	38.5	55	66	88	110	154	220
Max. acceleration torque			-	Nm	3100	3100	3100	2000	2600	2600	2600	2600	2600
(max. 1000 cycles per hour)			T _{2B}	in.lb	27435	27435	27435	17700	23010	23010	23010	23010	23010
Nominal output torque			т	Nm	1570	1600	1650	1400	1600	1750	1750	1750	1750
(with n _{1N})			T_{2N}	in.lb	13895	14160	14603	12390	14160	15488	15488	15488	15488
Emergency stop torque			т	Nm	6500	6500	6500	6500	6500	6500	6500	6500	6500
(permitted 1000 times during the service life of the	e gea	head)	T _{2Not}	in.lb	57525	57525	57525	57525	57525	57525	57525	57525	57525
Nominal input speed (with $T_{\rm 2N}$ and 20 °C ambient temperature) ^{b)}			n _{1N}	rpm	2500	2500	2500	2500	3000	3000	3000	3000	3000
Max. input speed			n _{1Max}	rpm	4500	4500	4500	4500	4500	4500	4500	4500	4500
Mean no load running torque			_	Nm	8.0	5.5	4.5	4.0	5.0	4.0	3.5	2.0	1.8
(with n,=3000 rpm and 20 °C gearhead tempe	rature) ^{C)}	T ₀₁₂	in.lb	70.8	48.7	39.8	35.4	44.3	35.4	31.0	17.7	15.9
Max. torsional backlash			j_t	arcmin		<u></u>	1				≤ 1		
			_	Nm/ arcmin	730	725	715	670	650	650	650	650	650
Torsional rigidity c)			C_{t21}	in.lb/ arcmin	6461	6416	6328	5930	5753	5753	5753	5753	5753
			_	Nm/ arcmin		14	152	L		l	1452		
Tilting rigidity			C_{2K}	in.lb/ arcmin		12	850				12850		
			_	N		10	050				10050		
Max. axial force d			F _{2AMax}	lb,		22	261				2261		
11 202				Nm		32	280				3280		-
Max. tilting moment			$M_{_{2KMax}}$	in.lb		29	028				29028		
Efficiency at full load			η	%		ę	94				92		
Service life (For calculation, see the Chapter "Information"))		L _h	h		> 20	0000				> 20000		
				kg		30	3.1				35.4		
Weight incl. standard adapter pla	ite		m	lb _m		7;	3.2				78.2		
Operating noise													
(with n_1 = 3000 rpm no load)			L_{PA}	dB(A)		≤	66				≤ 66		
May paymitted become tour	4 1 11			°C					+90				
Max. permitted housing tempera	ure			F					194				
Ambient temperature				°C					-15 to +40				
Ambient temperature				F					5 to 104				
Lubrication								L	ubricated for I	ife			
Paint									Blue RAL 500	2			
Direction of rotation								Motor and	gearhead san	ne direction			
Protection class									IP 65				
				kgcm ²	16.6	15.2	13.9	13.1	13.8	10.2	9.77	9.47	9.16
Moment of inertia (relates to the drive)	K	38	$J_{_{1}}$	10 ⁻³ in.lb.s ²	14.7	13.5	12.3	11.6	12.2	9.03	8.65	8.38	8.11
	3.5	40	,	kgcm ²	31.4	29.9	28.7	28.0					
Clamping hub diameter [mm]	M	48	$J_{_{1}}$	10 ⁻³ in.lb.s ²	27.8	26.5	25.4	24.8	_	-	_	-	_

a) Other ratios available on request

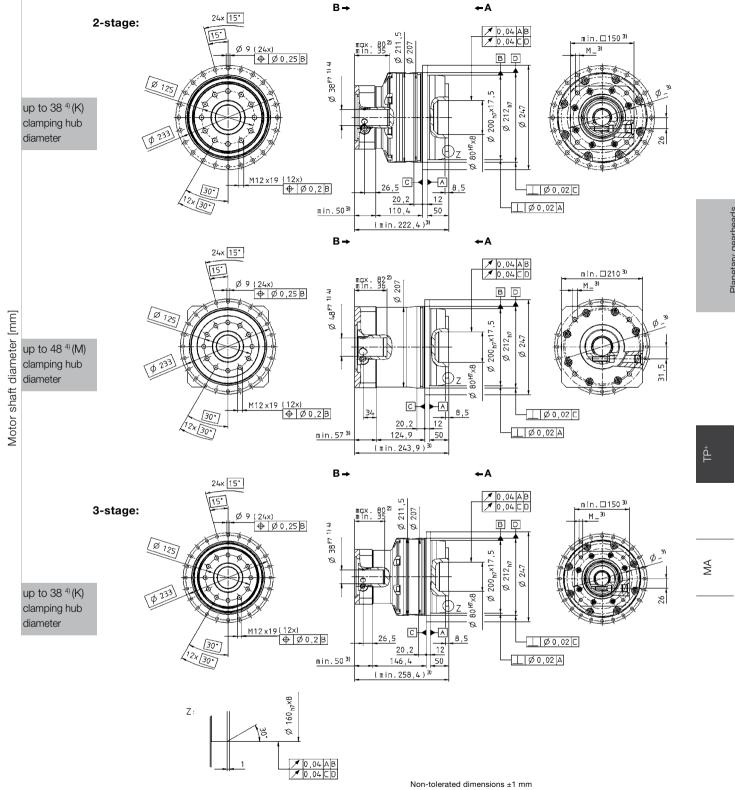
b) For higher ambient temperatures, please reduce input speed

c) Valid for clamping hub diameter of 38 mm

d) Refers to center of the output shaft or flange

wittenstein alph





2) Min./Max. permissible motor shaft length. Longer motor shafts are

4) Smaller motor shaft diameter is compensated by a bushing with

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

adaptable, please contact us.

3) The dimensions depend on the motor.

a minimum thickness of 1 mm.
CAD data is available under

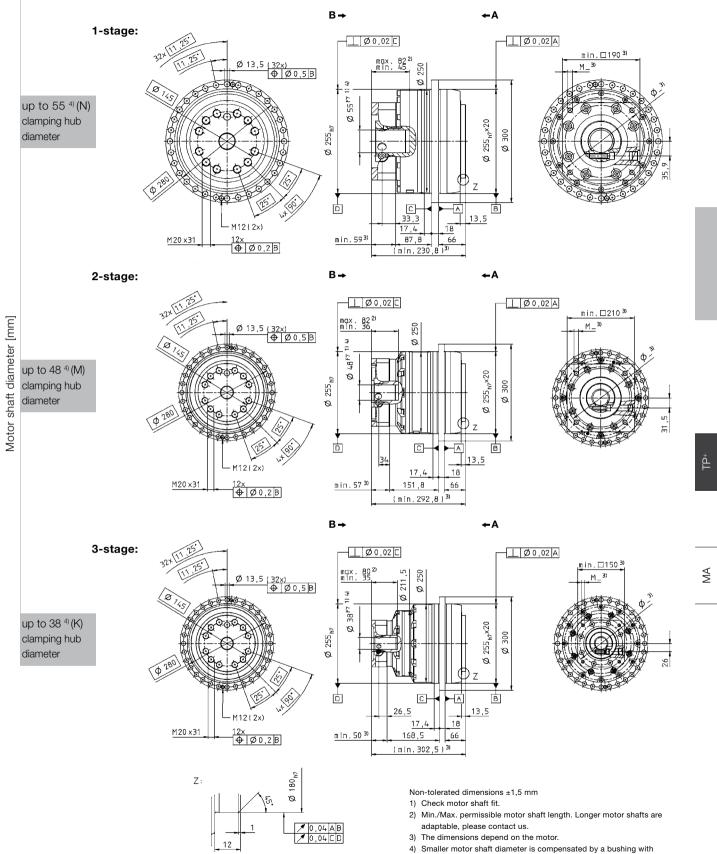
TP+ 300 MA HIGH TORQUE

					1-stage		2-st	tage				3-stage		
Ratio ^{a)}			i		5.5	22	27.5	38.5	55	66	88	110	154	220
Max. acceleration torque			_	Nm	4600	5500	5500	5500	3900	5500	5500	5500	5500	5500
(max. 1000 cycles per hour)			T _{2B}	in.lb	40714	48679	48679	48679	34518	48679	48679	48679	48679	48679
Nominal output torque			T _{2N}	Nm	2200	3500	3500	3500	2500	3500	3500	3500	3500	3500
(with $n_{_{1N}}$)			* 2N	in.lb	19472	30978	30978	30978	22127	30978	30978	30978	30978	30978
Emergency stop torque			T _{2Not}	Nm	8750	13250	13250	13250	13250	13250	13250	13250	13250	13250
(permitted 1000 times during the service life of	the gea	rhead)	2Not	in.lb	77445	117273	117273	117273	117273	117273	117273	117273	117273	117273
Nominal input speed (with T_{2N} and 20 °C ambient temperature) b)			n _{1N}	rpm	1000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Max. input speed			n _{1Max}	rpm	2500	3500	3500	3500	3500	3500	3500	3500	3500	3500
Mean no load running torque			_	Nm	22	12	10	9,0	7,0	6,5	4,5	4,0	3,0	2,0
(with n,=2000 rpm and 20 °C gearhead temp	erature	e)	T ₀₁₂	in.lb	195	106	89	80	62	58	40	35	27	18
Max. torsional backlash			j_t	arcmin	Standard ≤ 2 / Reduced ≤ 1				Standard	d ≤ 3 / Redu	ced ≤ 1.5			
Torsional rigidity			_	Nm/ arcmin	1400	1200	1200	1200	1200	1200	1200	1200	1200	1200
Torsional rigidity			C ₁₂₁	in.lb/ arcmin	12391	10621	10621	10621	10621	10621	10621	10621	10621	10621
Tilting rigidity			C _{2K}	Nm/ arcmin					55	60			,	
Thung rigidity			2K	in.lb/ arcmin					49:	210				
Max. axial force c)			F _{2AMax}	N						000				
			2AMax	lb _f						25				
Max. tilting moment			M _{2KMax}	Nm	3900					500				
			Livia	in.lb	34518				57	530				
Efficiency at full load			η	%	95				(93				
Service life (For calculation. see "Technical Basics")			L _h	h					> 20	0000				
Weight incl. standard adapter p	lata		m	kg	55		6	4				67		
Weight inci. Standard adapter p	iale		""	lb _m	121.25		14	1.1				147.7		
Operating noise			L _{PA}	dB(A)	≤ 68		≤	67				≤ 66		
(with n ₁ =2000 rpm no load)														
Max. permitted housing temper	ature									90				
				F °C						94 o +40		-		
Ambient temperature				F						104				
				г					5 10	104				
Lubrication		-							Lubricate	ed for life				
Paint									Blue R/	AL 5002				
Direction of rotation								Motor	and gearhe	ad same dir	ection			
Protection class									IP	65				
Moment of inertia	17	00	,	kgcm ²						16.6	12.9	11.6	10.3	9.50
(relates to the drive)	K	38	J_1	in.lb.s²	_	_		_		0.0147	0.0114	0.0103	0.0091	0.0084
	М	48	,	kgcm ²		30.8	27.6	24.9	23.0	_		_		_
Clamping hub diameter [mm]	141	70	J ₁	in.lb.s²	-	0.0273	0.0244	0.0220	0.0204		-		-	
	N	55	J_1	kgcm ²	129	_	_	_	_	_	_	_	_	_
			- 1	in.lb.s²	0.1142									

a) Other ratios available on request

 $^{^{\}mbox{\scriptsize b)}}$ For higher ambient temperatures, please reduce input speed

c) Refers to center of the output shaft or flange



a minimum thickness of 1 mm. CAD data is available under

Motor mounting according to operating manual

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

View A

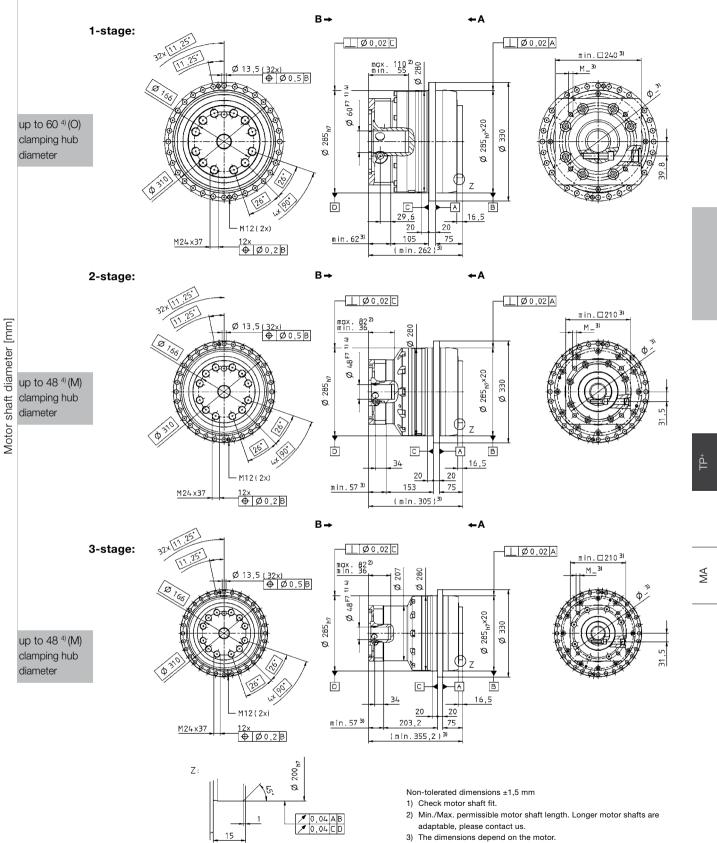
TP+ 500 MA HIGH TORQUE

					1-stage		2-st	age				3-stage		
Ratio ^{a)}			i		5.5	22	27.5	38.5	55	66	88	110	154	220
Max. acceleration torque			_	Nm	8000	10000	10000	10000	7200	10000	10000	10000	10000	10000
(max. 1000 cycles per hour)			T _{2B}	in.lb	70806	88508	88508	88508	63726	88508	88508	88508	88508	88508
Nominal output torque			_	Nm	3500	6000	4600	4600	4700	6000	6000	6000	6000	6000
(with n _{IN})			T_{2N}	in.lb	30978	53105	40714	40714	41599	53105	53105	53105	53105	53105
Emergency stop torque			_	Nm	15000	25000	25000	25000	25000	25000	25000	25000	25000	25000
(permitted 1000 times during the service life of t	the gea	rhead)	T _{2Not}	in.lb	132762	221270	221270	221270	221270	221270	221270	221270	221270	221270
Nominal input speed (with T_{2N} and 20 °C ambient temperature) b)			n _{1N}	rpm	900	1500	1500	1500	1500	1500	1500	1500	1500	1500
Max. input speed			n _{1Max}	rpm	2500	3500	3500	3500	3500	3500	3500	3500	3500	3500
Mean no load running torque			_	Nm	28	18	14	12	9.0	8.5	6.5	6.0	5.0	4.0
(with n,=2000 rpm and 20 °C gearhead temp	erature	e)	T ₀₁₂	in.lb	248	159.3	124	106	80	75	58	53	44	35
Max. torsional backlash			j_t	arcmin	Standard ≤ 2 / Reduced ≤ 1				Standard	d ≤ 3 / Redu	ced ≤ 1.5			
Tourism of statets.				Nm/ arcmin	1650	2000	2000	1950	1900	1800	1800	1800	1800	1800
Torsional rigidity			C ₁₂₁	in.lb/ arcmin	14603	17700	17700	17258	16815	15930	15930	15930	15930	15930
Tilain a vinislia.				Nm/ arcmin					94	180	,			
Tilting rigidity			C _{2K}	in.lb/ arcmin					83	906				
Max. axial force c)			E	N					50	000				
Max. axiai force "			F _{2AMax}	lb _f					11	250				
May tilting moment			14	Nm	6600				98	500				
Max. tilting moment			M _{2KMax}	in.lb	58415				84	083				
Efficiency at full load			η	%	95					93				
Service life (For calculation, see "Technical Basics")			L	h					> 20	0000				
				kg			80					89		
Weight incl. standard adapter pl	ate		m	lb _m			176.4					196.2		
Operating noise				•										
(with n_1 = 2000 rpm no load)			L _{PA}	dB(A)			≤ 68					≤ 67		
				°C					+	90				
Max. permitted housing tempera	ature			F			-		1	94				
A la i la la				°C					-15 t	o +40				
Ambient temperature				F					5 to	104				
Lubrication									Lubricat	ed for life				
Paint									Blue R	AL 5002				
Direction of rotation								Motor	and gearhe	ead same dir	ection			
Protection class									IP	65				
				kgcm ²						17.9	13.5	11.9	10.5	9.7
Moment of inertia	K	38	J_1	in.lb.s²	-	-	-	_	-	15.8	11.9	10.5	9.3	8.6
(relates to the drive)				kgcm²		43.8	36.9	30.5	27.0	32.7	28.3	26.7	25.2	24.4
Clamping hub diameter [mm]	M	48	J_{1}	in.lb.s²	-	0.0388	0.0327	0.0270	0.0239	0.0289	0.0250	0.0236	0.0223	0.0216
				kgcm²	175	2.0000	0.00E1	5.5270	0.0200	0.0200	0.0200	5.5255	J.OLLO	0.0210
	0	60	J ₁	in.lb.s²	0.1549	-	-	-	-	_	-	_	-	-

a) Other ratios available on request

 $^{^{\}mbox{\scriptsize b)}}$ For higher ambient temperatures, please reduce input speed

c) Refers to center of the output shaft or flange



View A

4) Smaller motor shaft diameter is compensated by a bushing with

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

a minimum thickness of 1 mm. CAD data is available under

TP+ 2000 MA HIGH TORQUE

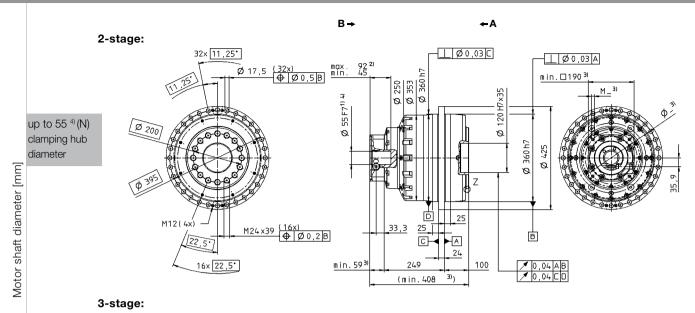
					2-st	age				3-stage			
Ratio		i			22	30.25	66	88	110	121	154	220	302.5
Max. acceleration torque		7	- 2B	Nm	22000	22000	22000	22000	22000	22000	22000	15600	21500
(max. 1000 cycles per hour)			2B	in.lb	194700	194700	194700	194700	194700	194700	194700	138060	190275
Nominal output torque		,	- 2N	Nm	13500	13500	13500	13500	13500	13500	13500	10000	13500
(with $n_{_{7N}}$)			2N	in.lb	119475	119475	119475	119475	119475	119475	119475	88500	119475
Emergency stop torque		,		Nm	44000	44000	44000	44000	44000	44000	44000	44000	44000
(permitted 1000 times during the service life of the	e gear	head)	2Not	in.lb	389400	389400	389400	389400	389400	389400	389400	389400	389400
Nominal input speed (with $T_{\rm 2N}$ and 20 °C ambient temperature) ^{a)}		n	1N	rpm	2000	2000	2500	2500	2500	2500	2500	2500	2500
Max. input speed		n	1Max	rpm	3000	3000	3500	3500	3500	3500	3500	3500	3500
Mean no load running torque		- I		Nm	17	13	7.5	6	5	5	4.5	4	4
(with n,=2000 rpm and 20 °C gearhead temper	ature)	'	012	in.lb	150	115	66	53	44	44	40	35	35
Max. torsional backlash		j_t		arcmin					≤ 3				
				Nm/ arcmin	2900	2900	3000	3000	3000	3000	2950	2850	2850
Torsional rigidity			t21	in.lb/ arcmin	25665	25665	26550	26550	26550	26550	26108	25223	25223
				Nm/ arcmin					13000		•		
Tilting rigidity		10	2K	in.lb/ arcmin			-		115060				
M				N					100000				
Max. axial force b)			2AMax	lb _f					22500				
May kilking managet				Nm	316	500				31600			
Max. tilting moment		"	1 _{2KMax}	in.lb	279	660				279660			
Efficiency at full load		η		%	9	5				93			
Service life (For calculation, see the Chapter "Information")		L	h	h			1		> 20000				
				kg	19	90				185			
Weight incl. standard adapter plat	te	m	1	lb _m	42	20				409			
Operating noise									,				
(with $n_{,=}$ 3000 rpm no load)			PA	dB(A)	≤	68				≤ 66			
Many manuscript and leaves to the second				°C					90				
Max. permitted housing temperat	ure			F					194				
Ambient temperature				°C					0 to +40				
Ambient temperature				F					5 to 104				
Lubrication								Lı	ubricated for I	ife			
Paint								ſ	Blue RAL 500	2			
Direction of rotation								Motor and	gearhead sar	ne direction			
Protection class									IP 65				
		-		kgcm²	-	-	52	37	35	35	28	26	25
Moment of inertia (relates to the drive)	M	48 J	1	10 ⁻³ in.lb.s ²	-	-	46	33	31	31	25	23	22
(relates to trie urive)				kgcm ²	101	74	-	-	-	-	-	-	-
Clamping hub diameter [mm]	N	55 J		10 ⁻³ in.lb.s ²	89	65	_	_	_	_			

Please indicate the mounting position with your order, see page 447. WITTENSTEIN alpha recommends fitting a motor support to the mounted motor in order to additionally prevent unforeseen external influences such as vibration.

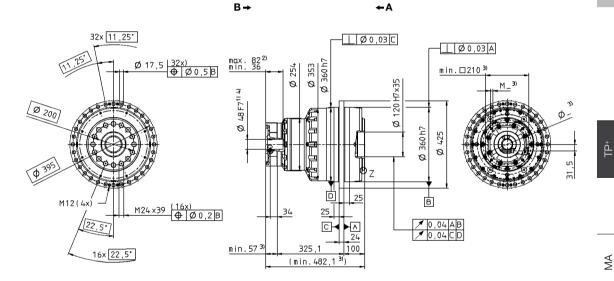
 $^{^{\}mbox{\tiny a)}}$ For higher ambient temperatures, please reduce input speed

 $^{^{\}mbox{\scriptsize b)}}$ Refers to center of the output shaft or flange

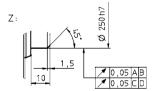
View A



up to 48 4) (M) clamping hub diameter



¥Σ



Non-tolerated dimensions $\pm 1~\text{mm}$

- 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 with a minimum thickness of 1 mm.



CAD data is available under

http://www.wittenstein-alpha.de/en/info-and-cad-finder.html

TP+ 4000 MA HIGH TORQUE

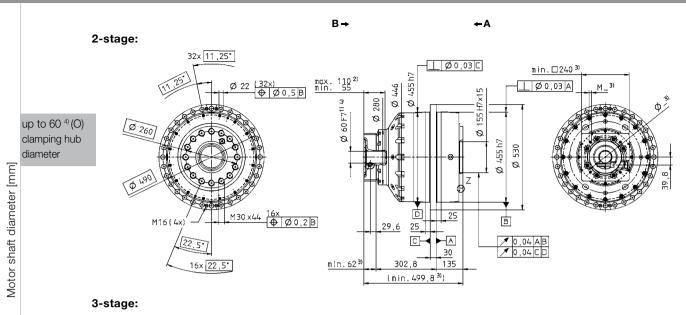
					2-st	age				3-stage			
Ratio		i			22	30.25	66	88	110	121	154	220	302.5
Max. acceleration torque		7	г	Nm	40000	40000	40000	40000	40000	40000	40000	32000	40000
(max. 1000 cycles per hour)		'	T _{2B}	in.lb	354000	354000	354000	354000	354000	354000	354000	283200	354000
Nominal output torque		7	Γ _{2N}	Nm	18000	18000	18000	18000	18000	18000	18000	16500	18000
(with $n_{_{TN}}$)		'	2N	in.lb	159300	159300	159300	159300	159300	159300	159300	146025	159300
Emergency stop torque		7	T _{2Not}	Nm	70000	70000	70000	70000	70000	70000	70000	61000	70000
(permitted 1000 times during the service life of the	he gea	head) '	2Not	in.lb	619500	619500	619500	619500	619500	619500	619500	539850	619500
Nominal input speed (with T_{2N} and 20 °C ambient temperature) ^{a)}		n	1 _{1N}	rpm	1500	1500	1500	1500	1500	1500	1500	1500	1500
Max. input speed		n	1 _{1Max}	rpm	3000	3000	3000	3000	3000	3000	3000	3000	3000
Mean no load running torque		7	г	Nm	26	21	15	12	10	10	8.5	7.5	7.5
(with n ₁ =2000 rpm and 20 °C gearhead tempe	erature	· '	T ₀₁₂	in.lb	230	186	133	106	89	89	75	66	66
Max. torsional backlash		j_t	t	arcmin					≤ 4				
Tavaianal viaidib.			<u> </u>	Nm/ arcmin	5300	5300	5800	5800	5800	5800	5700	5700	5700
Torsional rigidity		10	C _{t21}	in.lb/ arcmin	46905	46905	51330	51330	51330	51330	50445	50445	50445
Tilting rigidity			<u> </u>	Nm/ arcmin					65000		•		
Tilting rigidity			C _{2K}	in.lb/ arcmin					575250				
Max. axial force b)			=	N					140000				
IWAX. AXIAI TOICE			2AMax	lb _f					31500				
Max. tilting moment			M	Nm	580	000				71400			
I Wax. tilling moment			M _{2KMax}	in.lb	513	300				631890			
Efficiency at full load		r	1	%	g	95				93			
Service life (For calculation, see the Chapter "Information"	"	L	h	h					> 20000				
Weight inclustanders adoptor pl	ot o			kg	3	50				380			
Weight incl. standard adapter pla	ale	"	n	lb _m	7	74				840			
Operating noise		Π,		dB(A)		70				≤ 68			
(with n ₁ =3000 rpm no load)			-PA	UD(A)	>	70				≥ 00			
Max. permitted housing tempera	ature			°C					90				
maxi permitted fiedenig tempere				F					194				
Ambient temperature				°C					0 to +40				
				F					5 to 104	:4_			
Lubrication									ubricated for l	iie			
Paint								E	Blue RAL 500	2			
Direction of rotation								Motor and	gearhead sar	ne direction			
Protection class									IP 65				
Manage of insult-				kgcm ²	-	-	85	55	43	48	34	29	28
Moment of inertia (relates to the drive)	M	48 J	J ₁	10 ⁻³ in.lb.s ²	-	-	75	49	38	42	30	26	25
	_			kgcm ²	230	174	-	-	-	-	-	-	-
Clamping hub diameter [mm]	0	60 J	J ₁	10 ⁻³ in.lb.s ²	204	154	-	-	-	-	-	-	-

Please indicate the mounting position with your order, see page 447. WITTENSTEIN alpha recommends fitting a motor support to the mounted motor in order to additionally prevent unforeseen external influences such as vibration.

^{a)} For higher ambient temperatures, please reduce input speed

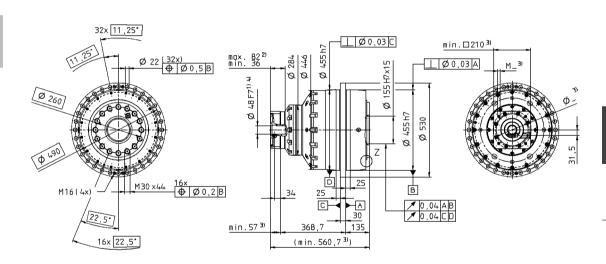
 $^{^{\}mbox{\scriptsize b)}}$ Refers to center of the output shaft or flange

View A View



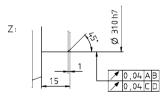
В→

up to 48 ⁴⁾ (M) clamping hub diameter



ТР

Μ



Non-tolerated dimensions ±1 mm

- 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 with a minimum thickness of 1 mm.



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