

**SPK+ 210/240 TPK+ 300/500**  
High Performance Hypoid gearboxes

powerful  
precise  
efficient





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## The **SPK+/TPK+** High Performance Hypoid gearboxes

Powerful products in the new hypoid range

To guarantee the highest possible productivity of your machine, WITTENSTEIN alpha has enhanced the range of hypoid planetary gearboxes. The newly developed bevel gears are derived from modern hypoid technology in combination with planetary gears with helical gearing. The result is the creation of the best product for maximized performance. With extremely high torque and high ratios we set new standards in the bevel gear market.

WITTENSTEIN alpha moves your world into new dimensions!

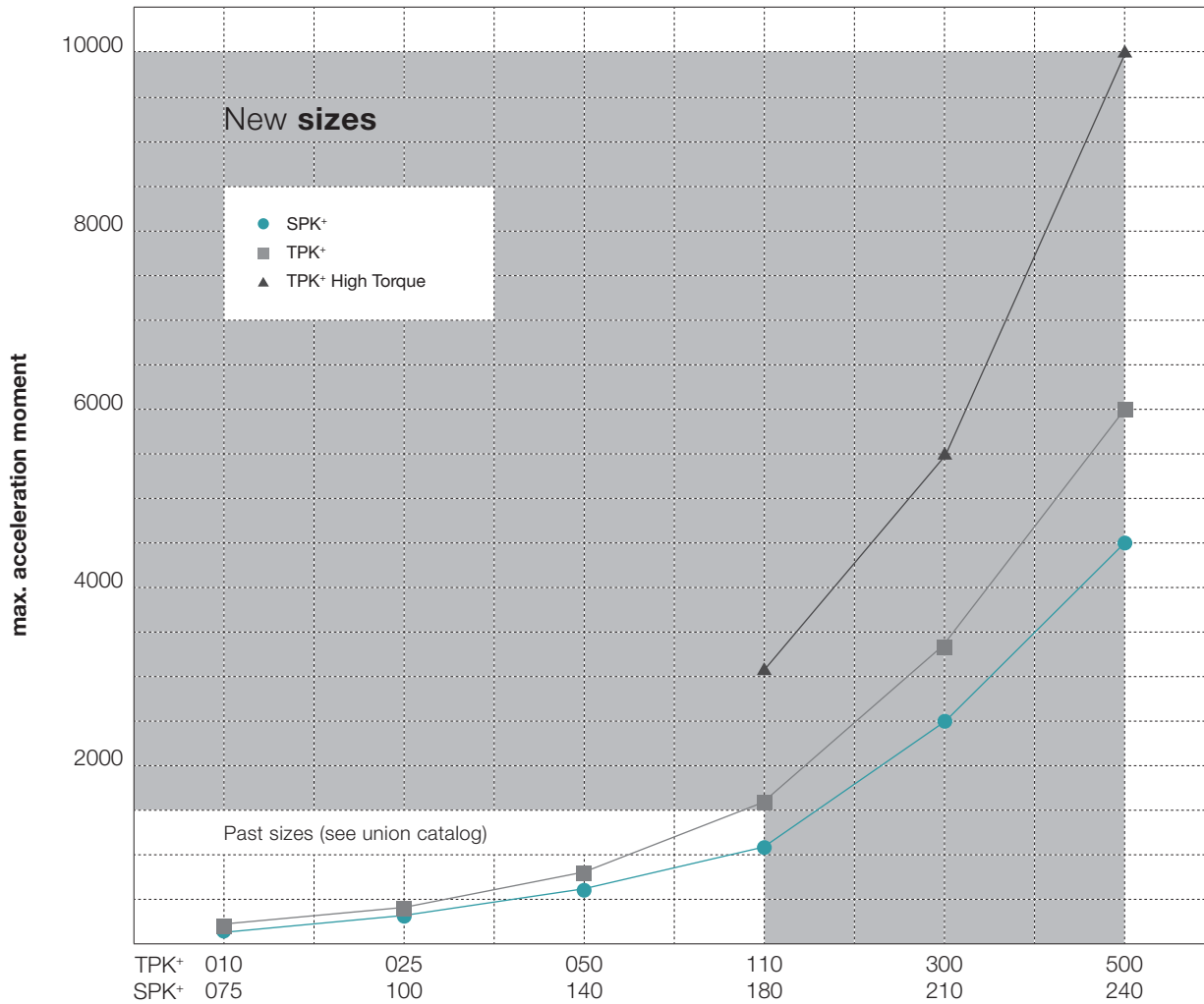


### All features at a glance:

- Shaft and flange output
- Torques up to 10000 Nm
- Ratios up to  $i=10000$
- Efficiency of up to 94 %
- Low noise emission  $\leq 71$  dB(A)
- High turning torque available up to 9500 Nm
- Highest positioning accuracy with less torsion play and high torsional rigidity
- Optimized seal technology (IP65)
- Flexible position of installation
- Very high input speed up to 4500 rpm

# **SPK+/TPK+** High Performance Hypoid gearboxes

WITTENSTEIN alpha moves your world into **new dimensions!**

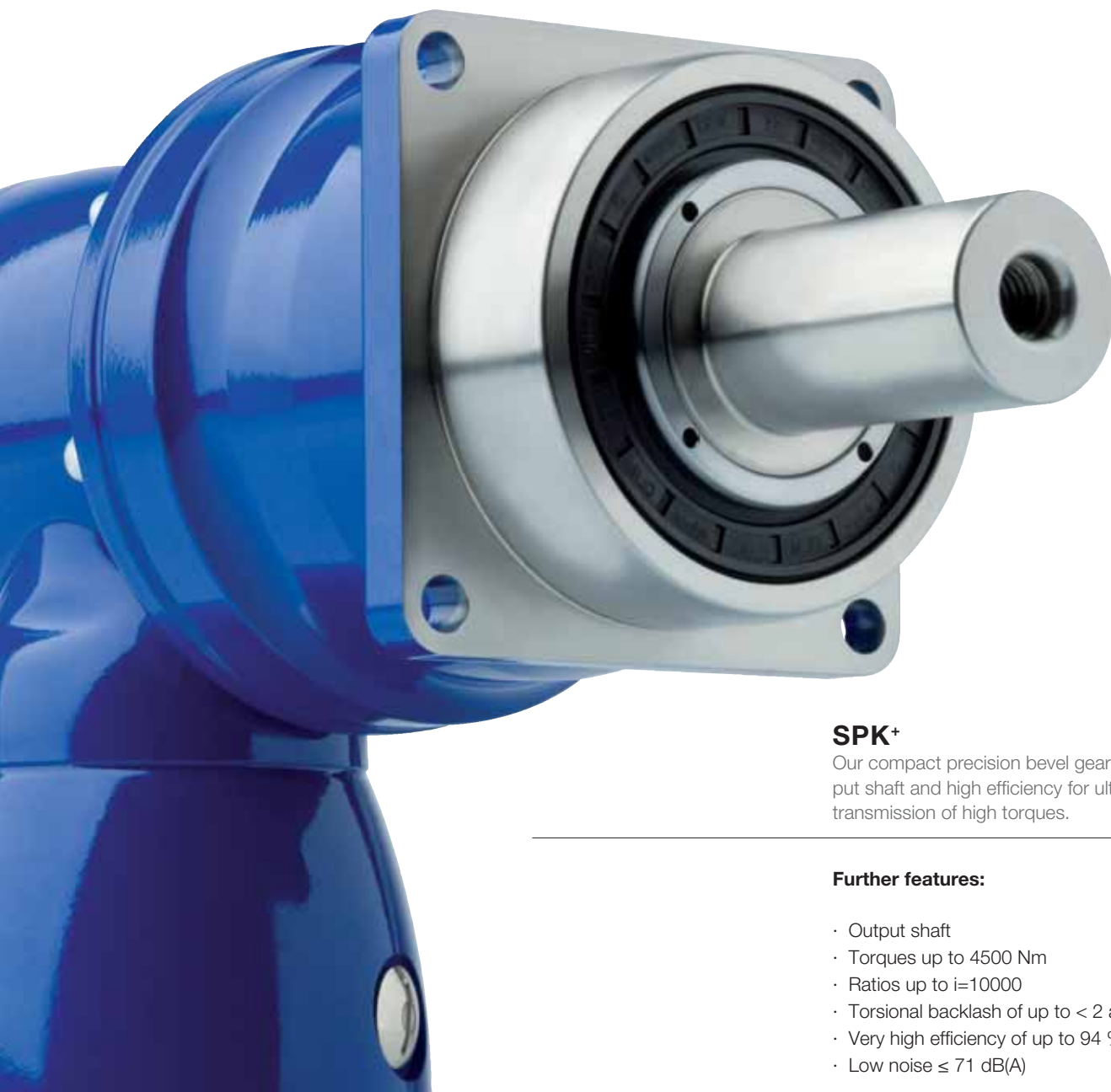


**Size**

Size	TPK+ SPK+	010 075	025 100	050 140	110 180	300 210	500 240
SPK+	$T_{2B}$ Nm	110	300	600	1100	2500	4500
TPK+	$T_{2B}$ Nm	130	350	750	1600	3300	6000
TPK+ High Torque	$T_{2B}$ Nm	-	-	-	3100	5500	10000



The new hypoid gears in the overview  
**SPK+, TPK+ and TPK+ High Torque**



### **SPK+**

Our compact precision bevel gear with output shaft and high efficiency for ultimate transmission of high torques.

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#### **Further features:**

- Output shaft
- Torques up to 4500 Nm
- Ratios up to  $i=10000$
- Torsional backlash of up to  $< 2$  arcmin
- Very high efficiency of up to 94 %
- Low noise  $\leq 71$  dB(A)

**SPK+/TPK+**  
**High Performance Hypoid gearboxes**



## TPK+

Our compact precision bevel gear with output flange and high efficiency for transmission of high torques.

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### Further features:

- Output flange for high torsional rigidity
- Torques of up to 6000 Nm
- Ratios up to  $i=10000$
- Torsional backlash of up to  $< 2$  arcmin
- Very high efficiency of up to 94 %
- Very high quietness  $\leq 71$  dB(A)

## TPK+ High Torque

Our power packet for highest positioning accuracy combines highest torques and torsional rigidity with the compactness of a bevel gear

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### Further features:

- Output flange
- Torques of up to 10000 Nm
- Ratios of up to  $i=5500$
- Torsional backlash of up to  $< 1,3$  arcmin
- High tilting moment of up to 9500 Nm
- Highest positioning accuracy
- Highest power density



# SPK+ 210 MF 2-stage

		2-stage												
Ratio <sup>a)</sup>	<i>i</i>		12	16	20	25	28	35	40	50	70	100		
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$	Nm	2500	2500	2500	2500	2400	2400	1850	2300	2400	1900		
Nominal output torque (with $n_m$ )	$T_{2N}$	Nm	1500	1500	1500	1500	1400	1500	1400	1500	1400	1000		
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	$T_{2Not}$	Nm	3600	4200	5200	5200	5200	5200	3600	4500	5200	5000		
Nominal input speed (with $T_{2N}$ and 20°C ambient temperature) <sup>b), c)</sup>	$n_{1N}$	rpm	1500	1700	1700	1900	1700	1900	1700	1700	1700	1700		
Max. continuous speed (with 20% $T_{2N}$ and 20°C ambient temperature)	$n_{1Ncym}$	rpm	1900	2300	2300	2700	2300	2700	2400	2400	2400	2400		
Max. input speed	$n_{1Max}$	rpm	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000		
Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) <sup>d)</sup>	$T_{012}$	Nm	18,5	17,0	15,0	13,0	14,0	12,0	15,0	15,0	14,0	13,0		
Max. torsional backlash	$j_t$	arcmin	Standard $\leq 4$ / Reduced $\leq 2$											
Torsional rigidity	$C_{t21}$	Nm/arcmin	300	300	300	300	300	300	300	300	300	300		
Max. axial force <sup>e)</sup>	$F_{2AMax}$	N	30000											
Max. radial force <sup>e)</sup>	$F_{2RMax}$	N	21000											
Max. tilting moment	$M_{2KMax}$	Nm	3100											
Efficiency at full load	$\eta$	%	94											
Service life (For calculation, see the Chapter "Information")	$L_h$	h	> 20000											
Weight incl. standard adapter plate	$m$	kg	-											
Operating noise (with $n_1=3000$ rpm no load)	$L_{pA}$	dB(A)	$\leq 71$											
Max. permitted housing temperature		°C	+90											
Ambient temperature		°C	0 to +40											
Lubrication			Lubricated for life											
Paint			Blue RAL 5002											
Direction of rotation			Motor and gearhead opposite directions											
Protection class			IP 65											
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	M	48	$J_1$	kgcm <sup>2</sup>	78,80	54,60	53,00	43,40	51,50	42,20	30,20	30,00	29,80	29,80

<sup>a)</sup> Other ratios available on request

<sup>b)</sup> Higher speeds are possible if the nominal torque is reduced

<sup>c)</sup> For higher ambient temperatures, please reduce input speed

<sup>d)</sup> Idling torques decrease during operation

<sup>e)</sup> Refers to center of the output shaft or flange

Please contact us for information on the best configuration for S1 conditions of use (continuous operation).





# SPK+ 210 MF 3-stage

		3-stage														
Ratio <sup>a)</sup>	<i>i</i>	64	84	100	125	140	175	200	250	280	350	400	500	700	1000	
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$ Nm	2400	2400	2500	2500	2500	2500	2500	2500	2400	2400	1900	2350	2400	1900	
Nominal output torque (with $n_{2N}$ )	$T_{2N}$ Nm	1500	1500	1500	1500	1500	1500	1500	1500	1400	1400	1500	1500	1400	1000	
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	$T_{2Not}$ Nm	4200	3600	5200	5200	5200	5200	5200	5200	5200	5200	3600	4500	5200	5000	
Nominal input speed (with $T_{2N}$ and 20°C ambient temperature) <sup>b), c)</sup>	$n_{1N}$ rpm	2700	2700	2700	2700	2700	2700	2700	2900	2700	2900	3400	3400	3400	3400	
Max. continuous speed (with 20% $T_{2N}$ and 20°C ambient temperature)	$n_{1Ncym}$ rpm	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3800	3800
Max. input speed	$n_{1Max}$ rpm	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	
Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) <sup>d)</sup>	$T_{012}$ Nm	2,4	1,2	1,9	1,7	1,3	1,3	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	
Max. torsional backlash	$j_t$ arcmin	Standard $\leq 4$ / Reduced $\leq 2$														
Torsional rigidity	$C_{t21}$ Nm/arcmin	300	300	300	300	300	300	300	300	300	300	300	300	300	300	
Max. axial force <sup>e)</sup>	$F_{2AMax}$ N	30000														
Max. radial force <sup>e)</sup>	$F_{2RMax}$ N	21000														
Max. tilting moment	$M_{2KMax}$ Nm	3100														
Efficiency at full load	$\eta$ %	92														
Service life (For calculation, see the Chapter "Information")	$L_h$ h	> 20000														
Weight incl. standard adapter plate	$m$ kg	-														
Operating noise (with $n_1=3000$ rpm no load)	$L_{PA}$ dB(A)	$\leq 71$														
Max. permitted housing temperature	°C	+90														
Ambient temperature	°C	0 to +40														
Lubrication		Lubricated for life														
Paint		Blue RAL 5002														
Direction of rotation		Motor and gearhead opposite directions														
Protection class		IP 65														
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	K 38	$J_1$ kgcm <sup>2</sup>	14,00	10,90	12,30	12,00	10,90	10,70	10,10	10,00	10,10	10,00	9,90	9,90	9,90	9,90
	M 48	$J_1$ kgcm <sup>2</sup>	28,70	25,60	27,10	26,70	26,70	25,60	24,80	24,70	24,80	24,70	24,60	24,60	24,60	24,60

<sup>a)</sup> Other ratios available on request

<sup>b)</sup> Higher speeds are possible if the nominal torque is reduced

<sup>c)</sup> For higher ambient temperatures, please reduce input speed

<sup>d)</sup> Idling torques decrease during operation

<sup>e)</sup> Refers to center of the output shaft or flange

Please contact us for information on the best configuration for S1 conditions of use (continuous operation).



# SPK+ 240 MF 3-stage

		3-stage															
Ratio <sup>a)</sup>	<i>i</i>		48	64	100	125	140	175	200	250	280	350	400	500	700	1000	
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$	Nm	4500	4500	4500	4500	4500	4500	4500	4500	4300	4500	4000	4300	4300	3400	
Nominal output torque (with $n_{2N}$ )	$T_{2N}$	Nm	2500	2500	2500	2500	2500	2500	2500	2500	2300	2500	2500	2500	2300	1700	
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	$T_{2Not}$	Nm	6400	8000	8500	8500	8500	8500	8500	8500	8500	8500	8500	8500	8500	6800	
Nominal input speed (with $T_{2N}$ and 20°C ambient temperature) <sup>b), c)</sup>	$n_{1N}$	rpm	1800	1900	1900	2100	1900	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Max. continuous speed (with 20% $T_{2N}$ and 20°C ambient temperature)	$n_{1Ncym}$	rpm	2000	2200	2600	2600	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	
Max. input speed	$n_{1Max}$	rpm	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	
Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) <sup>d)</sup>	$T_{012}$	Nm	11,0	8,0	7,0	7,0	8,0	8,0	7,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	
Max. torsional backlash	$j_t$	arcmin	Standard $\leq 5,5$ / Reduced $\leq 3,5$														
Torsional rigidity	$C_{t21}$	Nm/arcmin	510	510	510	510	510	510	510	510	510	510	510	510	510	510	
Max. axial force <sup>e)</sup>	$F_{2AMax}$	N	33000														
Max. radial force <sup>e)</sup>	$F_{2RMax}$	N	30000														
Max. tilting moment	$M_{2KMax}$	Nm	5000														
Efficiency at full load	$\eta$	%	92														
Service life (For calculation, see the Chapter "Information")	$L_h$	h	> 20000														
Weight incl. standard adapter plate	$m$	kg	-														
Operating noise (with $n_1=3000$ rpm no load)	$L_{PA}$	dB(A)	$\leq 71$														
Max. permitted housing temperature		°C	+90														
Ambient temperature		°C	0 to +40														
Lubrication			Lubricated for life														
Paint			Blue RAL 5002														
Direction of rotation			Motor and gearhead opposite directions														
Protection class			IP 65														
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	K	38	$J_1$	kgcm <sup>2</sup>	26,5	20,00	17,00	17,00	15,00	15,00	13,00	13,00	13,00	13,00	13,00	13,00	13,00

<sup>a)</sup> Other ratios available on request

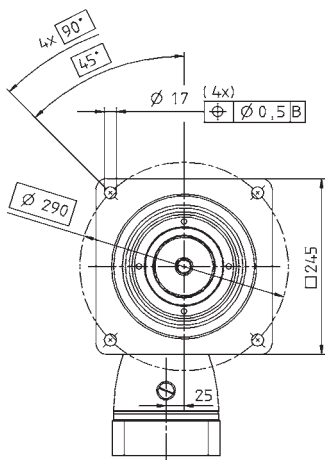
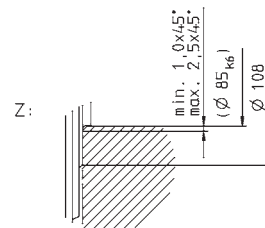
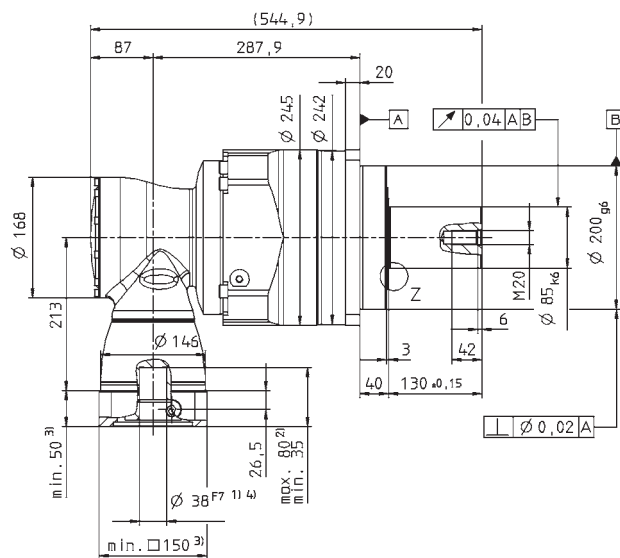
<sup>b)</sup> Higher speeds are possible if the nominal torque is reduced

<sup>c)</sup> For higher ambient temperatures, please reduce input speed

<sup>d)</sup> Idling torques decrease during operation

<sup>e)</sup> Refers to center of the output shaft or flange


Please contact us for information on the best configuration for S1 conditions of use (continuous operation).

**View A**
**3-stage:**

**← A**


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

Non-tolerated dimensions  $\pm 1$  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.

 Motor mounting according to operating manual

# SPK+ 240 MF 4-stage i=144-1000

		4-stage													
Ratio <sup>a)</sup>	<i>i</i>	144	192	256	300	375	420	500	560	600	700	800	875	1000	
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$ Nm	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	
Nominal output torque (with $n_m$ )	$T_{2N}$ Nm	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	$T_{2Not}$ Nm	8000	8000	8000	8500	8500	8500	8500	8500	8500	8500	8500	8500	8500	
Nominal input speed (with $T_{2N}$ and 20°C ambient temperature) <sup>b), c)</sup>	$n_{1N}$ rpm	2700	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	3200	
Max. continuous speed (with 20% $T_{2N}$ and 20°C ambient temperature)	$n_{1Ncym}$ rpm	3800	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4200	
Max. input speed	$n_{1Max}$ rpm	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	
Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) <sup>d)</sup>	$T_{012}$ Nm	3,2	2,3	1,6	1,3	0,7	0,9	0,9	0,8	0,7	0,7	0,6	0,6	0,5	
Max. torsional backlash	$j_t$ arcmin	Standard $\leq 5,5$ / Reduced $\leq 3,5$													
Torsional rigidity	$C_{t21}$ Nm/arcmin	510	510	510	510	510	510	510	510	510	510	510	510	510	
Max. axial force <sup>e)</sup>	$F_{2AMax}$ N	33000													
Max. radial force <sup>e)</sup>	$F_{2RMax}$ N	30000													
Max. tilting moment	$M_{2KMax}$ Nm	5000													
Efficiency at full load	$\eta$ %	90													
Service life (For calculation, see the Chapter "Information")	$L_h$ h	> 20000													
Weight incl. standard adapter plate	$m$ kg	-													
Operating noise (with $n_1=3000$ rpm no load)	$L_{PA}$ dB(A)	$\leq 71$													
Max. permitted housing temperature	°C	+90													
Ambient temperature	°C	0 to +40													
Lubrication		Lubricated for life													
Paint		Blue RAL 5002													
Direction of rotation		Motor and gearhead opposite directions													
Protection class		IP 65													
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	G 24	$J_1$ kgcm <sup>2</sup>	5,96	4,30	3,90	3,32	3,31	2,80	3,18	2,80	2,49	2,73	2,49	2,73	2,46
	K 38	$J_1$ kgcm <sup>2</sup>	12,87	11,19	10,81	10,23	10,22	9,72	10,09	9,71	9,40	9,65	9,40	9,65	9,37

<sup>a)</sup> Other ratios available on request

<sup>b)</sup> Higher speeds are possible if the nominal torque is reduced

<sup>c)</sup> For higher ambient temperatures, please reduce input speed

<sup>d)</sup> Idling torques decrease during operation

<sup>e)</sup> Refers to center of the output shaft or flange

Please contact us for information on the best configuration for S1 conditions of use (continuous operation).



# SPK+ 240 MF 4-stage i=1225-10000

		4-stage											
Ratio <sup>a)</sup>	<i>i</i>		1225	1400	1750	2000	2800	3500	5000	7000	10000		
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$	Nm	4500	4500	4500	4200	4300	4500	4300	4300	3400		
Nominal output torque (with $n_m$ )	$T_{2N}$	Nm	2500	2500	2500	2500	2300	2500	2500	2300	1700		
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	$T_{2Not}$	Nm	8500	8500	8500	8000	8500	8500	8500	8500	6800		
Nominal input speed (with $T_{2N}$ and 20°C ambient temperature) <sup>b), c)</sup>	$n_{1N}$	rpm	2900	2900	3200	3900	3900	3900	3900	3900	3900		
Max. continuous speed (with 20% $T_{2N}$ and 20°C ambient temperature)	$n_{1Ncym}$	rpm	4000	4000	4200	4200	4200	4200	4200	4200	4200		
Max. input speed	$n_{1Max}$	rpm	4500	4500	4500	4500	4500	4500	4500	4500	4500		
Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) <sup>d)</sup>	$T_{012}$	Nm	0,6	0,6	0,4	0,4	0,4	0,4	0,4	0,3	0,3		
Max. torsional backlash	$j_t$	arcmin	Standard $\leq 5,5$ / Reduced $\leq 3,5$										
Torsional rigidity	$C_{t21}$	Nm/arcmin	510	510	510	510	510	510	510	510	510		
Max. axial force <sup>e)</sup>	$F_{2AMax}$	N	33000										
Max. radial force <sup>e)</sup>	$F_{2RMax}$	N	30000										
Max. tilting moment	$M_{2KMax}$	Nm	5000										
Efficiency at full load	$\eta$	%	90										
Service life (For calculation, see the Chapter "Information")	$L_h$	h	> 20000										
Weight incl. standard adapter plate	$m$	kg	-										
Operating noise (with $n_1=3000$ rpm no load)	$L_{pA}$	dB(A)	$\leq 71$										
Max. permitted housing temperature		°C	+90										
Ambient temperature		°C	0 to +40										
Lubrication			Lubricated for life										
Paint			Blue RAL 5002										
Direction of rotation			Motor and gearhead opposite directions										
Protection class			IP 65										
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	G	24	$J_1$	kgcm <sup>2</sup>	2,73	2,49	2,46	2,42	2,42	2,42	2,42	2,42	2,42
	K	38	$J_1$	kgcm <sup>2</sup>	9,64	9,40	9,37	9,33	9,33	9,33	9,33	9,33	9,33

<sup>a)</sup> Other ratios available on request

<sup>b)</sup> Higher speeds are possible if the nominal torque is reduced

<sup>c)</sup> For higher ambient temperatures, please reduce input speed

<sup>d)</sup> Idling torques decrease during operation

<sup>e)</sup> Refers to center of the output shaft or flange

Please contact us for information on the best configuration for S1 conditions of use (continuous operation).





# TPK+ 300 MF 2-stage

		2-stage							
Ratio <sup>a)</sup>	<i>i</i>	15	20	25	35	49	50	70	100
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$ Nm	3200	3200	3200	3300	3300	2350	3300	2800
Nominal output torque (with $n_{n0}$ )	$T_{2N}$ Nm	2000	2000	2000	1800	1800	1800	1800	1600
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	$T_{2Not}$ Nm	4500	5250	5250	7350	6800	4500	6300	8750
Nominal input speed (with $T_{2N}$ and 20°C ambient temperature) <sup>b), c)</sup>	$n_{1N}$ rpm	1500	1700	1900	1900	1700	1700	1700	1700
Max. continuous speed (with 20% $T_{2N}$ and 20°C ambient temperature)	$n_{1Ncym}$ rpm	1900	2300	2700	2700	2400	2400	2400	2400
Max. input speed	$n_{1Max}$ rpm	4000	4000	4000	4000	4000	4000	4000	4000
Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) <sup>d)</sup>	$T_{012}$ Nm	18,5	15,0	13,0	12,0	12,0	15,0	14,0	13,0
Max. torsional backlash	$j_t$ arcmin	Standard $\leq 4$ / Reduced $\leq 2$							
Torsional rigidity	$C_{t21}$ Nm/arcmin	615	640	664	730	728	658	727	642
Max. axial force <sup>e)</sup>	$F_{2AMax}$ N	33000							
Max. tilting moment	$M_{2KMax}$ Nm	5900							
Efficiency at full load	$\eta$ %	94							
Service life (For calculation, see the Chapter "Information")	$L_n$ h	> 20000							
Weight incl. standard adapter plate	$m$ kg	-							
Operating noise (with $n_1=3000$ rpm no load)	$L_{PA}$ dB(A)	$\leq 71$							
Max. permitted housing temperature	°C	+90							
Ambient temperature	°C	0 to +40							
Lubrication		Lubricated for life							
Paint		Blue RAL 5002							
Direction of rotation		Motor and gearhead opposite directions							
Protection class		IP 65							
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	M 48 $J_1$ kgcm <sup>2</sup>	74,00	52,00	43,00	43,00	35,00	30,00	30,00	30,00

<sup>a)</sup> Other ratios available on request

<sup>b)</sup> Higher speeds are possible if the nominal torque is reduced

<sup>c)</sup> For higher ambient temperatures, please reduce input speed

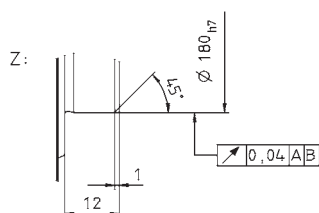
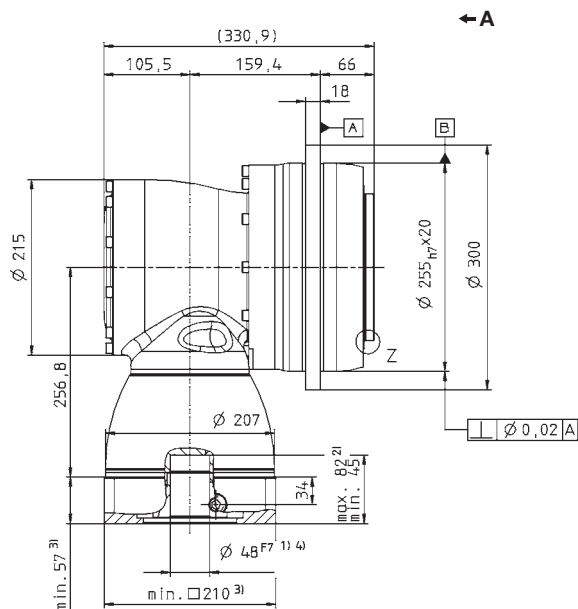
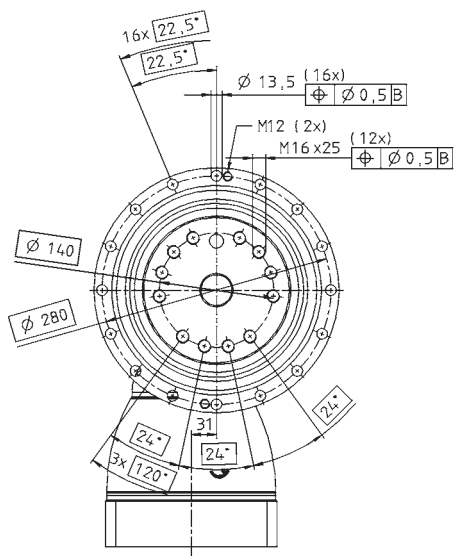
<sup>d)</sup> Idling torques decrease during operation

<sup>e)</sup> Refers to center of the output shaft or flange

Please contact us for information on the best configuration for S1 conditions of use (continuous operation).

## View A

2-stage:



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

Non-tolerated dimensions  $\pm 1$  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.

 Motor mounting according to operating manual

# TPK+ 300 MF 3-stage

		3-stage														
Ratio <sup>a)</sup>	<i>i</i>		63	100	125	140	175	200	250	280	350	500	700	1000		
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$	Nm	3300	3200	3200	3200	3200	3200	3200	3300	3300	2350	3300	2800		
Nominal output torque (with $n_{in}$ )	$T_{2N}$	Nm	1800	2000	2000	2000	2000	2000	2000	1800	1800	1800	1800	1600		
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	$T_{2Not}$	Nm	6300	5250	5250	5250	5250	5250	5250	7350	7350	4500	6300	8750		
Nominal input speed (with $T_{2N}$ and 20°C ambient temperature) <sup>b), c)</sup>	$n_{1N}$	rpm	2700	2700	2700	2700	2700	2700	2900	2700	2900	3400	3400	3400		
Max. continuous speed (with 20% $T_{2N}$ and 20°C ambient temperature)	$n_{1Ncym}$	rpm	3200	3500	3500	3500	3500	3500	3500	3500	3500	3800	3800	3800		
Max. input speed	$n_{1Max}$	rpm	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000		
Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) <sup>d)</sup>	$T_{012}$	Nm	5,4	3,0	2,5	2,1	1,9	1,5	1,4	1,3	1,2	1,1	1,1	1,0		
Max. torsional backlash	$j_t$	arcmin	Standard $\leq 4$ / Reduced $\leq 2$													
Torsional rigidity	$C_{121}$	Nm/arcmin	699	640	664	640	664	640	664	715	730	658	727	642		
Max. axial force <sup>e)</sup>	$F_{2AMax}$	N	33000													
Max. tilting moment	$M_{2KMax}$	Nm	5900													
Efficiency at full load	$\eta$	%	92													
Service life (For calculation, see the Chapter "Information")	$L_n$	h	> 20000													
Weight incl. standard adapter plate	$m$	kg	-													
Operating noise (with $n_1=3000$ rpm no load)	$L_{PA}$	dB(A)	$\leq 71$													
Max. permitted housing temperature		°C	+90													
Ambient temperature		°C	0 to +40													
Lubrication			Lubricated for life													
Paint			Blue RAL 5002													
Direction of rotation			Motor and gearhead opposite directions													
Protection class			IP 65													
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	K	38	$J_1$	kgcm <sup>2</sup>	17,80	14,10	12,10	11,00	10,80	10,20	10,10	10,10	10,00	9,90	9,90	9,90
	M	48	$J_1$	kgcm <sup>2</sup>	32,50	28,80	26,80	25,70	25,50	24,90	24,80	24,90	24,80	24,60	24,60	24,60

<sup>a)</sup> Other ratios available on request

<sup>b)</sup> Higher speeds are possible if the nominal torque is reduced

<sup>c)</sup> For higher ambient temperatures, please reduce input speed

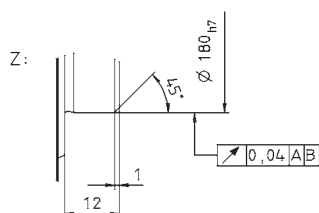
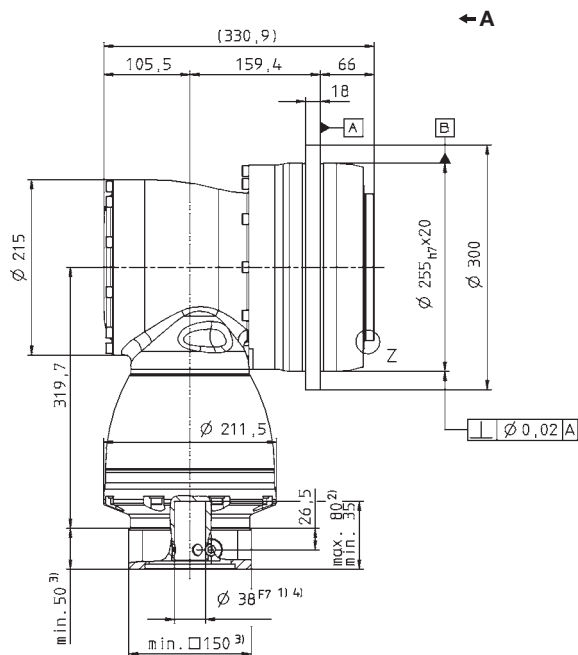
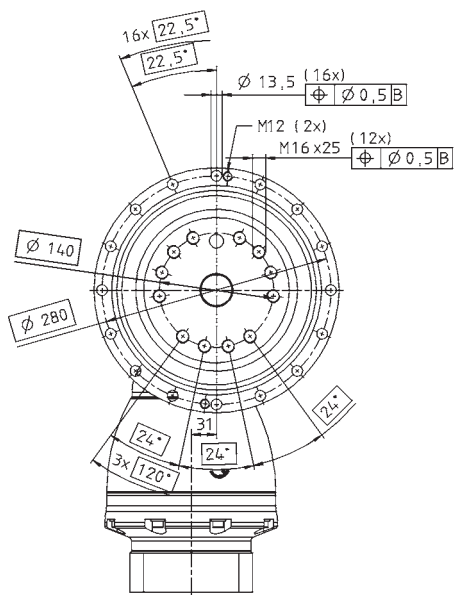
<sup>d)</sup> Idling torques decrease during operation

<sup>e)</sup> Refers to center of the output shaft or flange

Please contact us for information on the best configuration for S1 conditions of use (continuous operation).

## View A

3-stage:



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

Non-tolerated dimensions  $\pm 1$  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.

 Motor mounting according to operating manual

# TPK+ 500 MF 3-stage

		3-stage									
Ratio <sup>a)</sup>	<i>i</i>	100	125	140	175	200	250	350	500	700	1000
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$ Nm	6000	6000	5000	6000	4200	5250	6000	4500	5000	4800
Nominal output torque (with $n_m$ )	$T_{2N}$ Nm	3350	3800	3350	3800	3350	3800	3800	2900	2800	2900
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	$T_{2Not}$ Nm	10000	12500	9000	11250	8000	10000	14000	15000	15000	15000
Nominal input speed (with $T_{2N}$ and 20°C ambient temperature) <sup>b), c)</sup>	$n_{1N}$ rpm	2600	2600	2300	2300	2300	2300	2300	2300	2300	2300
Max. continuous speed (with 20% $T_{2N}$ and 20°C ambient temperature)	$n_{1Ncym}$ rpm	3500	3500	3100	3100	3000	3000	3000	3000	3000	3000
Max. input speed	$n_{1Max}$ rpm	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) <sup>d)</sup>	$T_{012}$ Nm	5,5	5,5	8,5	8,5	6,0	6,0	6,0	6,0	6,0	6,0
Max. torsional backlash	$j_t$ arcmin	Standard $\leq 3,3$ / Reduced $\leq 2,3$									
Torsional rigidity	$C_{121}$ Nm/arcmin	1250	1350	1250	1350	1250	1350	1350	1280	1240	1050
Max. axial force <sup>e)</sup>	$F_{2AMax}$ N	50000									
Max. tilting moment	$M_{2KMax}$ Nm	8800									
Efficiency at full load	$\eta$ %	92									
Service life (For calculation, see the Chapter "Information")	$L_n$ h	> 20000									
Weight incl. standard adapter plate	$m$ kg	-									
Operating noise (with $n_1=3000$ rpm no load)	$L_{PA}$ dB(A)	$\leq 71$									
Max. permitted housing temperature	°C	+90									
Ambient temperature	°C	0 to +40									
Lubrication		Lubricated for life									
Paint		Blue RAL 5002									
Direction of rotation		Motor and gearhead opposite directions									
Protection class		IP 65									
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	K 38 $J_1$ kgcm <sup>2</sup>	16,70	16,70	16,50	16,50	16,40	16,40	16,40	16,40	16,40	16,40

<sup>a)</sup> Other ratios available on request

<sup>b)</sup> Higher speeds are possible if the nominal torque is reduced

<sup>c)</sup> For higher ambient temperatures, please reduce input speed

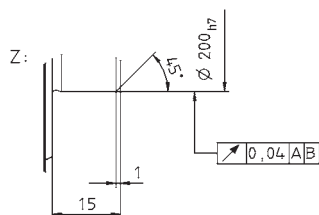
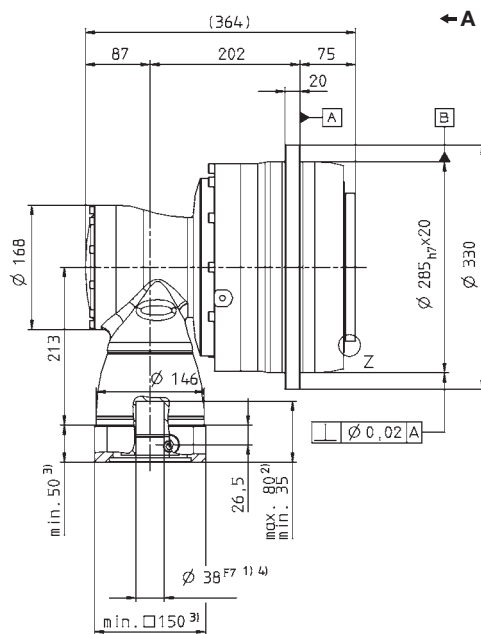
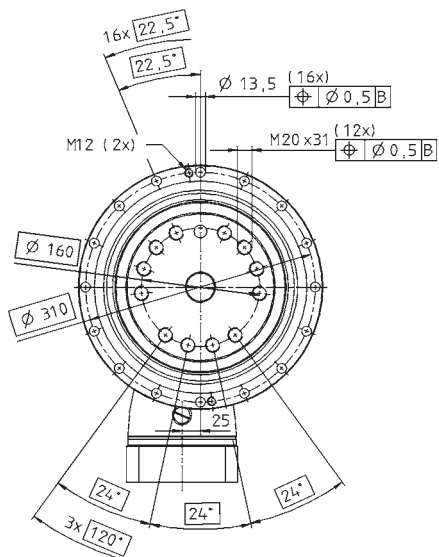
<sup>d)</sup> Idling torques decrease during operation

<sup>e)</sup> Refers to center of the output shaft or flange

Please contact us for information on the best configuration for S1 conditions of use (continuous operation).

View A

3-stage:



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

Non-tolerated dimensions  $\pm 1$  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.

Motor mounting according to operating manual

# TPK+ 500 MF 4-stage i=180-1000

		4-stage														
Ratio <sup>a)</sup>	<i>i</i>		180	240	300	375	420	500	560	600	700	800	875	1000		
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$	Nm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000		
Nominal output torque (with $n_m$ )	$T_{2N}$	Nm	3350	3350	3350	3800	3350	3350	3350	3350	3350	3350	3800	3350		
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	$T_{2Not}$	Nm	10000	10000	10000	12500	10000	10000	10000	10000	10000	10000	12500	10000		
Nominal input speed (with $T_{2N}$ and 20°C ambient temperature) <sup>b), c)</sup>	$n_{1N}$	rpm	2700	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	3200		
Max. continuous speed (with 20% $T_{2N}$ and 20°C ambient temperature)	$n_{1Ncym}$	rpm	3800	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4200		
Max. input speed	$n_{1Max}$	rpm	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500		
Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) <sup>d)</sup>	$T_{012}$	Nm	3,4	2,5	1,6	1,4	1,1	1	1	0,8	0,8	0,7	0,7	0,6		
Max. torsional backlash	$j_t$	arcmin	Standard $\leq 3,3$ / Reduced $\leq 2,3$													
Torsional rigidity	$C_{t21}$	Nm/arcmin	1250	1250	1250	1300	1250	1350	1250	1250	1262	1250	1350	1250		
Max. axial force <sup>e)</sup>	$F_{2AMax}$	N	50000													
Max. tilting moment	$M_{2KMax}$	Nm	8800													
Efficiency at full load	$\eta$	%	90													
Service life (For calculation, see the Chapter "Information")	$L_n$	h	> 20000													
Weight incl. standard adapter plate	$m$	kg	-													
Operating noise (with $n_1=3000$ rpm no load)	$L_{PA}$	dB(A)	$\leq 71$													
Max. permitted housing temperature		°C	+90													
Ambient temperature		°C	0 to +40													
Lubrication			Lubricated for life													
Paint			Blue RAL 5002													
Direction of rotation			Motor and gearhead opposite directions													
Protection class			IP 65													
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	G	24	$J_1$	kgcm <sup>2</sup>	5,93	4,29	3,33	3,32	2,81	3,19	2,80	2,50	2,74	2,49	2,74	2,46
	K	38	$J_1$	kgcm <sup>2</sup>	12,84	11,18	10,24	10,23	9,72	10,10	9,71	9,41	9,65	9,40	9,65	9,37

<sup>a)</sup> Other ratios available on request

<sup>b)</sup> Higher speeds are possible if the nominal torque is reduced

<sup>c)</sup> For higher ambient temperatures, please reduce input speed

<sup>d)</sup> Idling torques decrease during operation

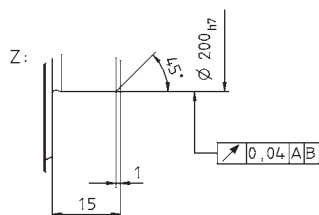
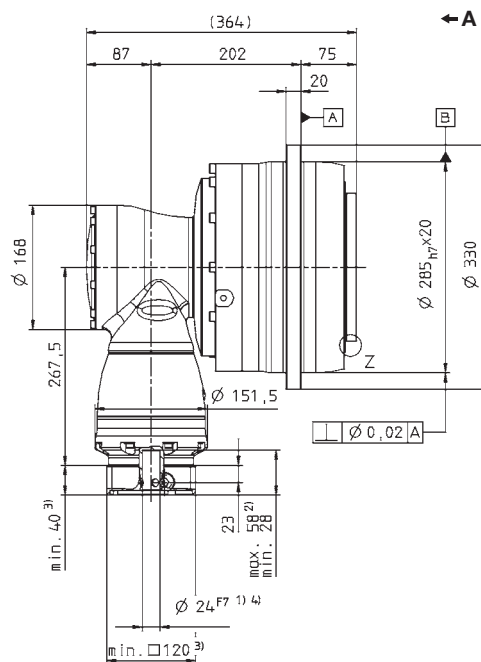
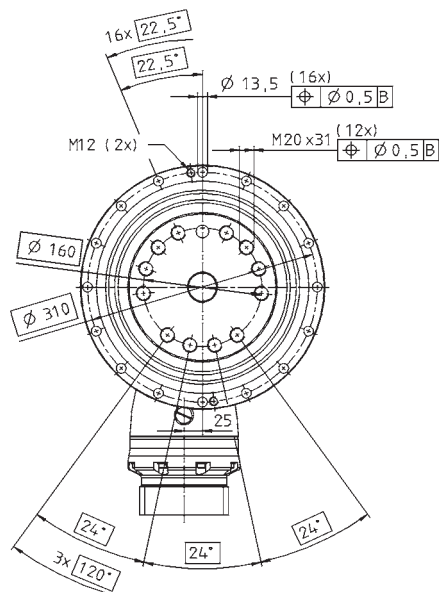
<sup>e)</sup> Refers to center of the output shaft or flange

Please contact us for information on the best configuration for S1 conditions of use (continuous operation).



View A

4-stage:



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

Non-tolerated dimensions  $\pm 1$  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.

 Motor mounting according to operating manual

# TPK+ 500 MF 4-stage i=1225-10000

		4-stage										
Ratio <sup>a)</sup>	<i>i</i>		1225	1400	1750	2000	2800	3500	5000	7000	10000	
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$	Nm	6000	6000	6000	4200	5000	6000	4500	5000	4800	
Nominal output torque (with $n_m$ )	$T_{2N}$	Nm	3800	3800	3800	3200	2800	3800	2900	2800	2900	
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	$T_{2Not}$	Nm	15000	15000	15000	8000	11200	14000	15000	15000	15000	
Nominal input speed (with $T_{2N}$ and 20°C ambient temperature) <sup>b), c)</sup>	$n_{1N}$	rpm	2900	2900	3200	3900	3900	3900	3900	3900	3900	
Max. continuous speed (with 20% $T_{2N}$ and 20°C ambient temperature)	$n_{1Ncym}$	rpm	4000	4000	4200	4200	4200	4200	4200	4200	4200	
Max. input speed	$n_{1Max}$	rpm	4500	4500	4500	4500	4500	4500	4500	4500	4500	
Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) <sup>d)</sup>	$T_{012}$	Nm	0,6	0,6	0,4	0,4	0,4	0,4	0,4	0,4	0,4	
Max. torsional backlash	$j_t$	arcmin	Standard $\leq 3,3$ / Reduced $\leq 2,3$									
Torsional rigidity	$C_{121}$	Nm/arcmin	1350	1350	1350	1250	1250	1350	1250	1250	1050	
Max. axial force <sup>e)</sup>	$F_{2AMax}$	N	50000									
Max. tilting moment	$M_{2KMax}$	Nm	8800									
Efficiency at full load	$\eta$	%	90									
Service life (For calculation, see the Chapter "Information")	$L_n$	h	> 20000									
Weight incl. standard adapter plate	$m$	kg	-									
Operating noise (with $n_1=3000$ rpm no load)	$L_{PA}$	dB(A)	$\leq 71$									
Max. permitted housing temperature		°C	+90									
Ambient temperature		°C	0 to +40									
Lubrication			Lubricated for life									
Paint			Blue RAL 5002									
Direction of rotation			Motor and gearhead opposite directions									
Protection class			IP 65									
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	G	24	$J_1$	kgcm <sup>2</sup>	2,73	2,49	2,46	2,42	2,42	2,42	2,42	2,42
	K	38	$J_1$	kgcm <sup>2</sup>	9,64	9,40	9,37	9,33	9,33	9,33	9,33	9,33

<sup>a)</sup> Other ratios available on request

<sup>b)</sup> Higher speeds are possible if the nominal torque is reduced

<sup>c)</sup> For higher ambient temperatures, please reduce input speed

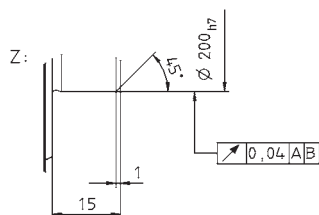
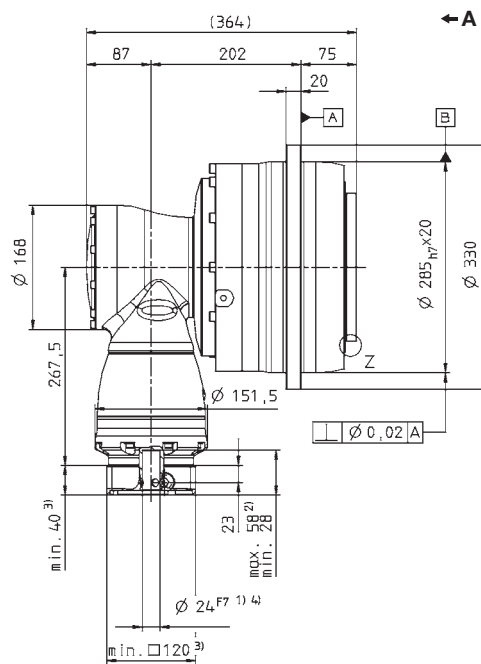
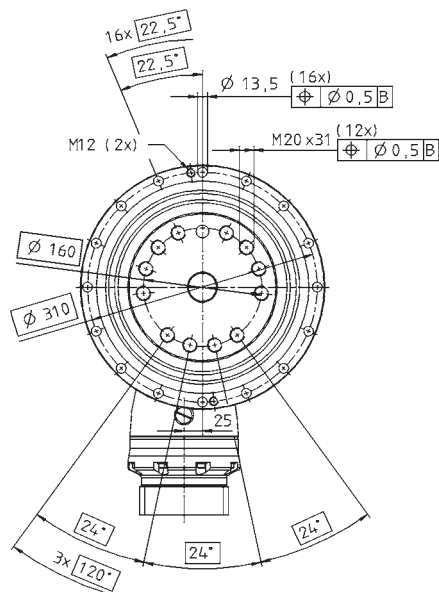
<sup>d)</sup> Idling torques decrease during operation

<sup>e)</sup> Refers to center of the output shaft or flange

Please contact us for information on the best configuration for S1 conditions of use (continuous operation).

View A

4-stage:



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

Non-tolerated dimensions  $\pm 1$  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.

 Motor mounting according to operating manual

# TPK+ 110 MA 3-/4-stage

		3-stage								4-stage								
Ratio <sup>a)</sup>	<i>i</i>	66	88	110	137,5	154	220	385	330	462	577,5	770	1078	1540	2695	3850	5500	
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$ Nm	3100	3100	3100	3100	3100	2750	3100	3100	3100	3100	3100	3100	3100	3100	3100	2000	
Nominal output torque (with $n_{2N}$ )	$T_{2N}$ Nm	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1400	
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	$T_{2Not}$ Nm	4800	5700	5700	6500	5600	5500	6500	4800	6500	6000	6500	6500	6500	6500	6500	6500	
Nominal input speed (with $T_{2N}$ and 20°C ambient temperature) <sup>b), c)</sup>	$n_{1N}$ rpm	2100	2300	2600	2600	2400	2400	2400	3000	3000	3000	3000	3000	3000	4100	4100	4100	
Max. continuous speed (with 20% $T_{2N}$ and 20°C ambient temperature)	$n_{1Ncym}$ rpm	2800	3200	3600	3600	3200	3200	3200	3800	3800	3800	3800	3800	3800	4000	4000	4000	
Max. input speed	$n_{1Max}$ rpm	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	
Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) <sup>d)</sup>	$T_{012}$ Nm	6,0	4,6	3,6	-	4,4	3,5	-	0,9	-	-	-	-	-	-	-	-	
Max. torsional backlash	$j_t$ arcmin	≤ 1,3																
Torsional rigidity	$C_{121}$ Nm/arcmin	634	642	654	675	654	648	687	634	682	662	667	685	685	689	687	658	
Max. axial force <sup>e)</sup>	$F_{2AMax}$ N	10050																
Max. tilting moment	$M_{2KMax}$ Nm	3280																
Efficiency at full load	$\eta$ %	92								90								
Service life (For calculation, see the Chapter "Information")	$L_n$ h	> 20000																
Weight incl. standard adapter plate	$m$ kg	45,4																
Operating noise (with $n_1=3000$ rpm no load)	$L_{PA}$ dB(A)	≤ 70																
Max. permitted housing temperature	°C	+90																
Ambient temperature	°C	0 to +40																
Lubrication		Lubricated for life																
Paint		Blue RAL 5002																
Direction of rotation		Motor and gearhead opposite directions																
Protection class		IP 65																
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	E 19	$J_1$ kgcm <sup>2</sup>	-	-	-	-	-	-	-	0,89	1,06	0,76	0,76	0,76	0,69	0,68	0,68	0,68
	G 24	$J_1$ kgcm <sup>2</sup>	-	-	-	-	-	-	-	2,46	2,63	2,33	2,32	2,32	2,26	2,25	2,25	2,25
	H 28	$J_1$ kgcm <sup>2</sup>	5,48	4,27	3,64	3,58	3,14	2,87	2,84	-	-	-	-	-	-	-	-	-
	K 38	$J_1$ kgcm <sup>2</sup>	12,72	11,52	10,89	10,83	10,39	10,12	10,09	-	-	-	-	-	-	-	-	-

<sup>a)</sup> Other ratios available on request

<sup>b)</sup> Higher speeds are possible if the nominal torque is reduced

<sup>c)</sup> For higher ambient temperatures, please reduce input speed

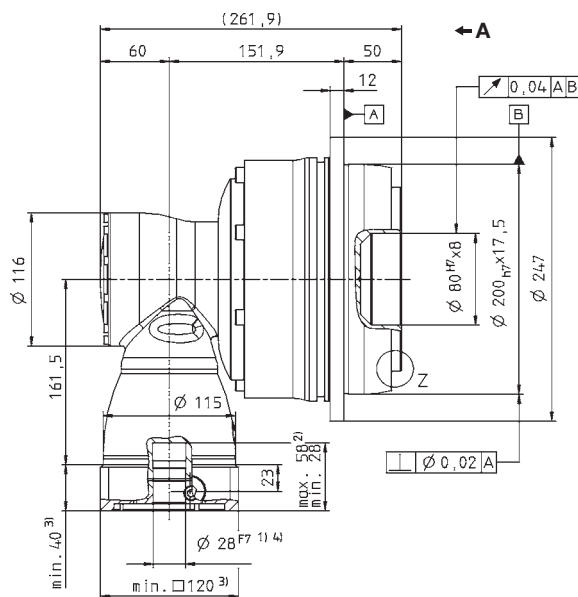
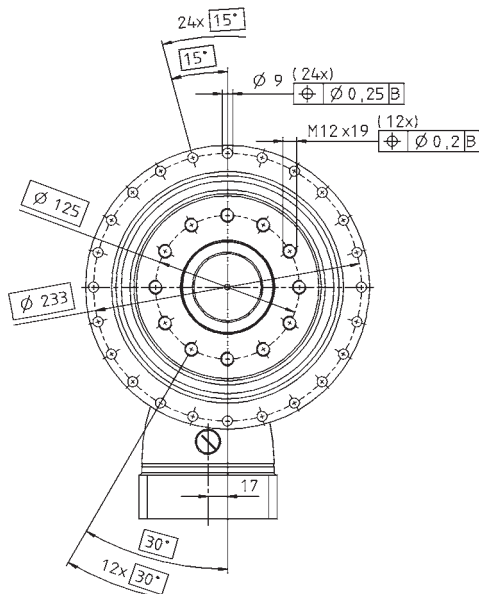
<sup>d)</sup> Idling torques decrease during operation

<sup>e)</sup> Refers to center of the output shaft or flange

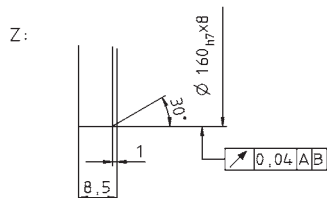
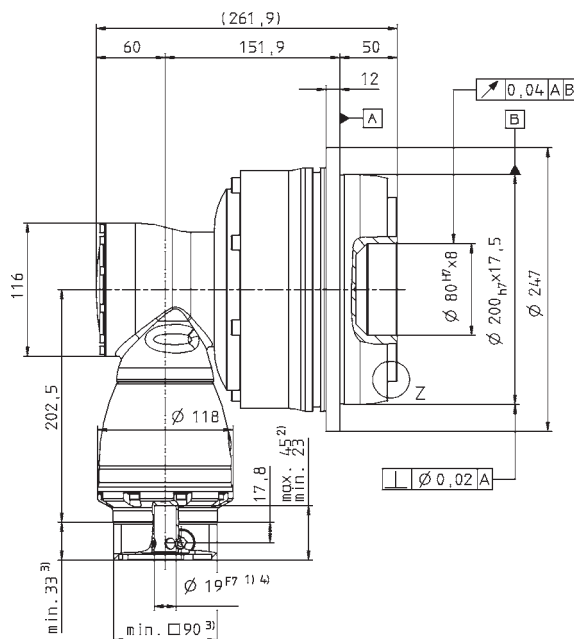
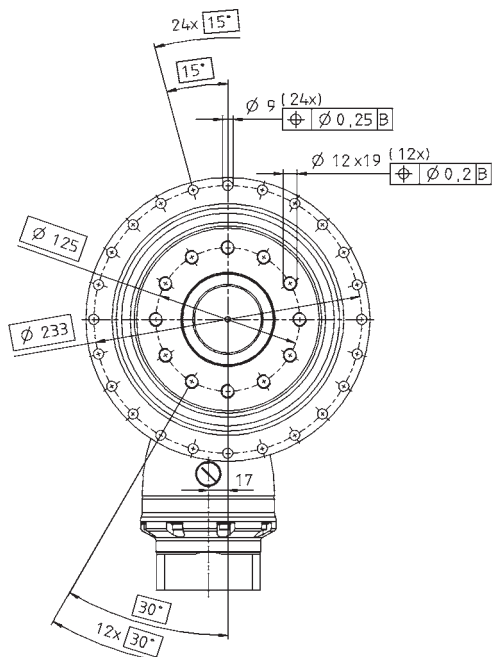
Please contact us for information on the best configuration for S1 conditions of use (continuous operation).

View A

3-stage:



4-stage:



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

Non-tolerated dimensions  $\pm 1$  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.

Motor mounting according to operating manual

# TPK+ 300 MA 3-/4-stage

		3-stage								4-stage								
Ratio <sup>a)</sup>	<i>i</i>	66	88	110	137,5	154	220	385	330	462	577,5	770	1078	1540	2695	3850	5500	
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$ Nm	5500	5500	5500	5500	5500	4600	5500	5500	5500	5500	5500	5500	5500	5500	5500	3900	
Nominal output torque (with $n_m$ )	$T_{2N}$ Nm	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	$T_{2Not}$ Nm	8800	11000	11000	11000	9900	8800	13250	8800	13250	11000	13250	13250	13250	13250	13250	13250	
Nominal input speed (with $T_{2N}$ and 20°C ambient temperature) <sup>b), c)</sup>	$n_{1N}$ rpm	1800	1900	2100	2100	1900	1900	1900	2800	2800	2800	2800	2800	2800	3100	3800	3800	
Max. continuous speed (with 20% $T_{2N}$ and 20°C ambient temperature)	$n_{1Ncym}$ rpm	2300	2600	2900	2900	2600	2600	2600	3800	3800	3800	3800	3800	3800	4000	4000	4000	
Max. input speed	$n_{1Max}$ rpm	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	
Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) <sup>d)</sup>	$T_{012}$ Nm	11,0	8,2	6,9	6,5	9,2	6,7	6,4	1,5	2,2	1,0	0,9	0,8	0,6	0,4	0,4	0,4	
Max. torsional backlash	$j_t$ arcmin	Standard $\leq 3,3$ / Reduced $\leq 1,8$																
Torsional rigidity	$C_{t21}$ Nm/arcmin	1099	1108	1114	960	1114	1111	979	1099	976	953	958	978	978	979	979	989	
Max. axial force <sup>e)</sup>	$F_{2AMax}$ N	33000																
Max. tilting moment	$M_{2KMax}$ Nm	6500																
Efficiency at full load	$\eta$ %	92								90								
Service life (For calculation, see the Chapter "Information")	$L_n$ h	> 20000																
Weight incl. standard adapter plate	$m$ kg	-																
Operating noise (with $n_1=3000$ rpm no load)	$L_{PA}$ dB(A)	$\leq 71$																
Max. permitted housing temperature	°C	+90																
Ambient temperature	°C	0 to +40																
Lubrication		Lubricated for life																
Paint		Blue RAL 5002																
Direction of rotation		Motor and gearhead opposite directions																
Protection class		IP 65																
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	G 24	$J_1$ kgcm <sup>2</sup>	-	-	-	-	-	-	-	3,32	4,24	2,80	2,79	2,79	2,49	2,43	2,42	2,42
	K 38	$J_1$ kgcm <sup>2</sup>	26,04	19,71	16,71	16,58	14,26	12,89	12,83	10,23	11,15	9,71	9,70	9,70	9,40	9,34	9,33	9,33

<sup>a)</sup> Other ratios available on request

<sup>b)</sup> Higher speeds are possible if the nominal torque is reduced

<sup>c)</sup> For higher ambient temperatures, please reduce input speed

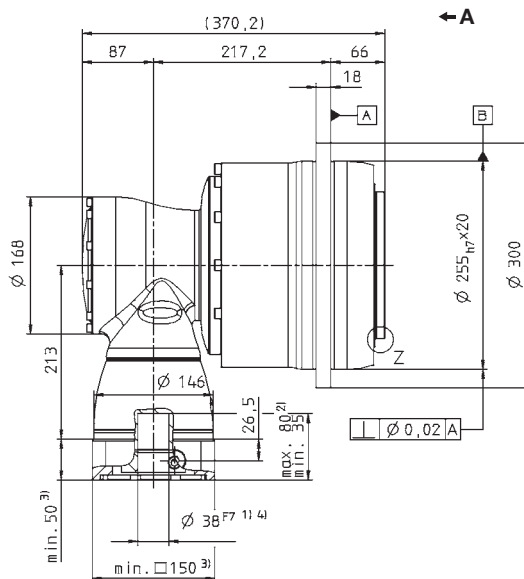
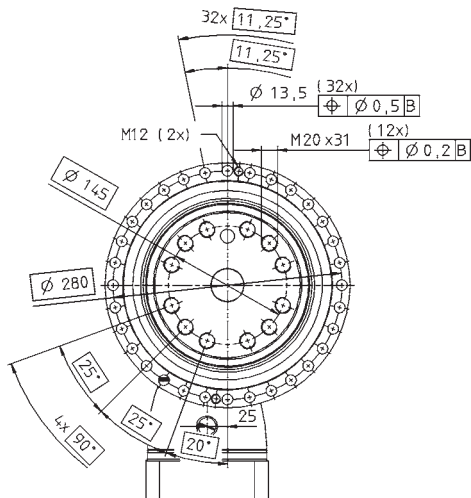
<sup>d)</sup> Idling torques decrease during operation

<sup>e)</sup> Refers to center of the output shaft or flange

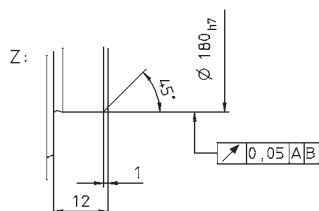
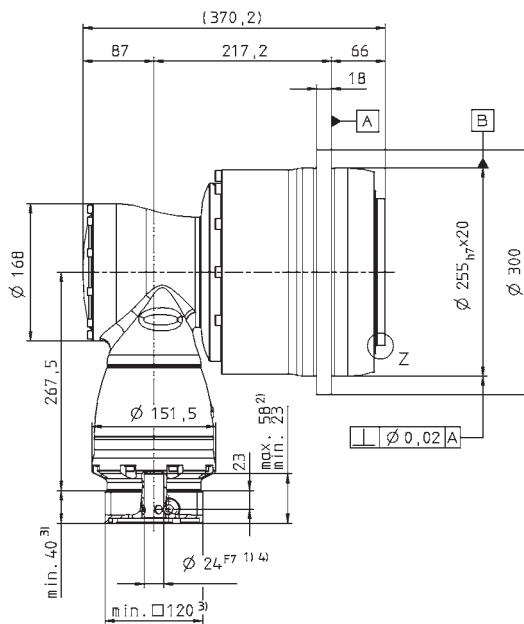
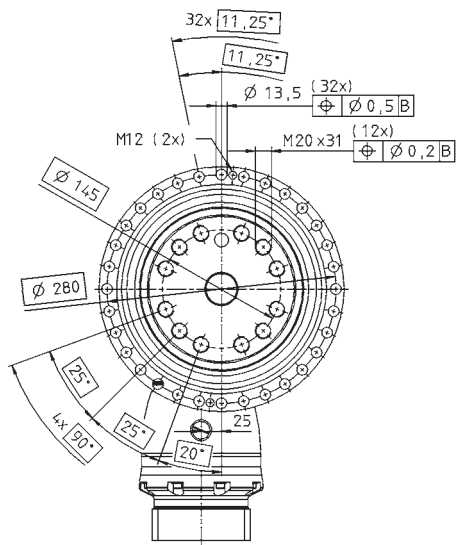
Please contact us for information on the best configuration for S1 conditions of use (continuous operation).

View A

3-stage:



4-stage:



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

Non-tolerated dimensions  $\pm 1$  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.

Motor mounting according to operating manual

# TPK+ 500 MA 3-/4-stage

		3-stage								4-stage								
Ratio <sup>a)</sup>	<i>i</i>	66	88	110	137,5	154	220	385	330	462	577,5	770	1078	1540	2695	3850	5500	
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$ Nm	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	7200
Nominal output torque (with $n_{n0}$ )	$T_{2N}$ Nm	4200	5400	5400	5400	5400	5400	5400	5400	5400	5400	5400	5400	5400	5400	5400	5400	5400
Emergency stop torque (permitted 1000 times during the service life of the gearhead)	$T_{2Not}$ Nm	19800	23000	23000	25000	21300	19800	25000	19800	25000	25000	25000	25000	25000	25000	25000	25000	25000
Nominal input speed (with $T_{2N}$ and 20°C ambient temperature) <sup>b), c)</sup>	$n_{1N}$ rpm	1500	1700	1900	1900	1700	1700	1700	2600	2600	2600	2600	2600	2600	3100	3300	3300	
Max. continuous speed (with 20% $T_{2N}$ and 20°C ambient temperature)	$n_{1Ncym}$ rpm	1800	2200	2600	2600	2300	2300	3100	3300	3300	3300	3300	3300	3300	3600	3600	3600	
Max. input speed	$n_{1Max}$ rpm	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	
Mean no load running torque (with $n_1=3000$ rpm and 20°C gearhead temperature) <sup>d)</sup>	$T_{012}$ Nm	18,8	15,3	12,6	12,8	16,9	13,8	13,7	2,7	4,0	2,0	1,8	1,7	1,2	1,1	1,0	1,0	
Max. torsional backlash	$j_t$ arcmin	Standard $\leq 3,3$ / Reduced $\leq 1,8$																
Torsional rigidity	$C_{t21}$ Nm/arcmin	1879	1890	1901	1747	1899	1898	1772	1879	1766	1735	1742	1770	1770	1772	1772	1772	1786
Max. axial force <sup>e)</sup>	$F_{2AMax}$ N	50000																
Max. tilting moment	$M_{2KMax}$ Nm	9500																
Efficiency at full load	$\eta$ %	92								90								
Service life (For calculation, see the Chapter "Information")	$L_n$ h	> 20000																
Weight incl. standard adapter plate	$m$ kg	-																
Operating noise (with $n_1=3000$ rpm no load)	$L_{PA}$ dB(A)	$\leq 71$																
Max. permitted housing temperature	°C	+90																
Ambient temperature	°C	0 to +40																
Lubrication		Lubricated for life																
Paint		Blue RAL 5002																
Direction of rotation		Motor and gearhead opposite directions																
Protection class		IP 65																
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	K 38	$J_t$ kgcm <sup>2</sup>	-	-	-	-	-	-	-	12,43	15,36	10,93	10,92	10,91	10,13	9,95	9,91	9,91
	M 48	$J_t$ kgcm <sup>2</sup>	75,54	52,83	42,94	42,67	34,37	29,87	29,73	27,14	30,07	25,64	25,63	25,62	24,84	24,66	24,62	24,62

<sup>a)</sup> Other ratios available on request

<sup>b)</sup> Higher speeds are possible if the nominal torque is reduced

<sup>c)</sup> For higher ambient temperatures, please reduce input speed

<sup>d)</sup> Idling torques decrease during operation

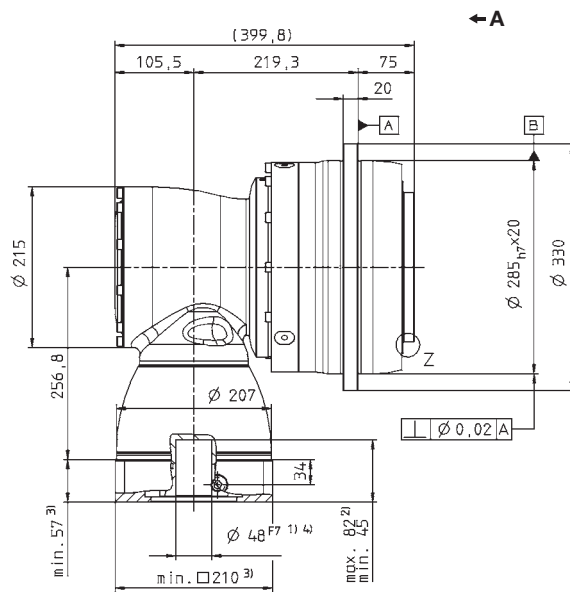
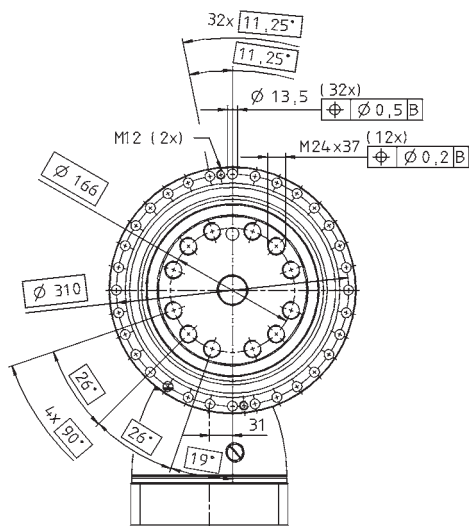
<sup>e)</sup> Refers to center of the output shaft or flange

Please contact us for information on the best configuration for S1 conditions of use (continuous operation).

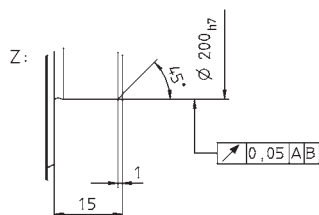
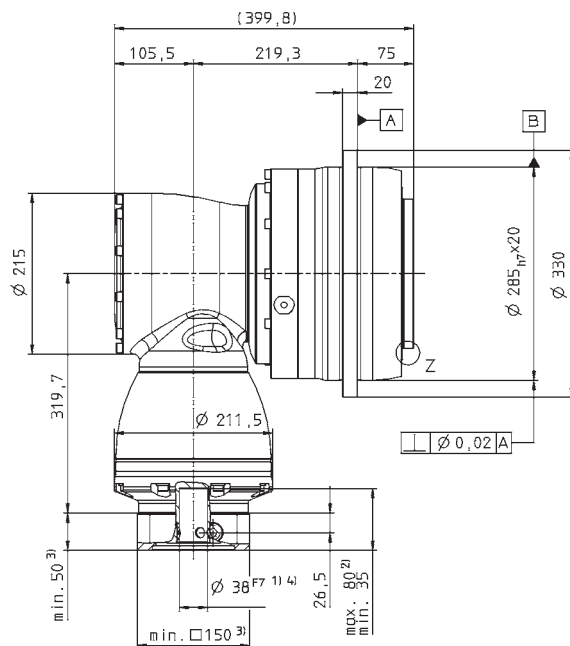
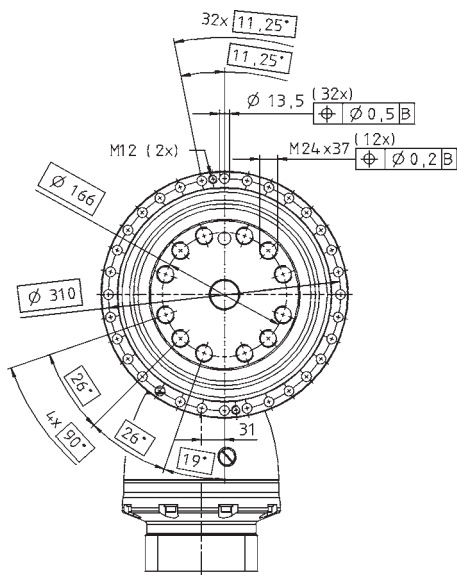


View A

3-stage:



4-stage:



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

Non-tolerated dimensions  $\pm 1$  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.

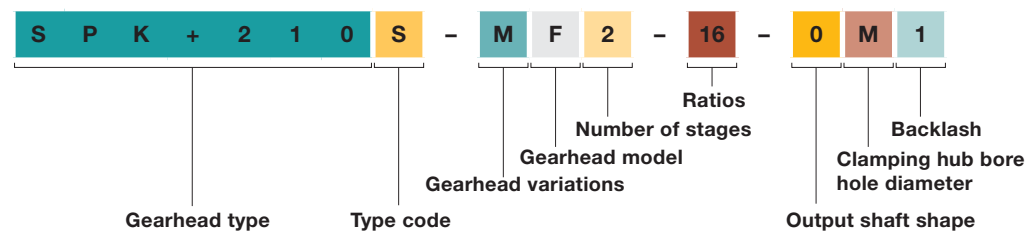
Motor mounting according to operating manual

## Order Information

<b>Gearhead type</b> TPK+ 300 – TPK+ 500 SPK+ 210 – SPK+ 240	<b>Type code</b> S = Standard F = Food lubrication B = Modular output combination	<b>Gearhead variations</b> M = Motor attachment gearhead	<b>Gearhead model</b> A = High Torque (only TPK+) F = Standard	<b>Number of stages</b> 2 = 2-stage 3 = 3-stage 4 = 4-stage
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## Order codes

### TPK+/SPK+

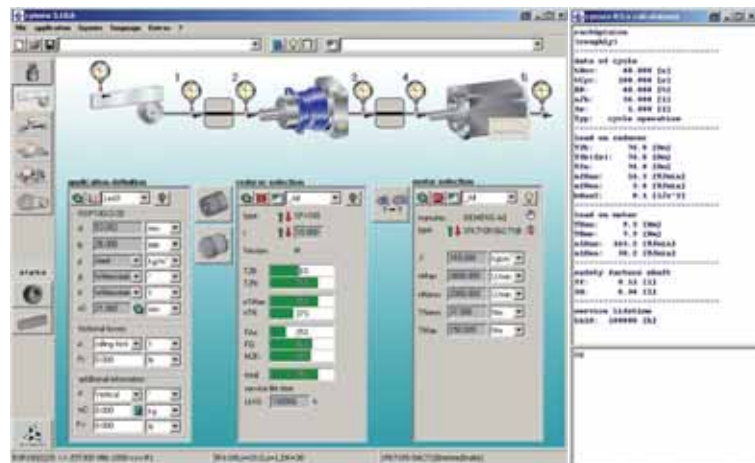


## cymex® 3.1 – Software for drive technology

cymex® enables the simple dimensioning and design of complete drive trains (application + motor + gearhead). Standard predefined applications make precise calculations so much easier. Consideration for all major influencing factors and specific customer parameters guarantee the perfect design for your drive system.

### Established features

- Standard predefined applications
- cymex® profiler for creating simple or complex motion and load profiles
- Functions for importing motion profiles from SAM, Excel, ASCII
- Application data and technical data documented in Microsoft Word
- Offline CAD generator: 3D gearhead files including all attached components compatible with the selected motor
- Database containing all current WITTENSTEIN alpha products
- Largest global database with more than 7000 motors offered by all current manufacturers



**Ratios**

See technical data sheets.

**Output shape**

0 = smooth shaft/flange  
1 = shaft with key  
2 = involute to DIN 5480  
3 = system output  
4 = other  
(see technical data sheets)

**Clamping hub bore hole diameter**

(see technical data sheets and clamping hub diameter table)

**Backlash**

1 = Standard  
0 = Reduced  
(see technical data sheets)



alpha

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