

TP⁺/TP⁺ HIGH TORQUE – Compact precision



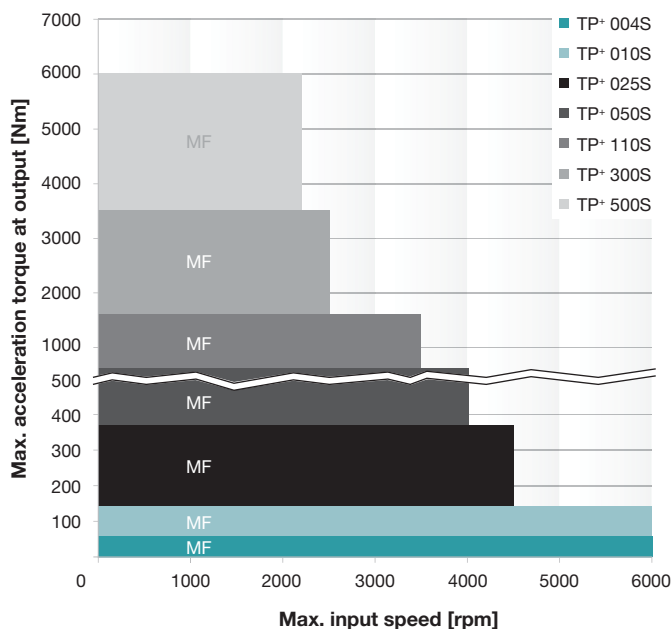
Compact top performers with output flange. The standard version is ideally suited for high positioning accuracy and highly dynamic cyclic operation.

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

Quick size selection

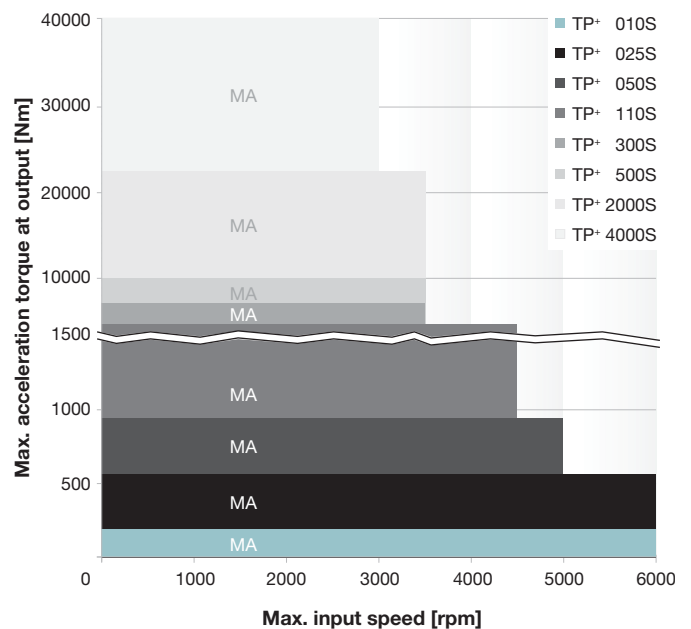
TP⁺ MF (example for i = 5)

For applications in cyclic operation (ED ≤ 60%)



TP⁺ HIGH TORQUE MA (example for i = 22)

For applications in cyclic operation (ED ≤ 60%)



Versions and Applications

Features	TP+ MF version page 30	TP+ HIGH TORQUE MA version page 54
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)	• •	• • •

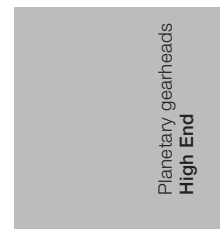
Product features

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

^{a)} Power reduction: technical data available upon request

^{b)} Please contact WITTENSTEIN alpha

^{c)} In relation to reference sizes



MF
MA

TP+ 025 MF 1-stage

				1-stage							
Ratio ^{a)}				<i>i</i>	4	5	7	10			
cymex®-optimized acceleration torque (please contact us regarding the sizing)				<i>T</i> _{2Bcym}	Nm	390	420	350	275		
					in.lb	3452	3717	3098	2434		
Max. acceleration torque (max. 1000 cycles per hour)				<i>T</i> _{2B}	Nm	350	380	330	265		
					in.lb	3098	3363	2921	2345		
Nominal output torque (with <i>n</i> _{1N})				<i>T</i> _{2N}	Nm	170	170	170	120		
					in.lb	1505	1505	1505	1062		
Emergency stop torque (permitted 1000 times during the service life of the gearhead)				<i>T</i> _{2Not}	Nm	625	625	625	625		
					in.lb	5531	5531	5531	5531		
Nominal input speed (with <i>T</i> _{2N} and 20 °C ambient temperature) ^{b)}				<i>n</i> _{1N}	rpm	2300	2500	2500	2500		
Max. input speed				<i>n</i> _{1Max}	rpm	4500	4500	4500	4500		
Mean no load running torque (with <i>n</i> ₁ =3000 rpm and 20 °C gearhead temperature) ^{c)}				<i>T</i> ₀₁₂	Nm	3.3	2.7	2.0	1.4		
					in.lb	29.2	23.9	17.7	12.4		
Max. torsional backlash				<i>j</i> _t	arcmin	Standard ≤ 3 / Reduced ≤ 1					
Torsional rigidity ^{c)}				<i>C</i> _{t21}	Nm/ arcmin	80	86	76	62		
					in.lb/ arcmin	708	761	673	549		
Tilting rigidity				<i>C</i> _{2K}	Nm/ arcmin	550					
					in.lb/ arcmin	4868					
Max. axial force ^{d)}				<i>F</i> _{2AMax}	N	4150					
					lb _f	934					
Max. tilting moment				<i>M</i> _{2KMax}	Nm	440					
					in.lb	3894					
Efficiency at full load				η	%	97					
Service life (For calculation, see the Chapter "Information")				<i>L</i> _h	h	> 20000					
Weight incl. standard adapter plate				<i>m</i>	kg	6.5					
					lb _m	14.4					
Operating noise (with <i>i</i> =10 and <i>n</i> ₁ =3000 rpm no load)				<i>L</i> _{PA}	dB(A)	≤ 64					
Max. permitted housing temperature					°C	+90					
					F	194					
Ambient temperature					°C	-15 to +40					
					F	5 to 104					
Lubrication				Lubricated for life							
Paint				Blue RAL 5002							
Direction of rotation				Motor and gearhead same direction							
Protection class				IP 65							
Moment of inertia (relates to the drive) Clamping hub diameter [mm]				E	19	<i>J</i> ₁	kgcm ²	2.59	2.11	1.69	1.45
							10 ⁻³ in.lb.s ²	2.29	1.87	1.50	1.28
				G	24	<i>J</i> 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
				H	28	<i>J</i> ₁	kgcm ²	2.89	2.41	1.99	1.75
							10 ⁻³ in.lb.s ²	2.56	2.13	1.76	1.55
				K	38	<i>J</i> ₁	kgcm ²	10.3	9.87	9.45	9.21
							10 ⁻³ in.lb.s ²	9.11	8.73	8.36	8.15

Reduced mass moments of inertia available on request.

^{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

^{d)} Refers to center of the output shaft or flange

View A

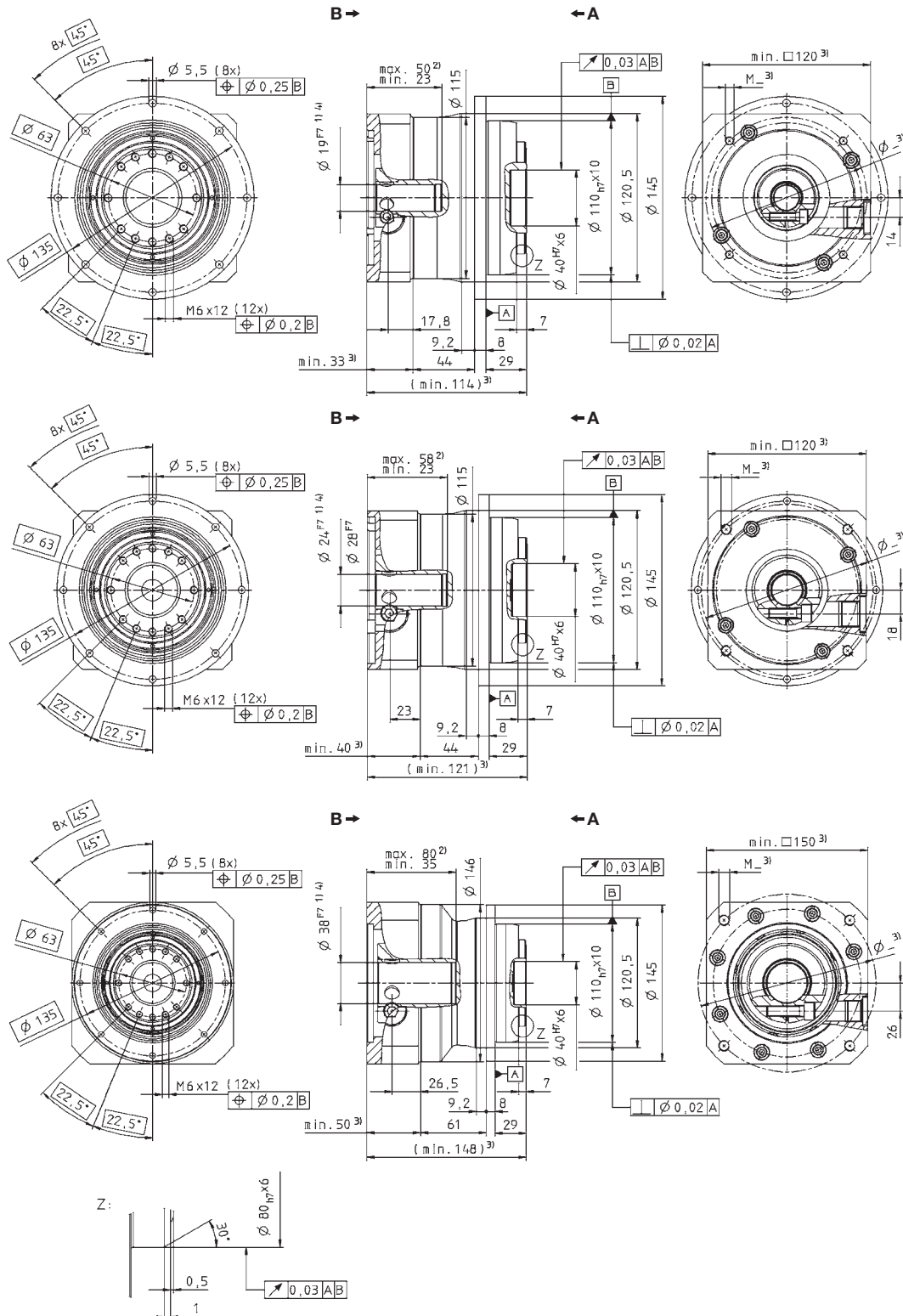
View B

Motor shaft diameter [mm]

up to 19⁴⁾ (E)
clamping hub
diameter

up to 24/28⁴⁾
(G/H) clamping
hub diameter

up to 38⁴⁾ (K)
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

Planetary gearheads
High End

TP+
MF