

Rotary Servo Actuator



More dynamic · Shorter · Smoother

TPM⁺



TPM+

The rotary servo actuator **TPM+** provides perfect solutions for packaging, automation and robotics applications.



Servo actuator **TPM⁺** The new compact **motor-gearhead unit**

The TPM⁺ is the logical successor to the successful TPM servo actuator

- **Superior dynamics** thanks to the latest motor technology
- **Superior running** thanks to the helical teeth
- **Superior power density and reduced length** thanks to the **unification** of the motor and the gearhead
- **Reduced sensitivity to dirt** thanks to the functional design



Perfect solutions for packaging • automation • robotics

More dynamic ...

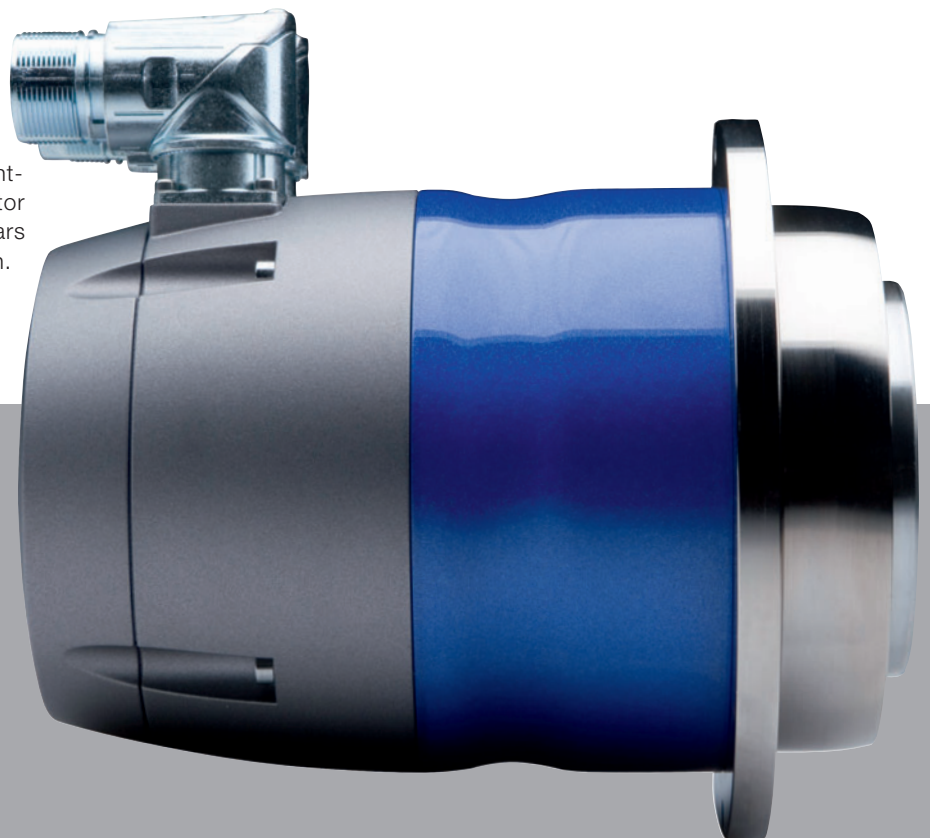
Extremely good control properties are achieved in combination with high torsional rigidity and coupling-free integration between the motor and transmission. As a result, applications with a ratio of more than 50 between the external moment of inertia and the intrinsic moment of inertia can be implemented. The high coupling coefficient combined with the excellent overall level of efficiency allows natural convection cooling in situations where water cooling would usually be required.

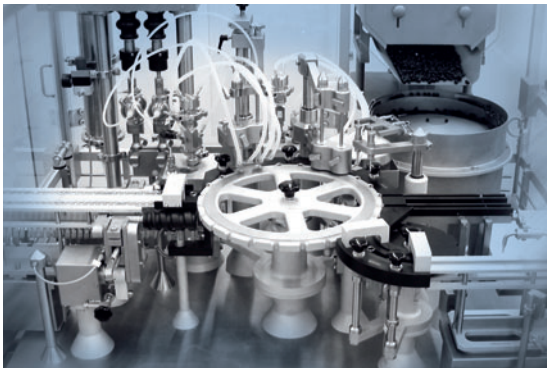
Shorter ...

In the new TPM⁺, the planetary gears and AC servo motors merge to produce a single unit: the sun gear and the rotor shaft are connected without requiring a coupling. The engineers from the WITTENSTEIN group have managed to develop a sophisticated design that reduces the installation space by 20 percent. The results are impressive: Compared to conventional motor gearhead combinations, the TPM⁺ is more than 50 percent shorter because not a single millimetre of installation space has been wasted.

Smoother ...

In addition to the basic features with resolver, the latest generation of feedback systems by Heidenhain and Sick Stegmann have made an important contribution to reducing the overall length. The maintenance-free permanent-magnet brakes are connected close to the stator and the helical-toothed precision planetary gears ensure extremely quiet, low-vibration operation.





Packaging industry

Source: groninger & co. GmbH



Robotics

Source: Sigpack Systems AG

Applications

The new TPM⁺ is ideal for robotics applications (as an axle actuator for paint-spraying robots, rotary actuator for the manufacture of optical media and semiconductors), automation, packaging machines, e.g. actuator for packing sanitary products or for dosing pumps in tool or wood processing machines (tool changers).



More features at a glance:

Possible to reduce gearhead backlash to less than 1 arcmin

Direct attachment of drive components (pinion, belt pulley, indexing table) to standard output flange

An additional bearing is not required due to the stability of the output bearing

Ready-assembled cables and operating instructions available for more than 20 servo controllers

Easy operation in minutes

UL model as standard

Electrical connections with convenient bayonet connectors

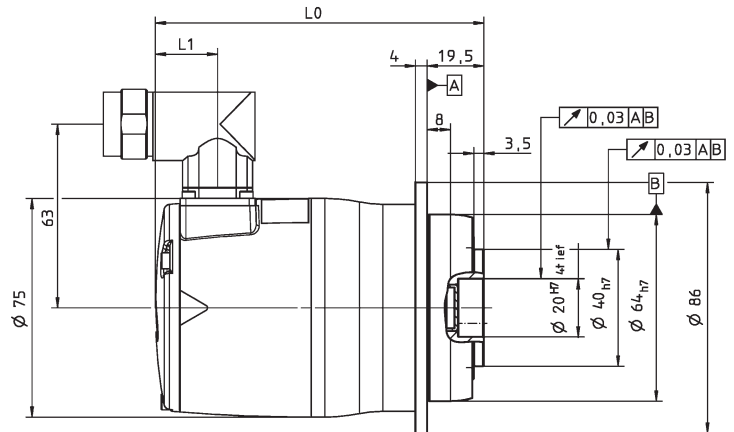
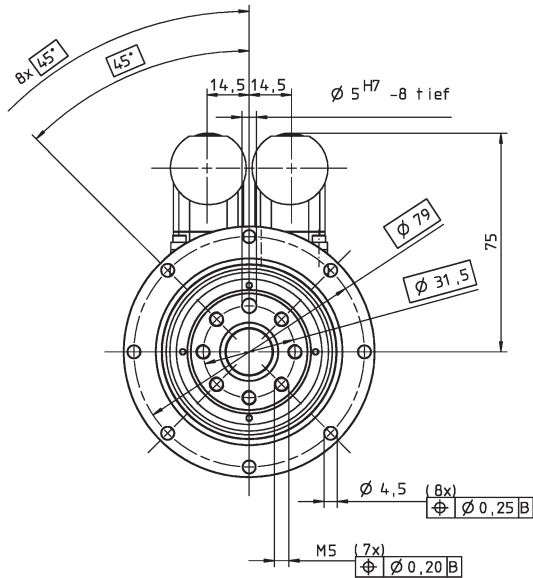


The new TPM⁺: the new rotary actuator by WITTENSTEIN motion control GmbH is another example of a product manufactured in line with the company motto: **"Intelligence in motion"**.

Ratio	i		16	21	31	61	64	91
DC bus voltage	U_D	V DC	560					
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	30	32	40	32	32	32
Stop torque	T_{20}	Nm	8	11	17	15	15	15
Brake holding torque at output, 100°C	T_{2BR}	Nm	18	23	34	67	70	100
Max. speed	n_{2max}	rpm	380	290	194	100	90	70
Limit speed for T _{2B}	n_{2B}	rpm	313	265	190	100	90	70
Peak current	I_{max}	A _{eff}	3.2	2.6	2.2	1.4	1.3	0.9
Stop current	I_0	A _{eff}	1.0	1.0	1.0	0.7	0.8	0.5
Moment of inertia (at motor shaft without brake with resolver)	J_2	kgm ² •10 ⁻⁴	0.21	0.20	0.20	0.12	0.11	0.11
Torsional backlash	j_t	arcmin	Standard ≤ 4 / Reduced ≤ 2					
Torsional rigidity	C_t	Nm/arcmin	10	10	10	10	10	10
Tilting rigidity	C_K	Nm/arcmin	–					
Max. axial force	F_{Amax}	N	1630					
Max. tilting torque	M_{Kmax}	Nm	91					
Weight (with resolver without brake)	m	kg	2.6			2.4		
Operating noise (measured at 3000 rpm motor speed)	L_{PA}	dB(A)	≤ 58					
Max. permitted housing temperature		°C	+90					
Ambient temperature		°C	0 to +40					
Protection class			IP 65					
Mounting position			Any					
Lubrication			Synthetic oil, lubricated for life					
Insulation class			F					
Paint			Metallic blue 250 and natural cast aluminium					

View A

View B



Electrical connection: mounting boxes manufactured by Intercontec, type SpeedTEC, series A and B, size 1

Without brake

Ratio	Motor feedback	Length L0	Length L1
i = 16/21/31	Resolver	128	22
	Hiperface	153	47
	EnDat	157	51
i = 61/64/91	Resolver	113	22
	Hiperface	138	47
	EnDat	142	51

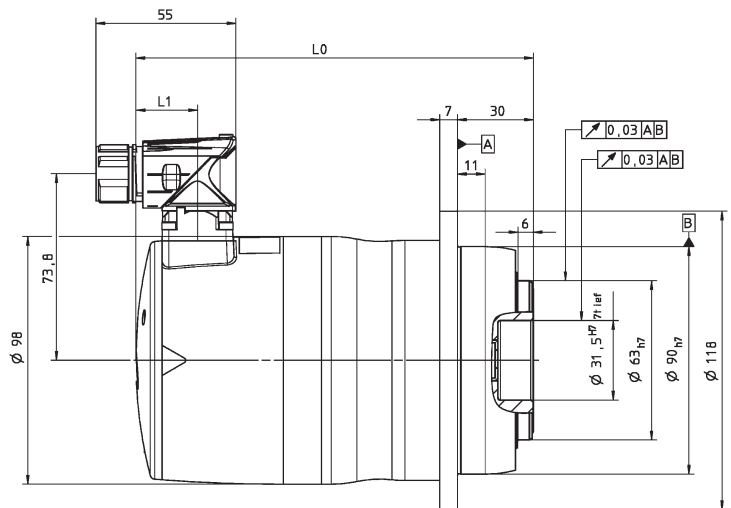
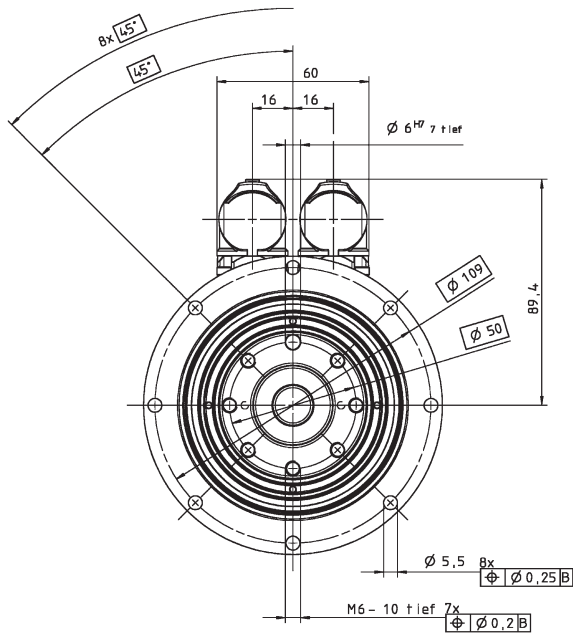
With brake

Ratio	Motor feedback	Length L0	Length L1
i = 16/21/31	Resolver	165	22
	Hiperface	190	47
	EnDat	194	51
i = 61/64/91	Resolver	150	22
	Hiperface	175	47
	EnDat	179	51

Ratio	<i>i</i>		16	21	31	61	64	91
DC bus voltage	<i>U_D</i>	V DC	560					
Max. acceleration torque (max. 1000 cycles per hour)	<i>T_{2B}</i>	Nm	57	75	100	80	80	80
Stop torque	<i>T₂₀</i>	Nm	13	18	27	25	24	35
Brake holding torque at output, 100°C	<i>T_{2BR}</i>	Nm	18	23	34	67	70	100
Max. speed	<i>n_{2max}</i>	rpm	380	235	190	100	90	70
Limit speed for T _{2B}	<i>n_{2B}</i>	rpm	256	195	140	72	70	55
Peak current	<i>I_{max}</i>	A _{eff}	5.2	5.2	4.7	1.9	1.8	1.2
Stop current	<i>I₀</i>	A _{eff}	1.2	1.2	1.2	0.6	0.6	0.6
Moment of inertia (at motor shaft without brake with resolver)	<i>J₂</i>	kgm²•10 ⁻⁴	0.39	0.39	0.39	0.22	0.22	0.22
Torsional backlash	<i>j_t</i>	arcmin	Standard ≤ 3 / Reduced ≤ 1					
Torsional rigidity	<i>C_t</i>	Nm/arcmin	33	33	33	33	33	21
Tilting rigidity	<i>C_K</i>	Nm/arcmin	225					
Max. axial force	<i>F_{Amax}</i>	N	2150					
Max. tilting torque	<i>M_{Kmax}</i>	Nm	235					
Weight (with resolver without brake)	<i>m</i>	kg	4.9			4.4		
Operating noise (measured at 3000 rpm motor speed)	<i>L_{PA}</i>	dB(A)	≤ 62					
Max. permitted housing temperature		°C	+90					
Ambient temperature		°C	0 to +40					
Protection class			IP 65					
Mounting position			Any					
Lubrication			Synthetic oil, lubricated for life					
Insulation class			F					
Paint			Metallic blue 250 and natural cast aluminium					

View A

View B



Electrical connection: mounting boxes manufactured by Intercontec, type SpeedTEC, series A and B, size 1

Without brake

Ratio	Motor feedback	Length L0	Length L1
i = 16/21/31	Resolver	157	24
	Hiperface	178	45
	EnDat	182	49
i = 61/64/91	Resolver	142	24
	Hiperface	163	45
	EnDat	167	49

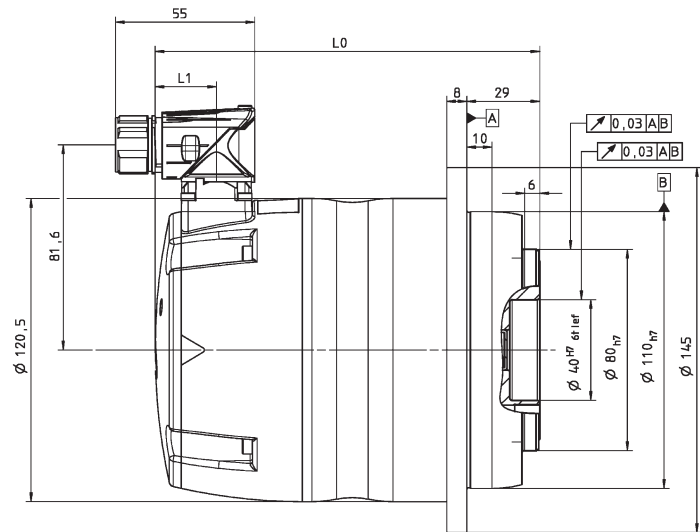
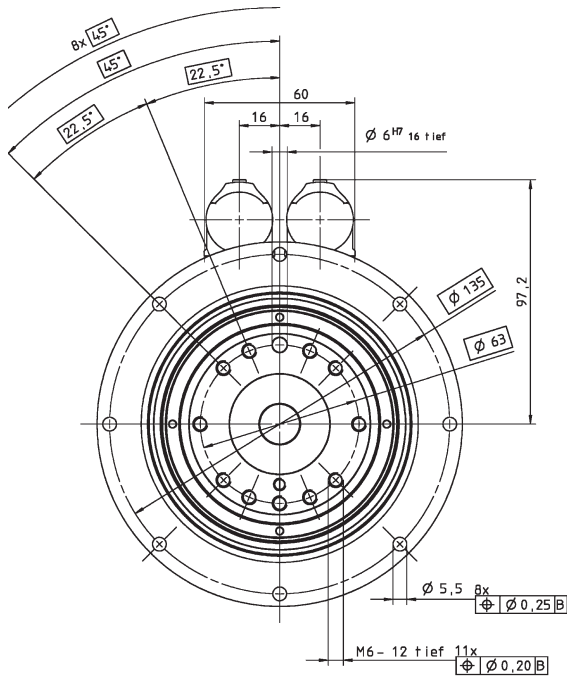
With brake

Ratio	Motor feedback	Length L0	Length L1
i = 16/21/31	Resolver	180	24
	Hiperface	201	45
	EnDat	205	49
i = 61/64/91	Resolver	165	24
	Hiperface	186	45
	EnDat	190	49

Ratio	<i>i</i>		16	21	31	61	64	91
DC bus voltage	<i>U_D</i>	V DC	560					
Max. acceleration torque (max. 1000 cycles per hour)	<i>T_{2B}</i>	Nm	182	239	300	250	250	250
Stop torque	<i>T₂₀</i>	Nm	74	97	146	89	86	100
Brake holding torque at output, 100°C	<i>T_{2BR}</i>	Nm	35	46	68	134	141	200
Max. speed	<i>n_{2max}</i>	rpm	380	290	190	100	90	70
Limit speed for T _{2B}	<i>n_{2B}</i>	rpm	250	190	1140	60	57	47
Peak current	<i>I_{max}</i>	A _{eff}	17.0	17.0	14.4	5.9	5.6	3.8
Stop current	<i>I₀</i>	A _{eff}	5.6	5.6	5.6	1.9	1.9	1.5
Moment of inertia (at motor shaft without brake with resolver)	<i>J₂</i>	kgm²•10 ⁻⁴	2.61	2.61	2.61	0.92	0.91	0.91
Torsional backlash	<i>j_t</i>	arcmin	Standard ≤ 3 / Reduced ≤ 1					
Torsional rigidity	<i>C_t</i>	Nm/arcmin	75	80	54	-	-	55
Tilting rigidity	<i>C_K</i>	Nm/arcmin	550					
Max. axial force	<i>F_{Amax}</i>	N	4150					
Max. tilting torque	<i>M_{Kmax}</i>	Nm	413					
Weight (with resolver without brake)	<i>m</i>	kg	9.0			7.6		
Operating noise (measured at 3000 rpm motor speed)	<i>L_{PA}</i>	dB(A)	≤ 64					
Max. permitted housing temperature		°C	+90					
Ambient temperature		°C	0 to +40					
Protection class			IP 65					
Mounting position			Any					
Lubrication			Synthetic oil, lubricated for life					
Insulation class			F					
Paint			Metallic blue 250 and natural cast aluminium					

View A

View B



Electrical connection: mounting boxes manufactured by Intercontec, type SpeedTEC, series A and B, size 1

Without brake

Ratio	Motor feedback	Length L0	Length L1
i = 16/21/31	Resolver	183	24
	Hiperface	204	45
	EnDat	208	49
i = 61/64/91	Resolver	153	24
	Hiperface	174	45
	EnDat	178	49

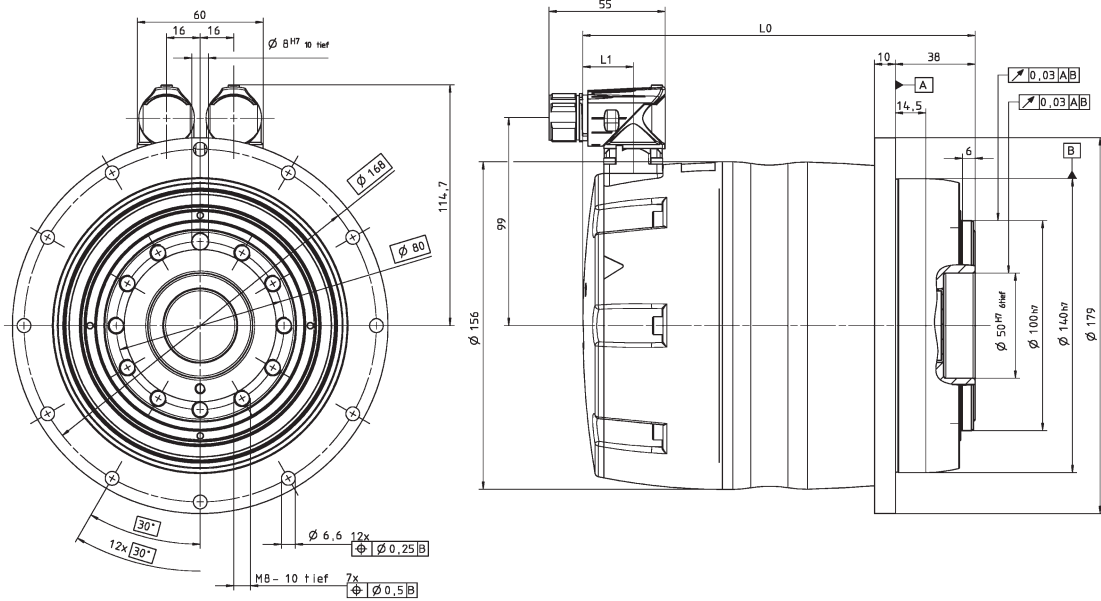
With brake

Ratio	Motor feedback	Length L0	Length L1
i = 16/21/31	Resolver	202	24
	Hiperface	223	45
	EnDat	227	49
i = 61/64/91	Resolver	172	24
	Hiperface	193	45
	EnDat	197	49

Ratio	<i>i</i>		16	21	31	61	64	91
DC bus voltage	<i>U_D</i>	V DC	560					
Max. acceleration torque (max. 1000 cycles per hour)	<i>T_{2B}</i>	Nm	435	500	650	447	469	500
Stop torque	<i>T₂₀</i>	Nm	169	220	336	162	154	220
Brake holding torque at output, 100°C	<i>T_{2BR}</i>	Nm	176	231	341	671	704	1001
Max. speed	<i>n_{2max}</i>	rpm	310	240	160	80	80	50
Limit speed for T _{2B}	<i>n_{2B}</i>	rpm	231	190	135	53	51	44
Peak current	<i>I_{max}</i>	A _{eff}	40	35	30.8	12	12	8.7
Stop current	<i>I₀</i>	A _{eff}	12.4	12.4	12.4	3.5	3.5	3.2
Moment of inertia (at motor shaft without brake with resolver)	<i>J₂</i>	kgm²•10 ⁻⁴	9.16	9.61	9.47	2.41	2.39	2.39
Torsional backlash	<i>j_t</i>	arcmin	Standard ≤ 3 / Reduced ≤ 1					
Torsional rigidity	<i>C_t</i>	Nm/arcmin	170	-	-	123	-	100
Tilting rigidity	<i>C_K</i>	Nm/arcmin	560					
Max. axial force	<i>F_{Amax}</i>	N	6130					
Max. tilting torque	<i>M_{Kmax}</i>	Nm	1295					
Weight (with resolver without brake)	<i>m</i>	kg	21.3			15.1		
Operating noise (measured at 3000 rpm motor speed)	<i>L_{PA}</i>	dB(A)	≤ 70					
Max. permitted housing temperature		°C	+90					
Ambient temperature		°C	0 to +40					
Protection class			IP 65					
Mounting position			Any					
Lubrication			Synthetic oil, lubricated for life					
Insulation class			F					
Paint			Metallic blue 250 and natural cast aluminium					

View A

View B



Electrical connection: mounting boxes manufactured by Intercontec, type SpeedTEC, series A and B, size 1

Without brake

Ratio	Motor feedback	Length L0	Length L1
i = 16/21/31	Resolver	232	24
	Hiperface	253	45
	EnDat	257	49
i = 61/64/91	Resolver	187	24
	Hiperface	208	45
	EnDat	212	49

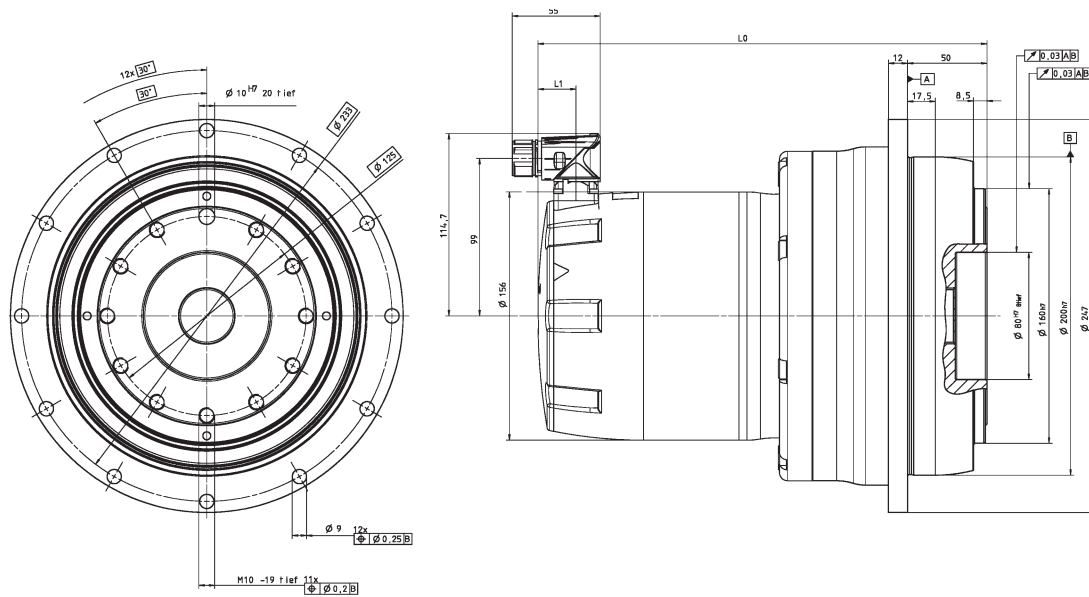
With brake

Ratio	Motor feedback	Length L0	Length L1
i = 16/21/31	Resolver	256	24
	Hiperface	278	45
	EnDat	281	49
i = 61/64/91	Resolver	211	24
	Hiperface	233	45
	EnDat	236	49

Ratio	<i>i</i>		16	21	31	61	64	91
DC bus voltage	<i>U_D</i>	V DC	560					
Max. acceleration torque (max. 1000 cycles per hour)	<i>T_{2B}</i>	Nm	660	867	1279	1300	1300	1300
Stop torque	<i>T₂₀</i>	Nm	208	278	418	671	672	700
Brake holding torque at output, 100°C	<i>T_{2BR}</i>	Nm	176	231	341	671	704	1001
Max. speed	<i>n_{2max}</i>	rpm	310	240	160	80	80	50
Limit speed for T _{2B}	<i>n_{2B}</i>	rpm	206	157	106	68	65	52
Peak current	<i>I_{max}</i>	<i>A_{eff}</i>	70	70	70	31.3	29.8	20.9
Stop current	<i>I₀</i>	<i>A_{eff}</i>	16.3	16.3	16.3	12.4	12.4	9.1
Moment of inertia (at motor shaft without brake with resolver)	<i>J₂</i>	kgm²•10 ⁻⁴	13.14	13.14	12.84	9.42	9.36	9.36
Torsional backlash	<i>j_t</i>	arcmin	Standard ≤ 3 / Reduced ≤ 1					
Torsional rigidity	<i>C_t</i>	Nm/arcmin	-	-	-	-	-	400
Tilting rigidity	<i>C_K</i>	Nm/arcmin	1452					
Max. axial force	<i>F_{Amax}</i>	N	10050					
Max. tilting torque	<i>M_{Kmax}</i>	Nm	3064					
Weight (with resolver without brake)	<i>m</i>	kg	37.1			35.9		
Operating noise (measured at 3000 rpm motor speed)	<i>L_{PA}</i>	dB(A)	≤ 72					
Max. permitted housing temperature		°C	+90					
Ambient temperature		°C	0 to +40					
Protection class			IP 65					
Mounting position			Any					
Lubrication			Synthetic oil, lubricated for life					
Insulation class			F					
Paint			Metallic blue 250 and natural cast aluminium					

View A

View B



Electrical connection: mounting boxes manufactured by Intercontec, type SpeedTEC, series A and B, size 1

Without brake

Ratio	Motor feedback	Length L0	Length L1
i = 16/21/31	Resolver	283	24
	Hiperface	304	45
	EnDat	308	49
i = 61/64/91	Resolver	268	24
	Hiperface	289	45
	EnDat	293	49

With brake

Ratio	Motor feedback	Length L0	Length L1
i = 16/21/31	Resolver	307	24
	Hiperface	329	45
	EnDat	332	49
i = 61/64/91	Resolver	292	24
	Hiperface	314	45
	EnDat	317	49

TPMA 025

Classic TPM model with straight-toothed high torque gearhead

Ratio	i		110	220
DC bus voltage	U_D	V DC	560	
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	430	480
Stop torque	T_{20}	Nm	142	260
Brake holding torque at output, 100°C	T_{2BR}	Nm	198	396
Max. speed	n_{2max}	rpm	54	27
Limit speed for T_{2B}	n_{2B}	rpm	38	19
Peak current	I_{max}	A_{eff}	7.0	3.7
Stop current	I_0	A_{eff}	2.3	2.3
Moment of inertia (at motor shaft without brake with resolver)	J_2	kgcm ²	0.89	0.87
Torsional backlash	j_t	arcmin	≤ 1	
Torsional rigidity	C_t	Nm/arcmin	97	
Tilting rigidity	C_K	Nm/arcmin	550	
Max. axial force	F_{Amax}	N	4150	
Max. tilting torque	M_{Kmax}	Nm	413	
Weight	m	kg	8.4	
Operating noise (measured at 3000 rpm motor speed)	L_{PA}	dB(A)	65	
Max. permitted housing temperature		°C	+90	
Ambient temperature		°C	+40	
Protection class			IP 64	
Mounting position			Any	
Lubrication			Synthetic oil, lubricated for life	
Insulation class			F	
Paint			RAL 5002 (blue) or RAL 9005 (jet black)	

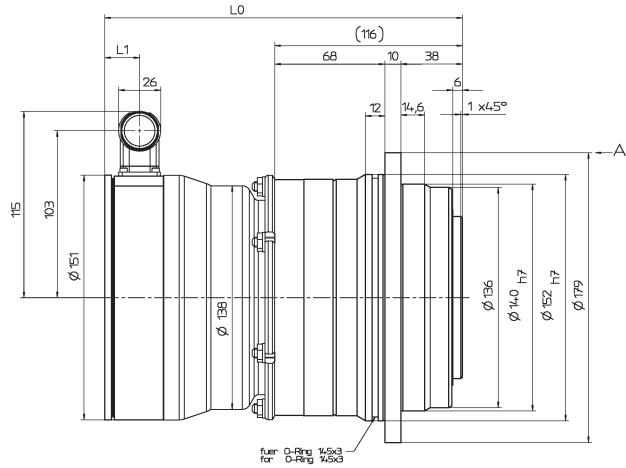
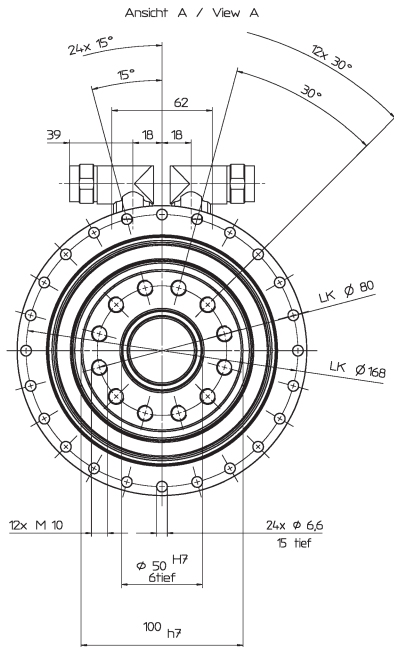
TPMA 050

Classic TPM model with straight-toothed high torque gearhead

Ratio	i		110	220
DC bus voltage	U_D	V DC	560	
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	798	950
Stop torque	T_{20}	Nm	292	583
Brake holding torque at output, 100°C	T_{2BR}	Nm	440	880
Max. speed	n_{2max}	rpm	46	23
Limit speed for T_{2B}	n_{2B}	rpm	28	18
Peak current	I_{max}	A_{eff}	13.7	7.1
Stop current	I_0	A_{eff}	3.6	3.6
Moment of inertia (at motor shaft without brake with resolver)	J_2	kgcm ²	2.43	2.31
Torsional backlash	j_t	arcmin	≤ 1	
Torsional rigidity	C_t	Nm/arcmin	186	
Tilting rigidity	C_K	Nm/arcmin	560	
Max. axial force	F_{Amax}	N	6130	
Max. tilting torque	M_{Kmax}	Nm	1295	
Weight	m	kg	17.6	
Operating noise (measured at 3000 rpm motor speed)	L_{PA}	dB(A)	70	
Max. permitted housing temperature		°C	+90	
Ambient temperature		°C	+40	
Protection class			IP 64	
Mounting position			Any	
Lubrication			Synthetic oil, lubricated for life	
Insulation class			F	
Paint			RAL 5002 (blue) or RAL 9005 (jet black)	

View A

View B



Electrical connection: mounting boxes manufactured by Intercontec, series A and B

Without brake

Ratio	Motor feedback	Length L0	Length L1
i = 110/220	Resolver	221	21.5
	Hiperface	263	65
	EnDat	263	65

With brake

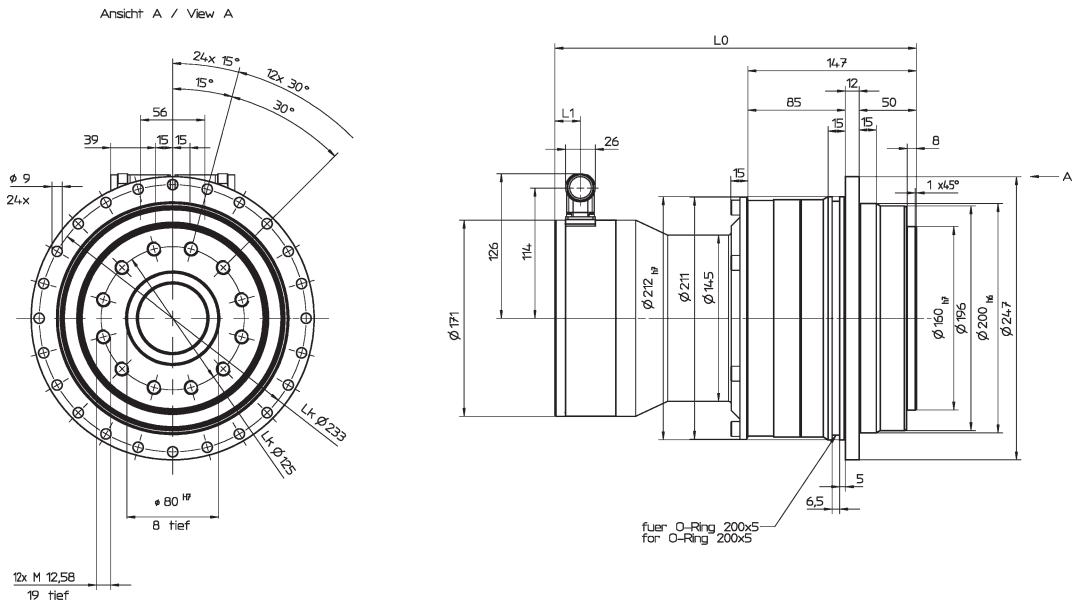
Ratio	Motor feedback	Length L0	Length L1
i = 110/220	Resolver	247	47.5
	Hiperface	292	94.5
	EnDat	310	112

Classic TPM model with straight-toothed high torque gearhead

Ratio	i		110	220
DC bus voltage	U_D	V DC	560	
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	2600	2600
Stop torque	T_{20}	Nm	1309	1570
Brake holding torque at output, 100°C	T_{2BR}	Nm	1650	3200
Max. speed	n_{2max}	min ⁻¹	41	21
Limit speed for T_{2B}	n_{2B}	rpm	38	21
Peak current	I_{max}	A_{eff}	41.4	19.2
Stop current	I_0	A_{eff}	15.3	15.3
Moment of inertia (at motor shaft without brake with resolver)	J_2	kgcm ²	10.32	9.84
Torsional backlash	j_t	arcmin	≤ 1	
Torsional rigidity	C_t	Nm/arcmin	550	
Tilting rigidity	C_K	Nm/arcmin	1452	
Max. axial force	F_{Amax}	N	10050	
Max. tilting torque	M_{Kmax}	Nm	3064	
Weight	m	kg	17.6	
Operating noise (measured at 3000 rpm motor speed)	L_{PA}	dB(A)	70	
Max. permitted housing temperature		°C	+90	
Ambient temperature		°C	+40	
Protection class			IP 64	
Mounting position			Any	
Lubrication			Synthetic oil, lubricated for life	
Insulation class			F	
Paint			RAL 5002 (blue) or RAL 9005 (jet black)	

View A

View B



Electrical connection: mounting boxes manufactured by Intercontec, series A and B

Without brake

Ratio	Motor feedback	Length L0	Length L1
i = 110/220	Resolver	315.5	22.3
	Hiperface	330.5	37.3
	EnDat	356.5	63.3

With brake

Ratio	Motor feedback	Length L0	Length L1
i = 110/220	Resolver	356.5	63.8
	Hiperface	402.5	109.3
	EnDat	420.5	127.3

Options for our servo actuators

Holding brake

A compact permanent-magnet brake is available for holding the rotor when the power is off. It is characterized by backlash-free operation, drag-free disengagement, unlimited ON time and constant torque at high operating temperatures.

Data		TPM 004 S TPM 010 S	TPM 025 S	TPM 050 S TPM 110 S
Holding torque at 100°C	Nm	1.1	2.2	13
Supply voltage	V DC	24+6% / -10%		
Current	A	0.42	0.38	0.71

Data		TPMA 025	TPMA 050	TPMA 110
Holding torque at 100°C	Nm	1.8	4.0	15
Supply voltage	V DC	24+6% / -10%		
Current	A	0.50	0.55	1.10

Temperature sensors

Various sensors are available to prevent the motor coil from overheating.

Standard: PTC thermistor, type STM160
KTY thermistor, type KTY 84-130

Feedback systems

Various feedback systems are available for position and speed encoding.

Standard: Resolver 2-pin, 1 Sin/Cos period per revolution
Optional: Incremental encoder, 1Vss, 2048 S/R
EnDat Singleturn, 512 S/R
EnDat Multiturn, 512 S/R, 8192 R
Hiperface Singleturn, 128 S/R
Hiperface Multiturn, 128 S/R, 4096 R

Cable

Ready-assembled power and signal cables are available for all tested servo controllers. Lengths of 5, 10, 15, 20, 25, 30, 40 and 50 metres available. The cables are very high quality:

- Suitable for cable tracks due to highly flexible wires in accordance with DIN VDE 0295, class 6
- Oil and fireproof
- Free of halogen, silicone and CFCs-

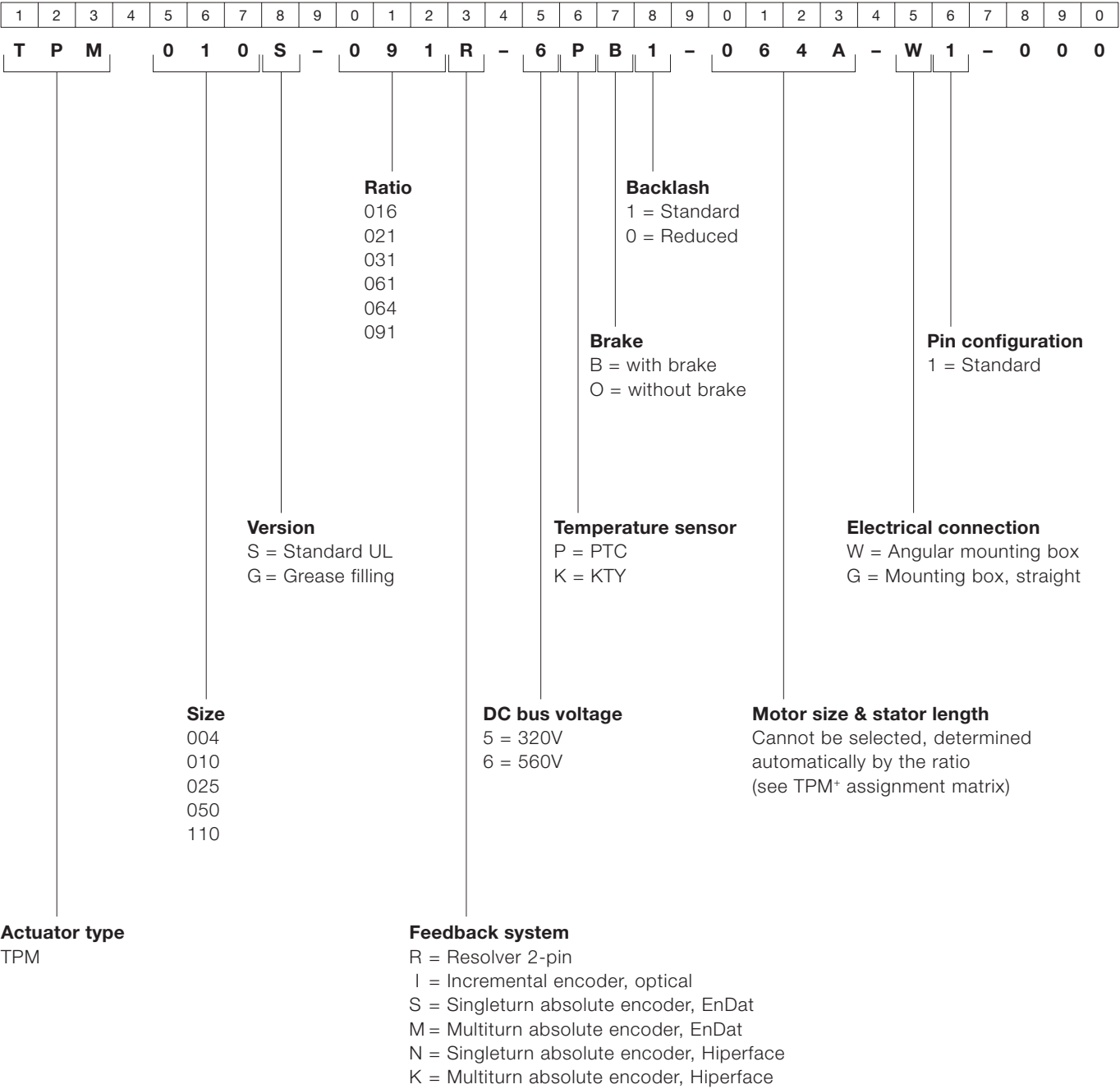
Servo controllers

The TPM+ can be operated with a wide variety of servo controllers. The following table contains all servo controllers that have already been tested with the TPM+ and provides information on selection of the correct options.
You can obtain brief instructions containing all important parameters for programming the servo controller on request.

Overview of servo controllers tested on the TPM⁺

Manufacturer	Series/Type	TPM(A) size					Feedback signal				Temperature sensor		DC bus current		Abbr. for cable orders
		004	010	025	050	110	Re-solver	Incremental	EnDat	Hiper-face	PTC	KTY	320V DC	560V DC	
AMK	AMKAYSN KU	x	x	x	x	x	x	–	x	x	x	–	x	x	AMKKU_
Baldor	Flex + II	x	–	–	–	–	x	–	x	–	–	–	x	–	BALFL2
Bosch	EcoDrive 03	–	x	x	x	x	x	–	x	–	x	–	x	x	BRCD3
	DIAX 04	–	x	x	x	x	x	–	x	–	x	–	x	x	BRCD04
	IndraDrive	x	x	x	x	x	x	–	x	x	x	x	x	x	BRCIND
B & R	AcoPos	x	x	x	x	x	x	–	x	–	x	x	–	x	BURACO
Control Technique	UniDrive SP	x	x	x	x	x	x	–	x	x	x	–	–	x	CT_SP_
Danaher motion	Servostar 600	x	x	x	x	x	x	–	x	x	x	–	x	x	DANSR6
	Servostar 400	x	x	x	x/–	–	x	–	x	x	x	–	x	x	DANSR4
	Servostar 300	x	x	x	x/–	–	x	–	x	x	x	–	x	x	DANSR3
ESR Pollmeier	Trio /MidiDrive Digital	x	x	x	x	x	x	–	x	x	x	–	x	x	ESRTRD
ELAU	PacDrive MC-4	x	x	x	x	x	–	–	–	x	x	–	x	x	ELAMC4
Hannifin Hauser	Compax	x	x	x	x	x	x	–	–	x	x	–	x	x	PARCO_
	Compax 3	x	x	x	x	x	x	–	–	x	x	–	x	x	PARCO3
KEB	Combivert S4	x	x	x	x	x	x	x	–	–	x	–	x	x	KEBS4_
	Combivert F5-Servo	x	x	x	x	x	x	x	x	x	x	–	x	x	KEBF5S
	Combivert F5-A Servo	x	x	x	x	x	x	–	–	–	x	–	x	x	KEBF5A
Lenze	Global Drive 93xxx	x	x	x	x	x	x	–	–	x	x	x	–	x	LENG93
	Global Drive 94xx	x	x	x	x	x	x	–	–	x	x	x	x	x	LENG94
	ECS Servosystem	x	x	x	x	x	x	–	–	x	x	x	x	x	LENECS
NUM	MDLU 3	x	x	x	x	x	–	–	–	x	x	–	–	x	NUMMD3
Siemens	SimoDrive 611U	x	x	x	x	x	x	x	x	–	–	x	–	x	SIESDU
	SimoDrive 611U	x	x	x	x	x	–	x	x	–	–	x	–	x	SIESDD
	Master Drive MC	x	x	x	x	x	x	x	x	–	x	x	–	x	SIEMC_
	Sinamics	x	x	x	x	x	x	x	x	–	–	x	–	x	SIESIN

Order code TPM+



Assignment matrix TPM+

	i = 16, 21, 31	i = 61, 64, 91
TPM 004	053B	053A
TPM 010	064B	064A
TPM 025	094C	094A
TPM 050	130D	130A
TPM 110	130E	130D

Order code TPMA

1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0
T	P	M	A	0	1	0	-	1	1	0	M	-	6	0	0	K	-	B	P	1	-	0	6	0	I	F	S	T	D

Actuator type
TPMA

Size
025
050
110

Ratio
110
220

Feedback system
R = Resolver 2-pin
I = Incremental encoder, optical
S = Singleturn absolute encoder, EnDat
M = Multiturn absolute encoder, EnDat
N = Singleturn absolute encoder, Hiperface
K = Multiturn absolute encoder, Hiperface

DC bus voltage
320 = 320V
600 = 560V

Temperature sensor
P = PTC
K = KTY
N = NTC

Brake
BP = with brake
OH = without brake

Backlash
1 = Standard
0 = Reduced

Stator length
Cannot be selected, determined automatically by the ratio (see TPMA assignment matrix)

Electrical connection
STD = Angular mounting box
SEG = Mounting box, straight

Specification
IF = Industry, heat class F

Assignment matrix
TPMA

	i = 110, 220
TPMA 025	015
TPMA 050	015
TPMA 110	060

Cable order code for TPM+

1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0					
C A B - S E T									M	S I E S D U							D 0 1 5 0					S	L 0 5 0 0											
Wiring harness consisting of - Power cable - Signal cable Assembled at both ends									Feedback system R = Resolver 2-pin I = Incremental encoder, optical S = Singleturn absolute encoder, EnDat M = Multiturn absolute encoder, EnDat N = Singleturn absolute encoder, Hiperface K = Multiturn absolute encoder, Hiperface							Assembly, controller end SIESDU = Siemens Simodrive 61U etc... see controller table Specification in right column							Cable diameter D0150 = 1.5mm ² on TPM 004, TPM 010, TPM 025, TPM 050 i ≥ 61 D0250 = 2.5mm ² on TPM 050 i ≤ 31, TPM 110					Length L0500 = 5m L1000 = 10m L1500 = 15m L2000 = 20m L2500 = 25m L3000 = 30m L4000 = 40m L5000 = 50m						
																												Assembly motor end S = Connector						

Any queries?

Have you any special questions regarding our products and services? Visit our homepage **www.wittenstein.de** for more information.



www.w-m-c.de

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