



WITTENSTEIN

motion control

TPM⁺ dynamic Rotary Servo Actuator

More dynamic
Shorter
Smoother





TPM+ dynamic

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



Servo actuator **TPM+ dynamic:** The compact **motor-gearhead unit**

The TPM+ dynamic 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



A system functions best when all the individual parts are integrated perfectly. The harmonious combination of motors, precision gearheads, electronics, sensors and software integrated in bus-compatible, electromechanical rotary and linear servo systems manufactured by WITTENSTEIN motion control GmbH is more than impressive. Integration plays an innovative role here and is a decisive factor in increasing power density and dynamics.

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 TPM+ dynamic, 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+ dynamic 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.



Everything under control. Highly dynamic and lightning fast!

Let the games begin!

TPM+ dynamic: The servo actuator with the industry's best response time. You get everything with the TPM+ dynamic: outstanding performance, unmatched power density, smooth and quiet operation. Best of all – it comes in a compact and sleek design. The best in the industry run on the TPM+ dynamic. Be ready for whatever life throws at you. Game, set, match!



Packaging industry

Source: groninger & co. GmbH



Robotics

Source: Sigpack Systems AG

Applications

The TPM+ dynamic 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



TPM+ dynamic

TPM+ dynamic 004

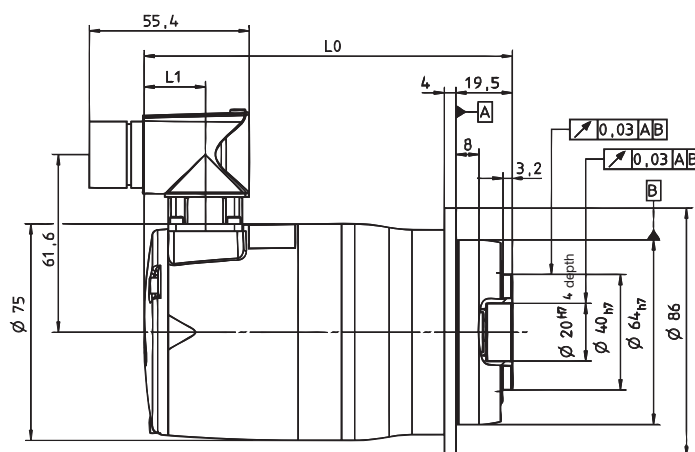
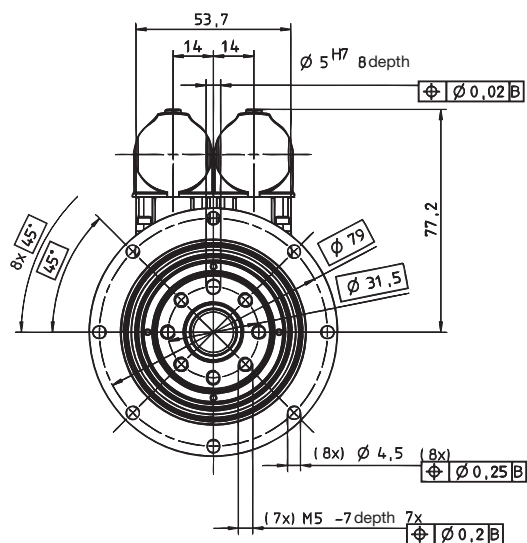
Ratio	<i>i</i>	16		21		31		61		64		91	
DC bus voltage	U_D V DC	320	560	320	560	320	560	320	560	320	560	320	560
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B} Nm	29		32		40		32		32		32	
Stop torque	T_{20} Nm	8		11		17		15		15		15	
Brake holding torque at output, 100°C	T_{2BR} Nm	18		23		34		67		70		100	
Max. speed	n_{2max} rpm	375		286		194		98		94		66	
Limit speed for T_{2B}	n_{2B} rpm	313		262		189		98		94		66	
Peak current	I_{max} A _{eff}	5.5	3.2	4.6	2.6	3.9	2.2	2.4	1.4	2.3	1.3	1.6	0.9
Stop current	I_0 A _{eff}	1.8	1.0	1.8	1.0	1.8	1.0	1.2	0.7	1.3	0.8	0.9	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 moment (distance between the pivot point and the output flange: 106.8 mm)	M_{Kmax} Nm	110											
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											

Tolerance of T, I and n: Maximum +/- 10%.

For torque speed curve based on the above data, please see the chapter entitled "Information."

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

TPM+ dynamic 010

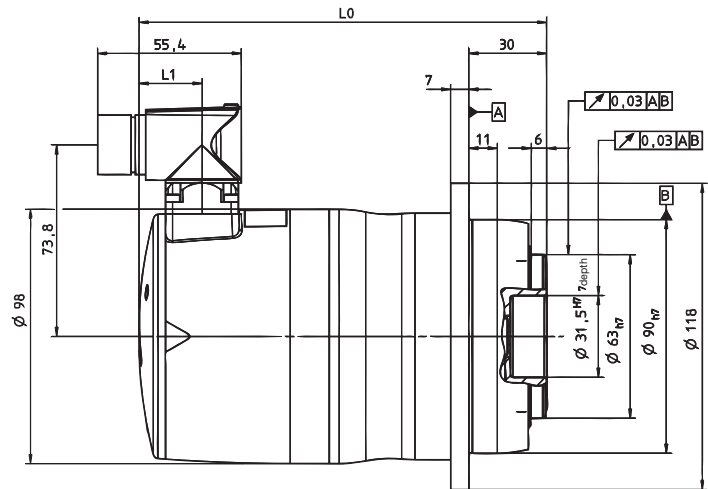
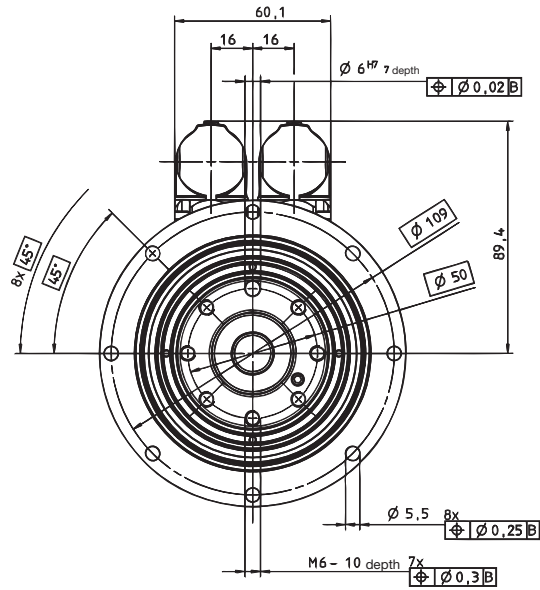
Ratio	<i>i</i>	16		21		31		61		64		91		
DC bus voltage	U_D	V DC	320	560	320	560	320	560	320	560	320	560	320	560
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	57		75		100		80		80		80	
Stop torque	T_{20}	Nm	13		18		27		31		29		35	
Brake holding torque at output, 100°C	T_{2BR}	Nm	18		23		34		67		70		100	
Max. speed	n_{2max}	rpm	375		286		194		98		94		66	
Limit speed for T_{2B}	n_{2B}	rpm	256		195		139		93		90		66	
Peak current	I_{max}	A_{eff}	9.0	5.2	9.0	5.2	8.1	4.7	3.8	2.2	3.6	2.1	2.4	1.4
Stop current	I_0	A_{eff}	2.1	1.2	2.1	1.2	2.1	1.2	1.5	0.9	1.5	0.9	1.3	0.7
Moment of inertia (at motor shaft without brake with resolver)	J_2	$kgm^2 \cdot 10^{-4}$	0.39		0.39		0.39		0.22		0.22		0.22	
Torsional backlash	j_t	arcmin	Standard ≤ 3 / Reduced ≤ 1											
Torsional rigidity	C_t	Nm/arcmin	33		33		33		33		33		21	
Tilting rigidity	C_K	Nm/arcmin	225											
Max. axial force	F_{Amax}	N	2150											
Max. tilting moment (distance between the pivot point and the output flange: 82.7 mm)	M_{Kmax}	Nm	270											
Weight (with resolver without brake)	m	kg	4.9						4.4					
Operating noise (measured at 3000 rpm motor speed)	L_{PA}	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											

Tolerance of T, I and n: Maximum +/- 10%.

For torque speed curve based on the above data, please see the chapter entitled "Information."

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

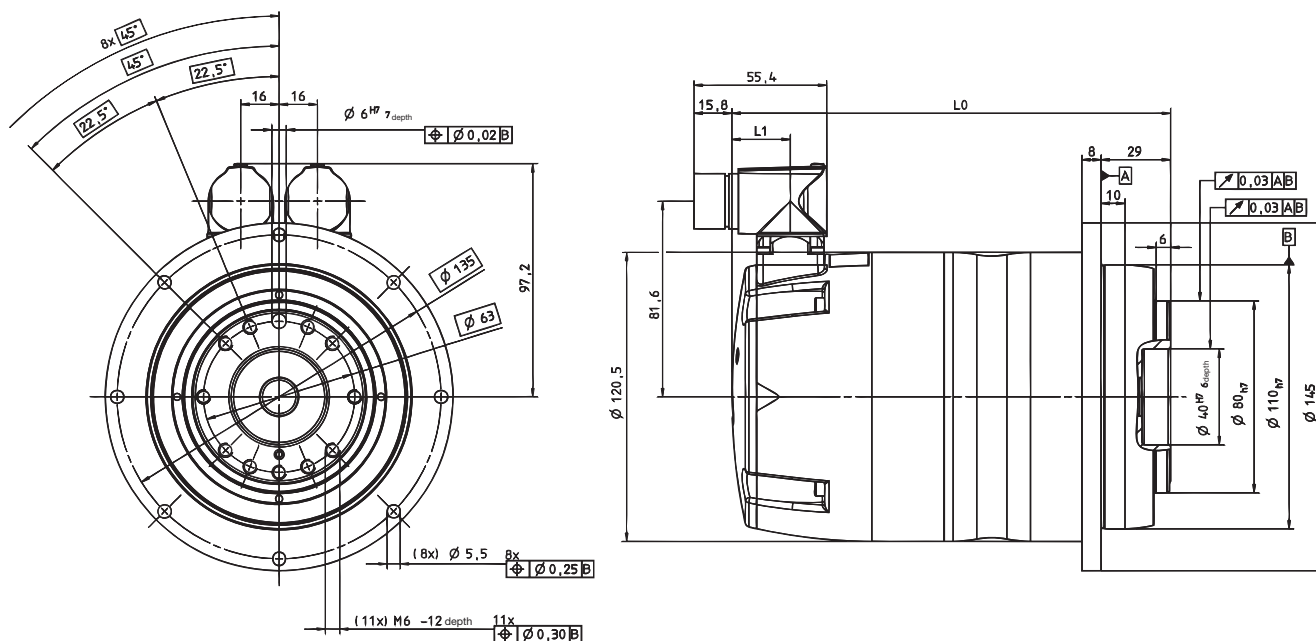
Ratio	Motor feedback	Length L0	Length L1
i = 16/21/31	Resolver	180	24
	Hiperface	201	45
	EnDat	205	49
i = 61/64/91	Resolver	165	24
	Hiperface	186	45
	EnDat	190	49

TPM+ dynamic 025

Ratio	<i>i</i>	16		21		31		61		64		91	
DC bus voltage	U_D V DC	320	560	320	560	320	560	320	560	320	560	320	560
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B} Nm	183		240		300		250		250		250	
Stop torque	T_{20} Nm	74		97		146		87		83		100	
Brake holding torque at output, 100°C	T_{2BR} Nm	35		46		68		134		141		200	
Max. speed	n_{2max} rpm	375		286		194		98		94		66	
Limit speed for T_{2B}	n_{2B} rpm	244		186		136		60		58		47	
Peak current	I_{max} A _{eff}	29.5	17.0	29.5	17.0	24.8	14.4	10.2	5.9	9.7	5.6	6.5	3.8
Stop current	I_0 A _{eff}	9.7	5.6	9.7	5.6	9.7	5.6	3.2	1.9	3.2	1.9	2.6	1.5
Moment of inertia (at motor shaft without brake with resolver)	J_2 kgm ² ·10 ⁻⁴	2.61		2.61		2.61		0.92		0.91		0.91	
Torsional backlash	j_t arcmin	Standard ≤ 3 / Reduced ≤ 1											
Torsional rigidity	C_t Nm/arcmin	75		80		54		-		-		55	
Tilting rigidity	C_K Nm/arcmin	550											
Max. axial force	F_{Amax} N	4150											
Max. tilting moment (distance between the pivot point and the output flange: 94.5 mm)	M_{Kmax} Nm	440											
Weight (with resolver without brake)	m kg	9.0						7.6					
Operating noise (measured at 3000 rpm motor speed)	L_{PA} 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											

Tolerance of T, I and n: Maximum +/- 10%.

For torque speed curve based on the above data, please see the chapter entitled "Information."



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

TPM+ dynamic 050

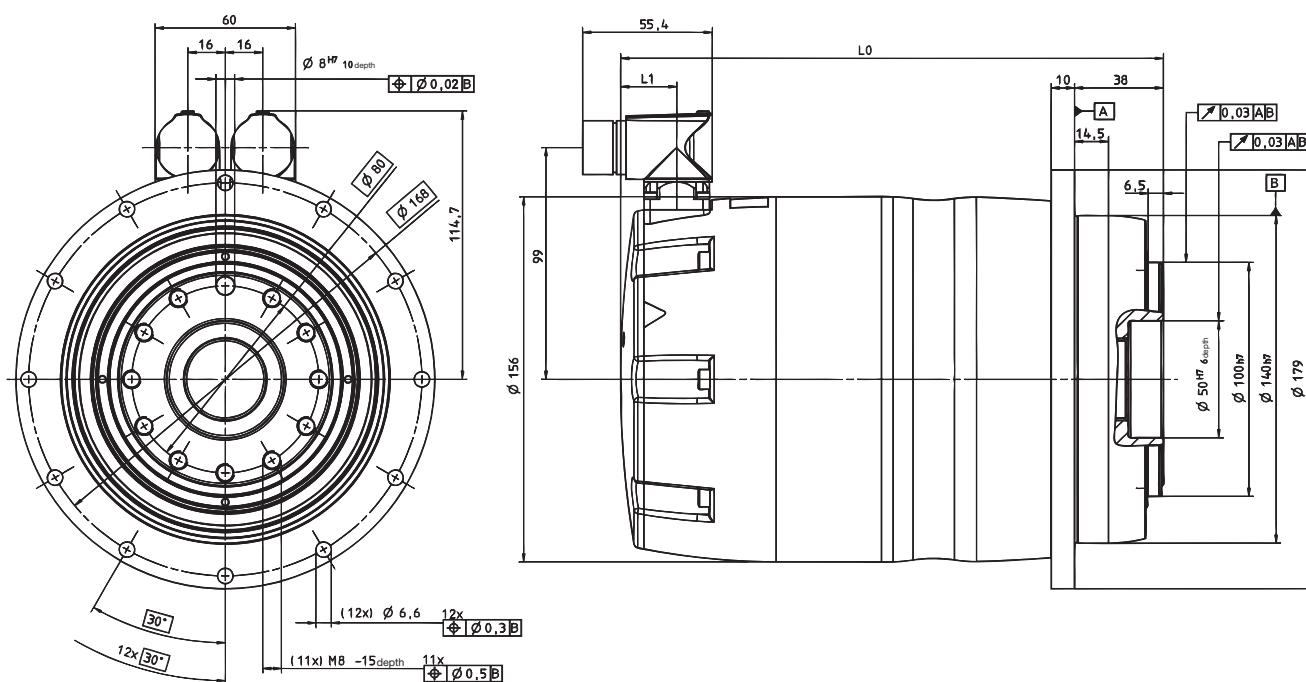
Ratio	<i>i</i>	16		21		31		61		64		91	
DC bus voltage	U_D V DC	320	560	320	560	320	560	320	560	320	560	320	560
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B} Nm	435		500		650		447		469		500	
Stop torque	T_{20} Nm	185		220		367		174		166		220	
Brake holding torque at output, 100°C	T_{2BR} Nm	176		231		341		671		704		1001	
Max. speed	n_{2max} rpm	313		238		161		82		78		55	
Limit speed for T_{2B}	n_{2B} rpm	225		185		132		59		56		46	
Peak current	I_{max} A _{eff}	70	40	60.3	34.5	52.1	29.8	20.8	12	20.8	12	15	8.7
Stop current	I_0 A _{eff}	23.4	13.4	21.3	12.2	23.4	13.4	6.4	3.7	6.4	3.7	5.6	3.2
Moment of inertia (at motor shaft without brake with resolver)	J_2 kgm ² ·10 ⁻⁴	9.61		9.61		9.47		2.41		2.39		2.39	
Torsional backlash	j_t arcmin	Standard ≤ 3 / Reduced ≤ 1											
Torsional rigidity	C_t Nm/arcmin	170		-		-		123		-		100	
Tilting rigidity	C_K Nm/arcmin	560											
Max. axial force	F_{Amax} N	6130											
Max. tilting moment (distance between the pivot point and the output flange: 81.2 mm)	M_{Kmax} Nm	1335											
Weight (with resolver without brake)	m kg	21.3						15.1					
Operating noise (measured at 3000 rpm motor speed)	L_{PA} 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											

Tolerance of T, I and n: Maximum +/- 10%.

For torque speed curve based on the above data, please see the chapter entitled "Information."

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

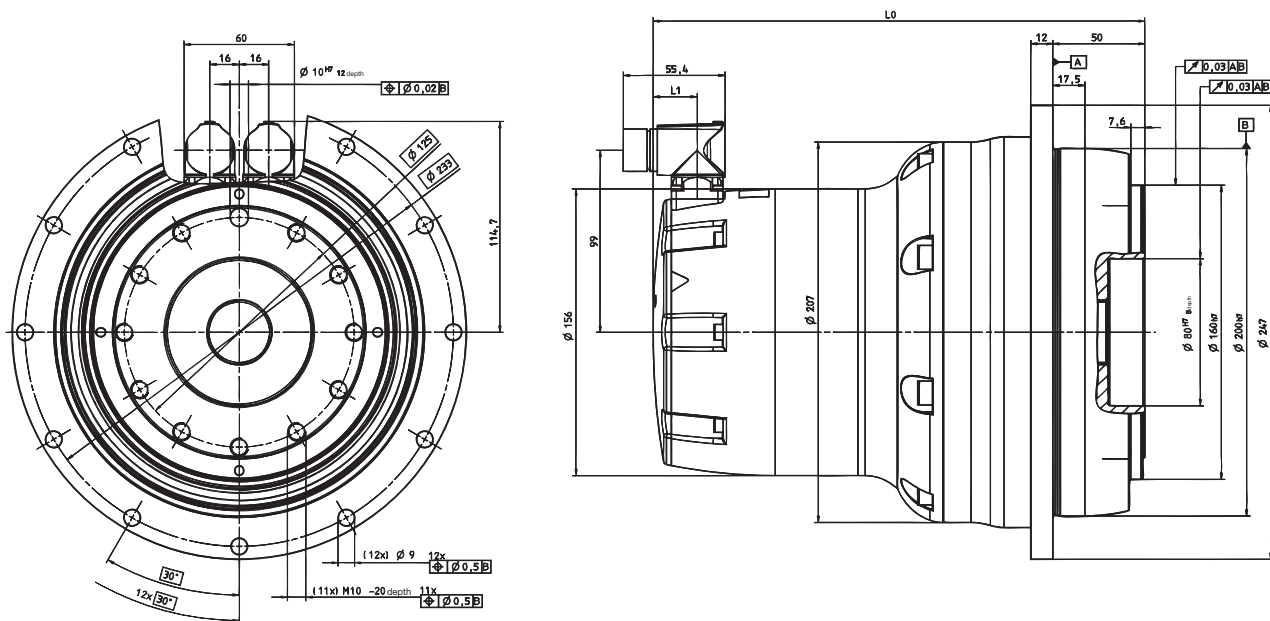
Ratio	Motor feedback	Length L0	Length L1
i = 16/21/31	Resolver	256	24
	Hiperface	278	45
	EnDat	281	49
i = 61/64/91	Resolver	211	24
	Hiperface	233	45
	EnDat	236	49

TPM+ dynamic 110

Ratio	<i>i</i>	16		21		31		61		64		91		
DC bus voltage	U_D	V DC	320	560	320	560	320	560	320	560	320	560	320	560
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	660		866		1278		1300		1300		1300	
Stop torque	T_{20}	Nm	208		278		419		700		700		700	
Brake holding torque at output, 100°C	T_{2BR}	Nm	176		231		341		671		704		1001	
Max. speed	n_{2max}	rpm	231	313	176	238	119	161	82		78		55	
Limit speed for T_{2B}	n_{2B}	rpm	118	206	90	157	61	106	66		65		51	
Peak current	I_{max}	A_{eff}	70		70		70		53.1	30.4	50.2	28.7	32.9	18.8
Stop current	I_0	A_{eff}	16.3		16.3		16.3		22.5	12.9	22.5	12.8	15.8	9.0
Moment of inertia (at motor shaft without brake with resolver)	J_2	$kgm^2 \cdot 10^{-4}$	13.14		13.14		12.84		9.42		9.36		9.36	
Torsional backlash	j_t	arcmin	Standard ≤ 3 / Reduced ≤ 1											
Torsional rigidity	C_t	Nm/arcmin	-	-	-	-	-	-	-	-	-	-	-	400
Tilting rigidity	C_K	Nm/arcmin	1452											
Max. axial force	F_{Amax}	N	10050											
Max. tilting moment (distance between the pivot point and the output flange: 106.8 mm)	M_{Kmax}	Nm	3280											
Weight (with resolver without brake)	m	kg	37.1						35.9					
Operating noise (measured at 3000 rpm motor speed)	L_{PA}	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											

Tolerance of T, I and n: Maximum +/- 10%.

For torque speed curve based on the above data, please see the chapter entitled "Information."



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

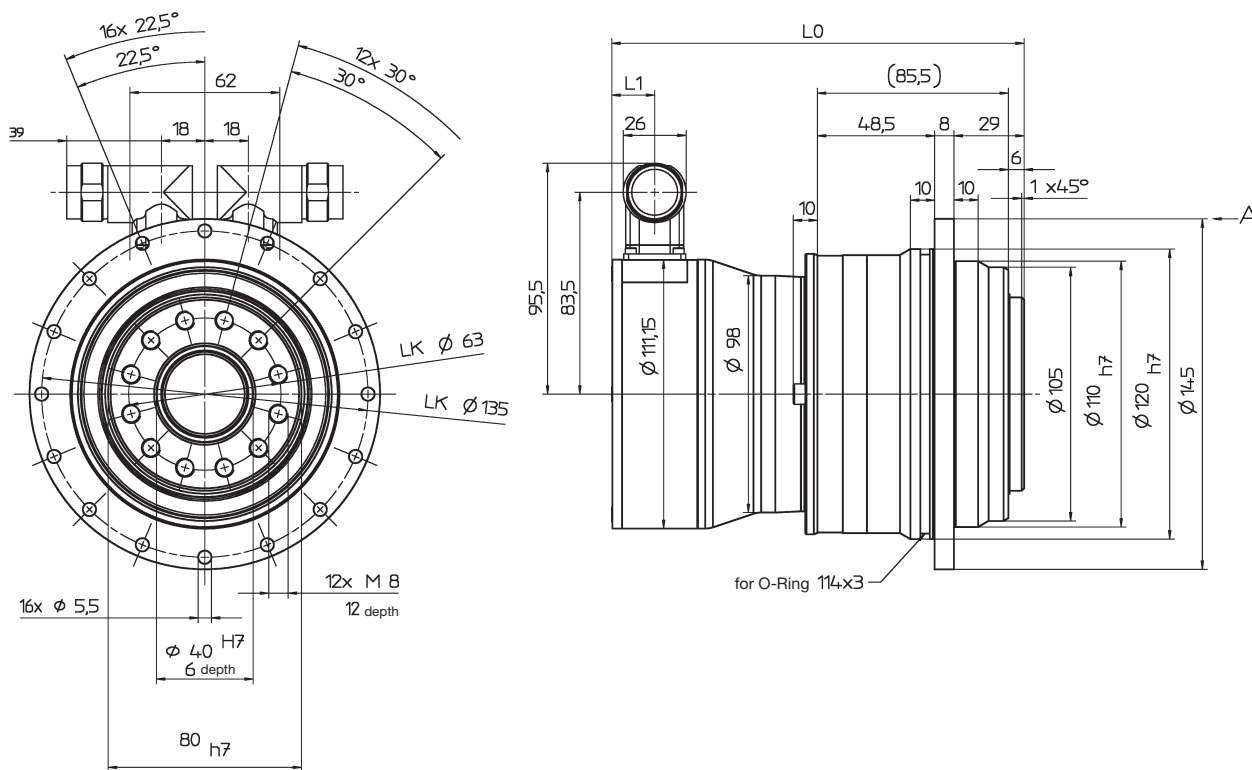
Classic TPM model with straight-toothed high torque gearhead

Ratio	<i>i</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	220	440
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 moment (distance between the pivot point and the output flange: 94.5 mm)	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	0 to +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)	

For torque speed curve based on the above data, please see the chapter entitled "Information."

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	171	17.8
	Hiperface	213	62.8
	EnDat	217	64.3

With brake

Ratio	Motor feedback	Length L0	Length L1
i = 110/220	Resolver	193	39.8
	Hiperface	241.6	88.8
	EnDat	258.6	105.8

TPMA 050

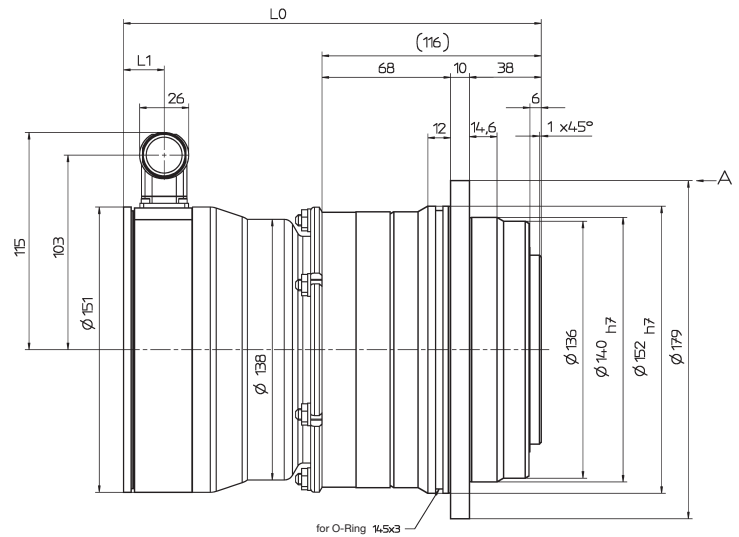
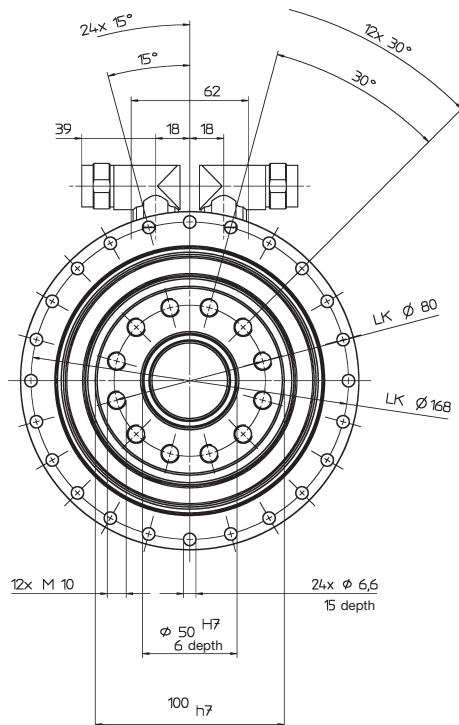
Classic TPM model with straight-toothed high torque gearhead

Ratio	<i>i</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	495	990
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}	3.4	3.4
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 moment (distance between the pivot point and the output flange: 81.2 mm)	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	0 to +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)	

For torque speed curve based on the above data, please see the chapter entitled "Information."

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

TPMA 110

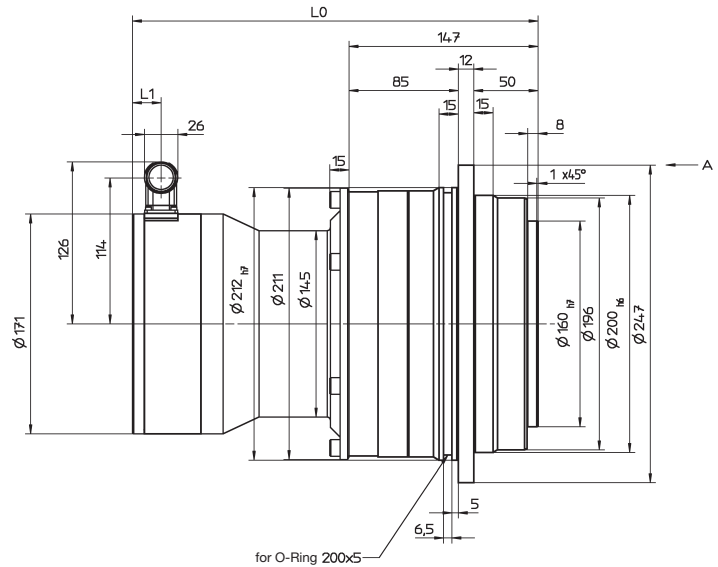
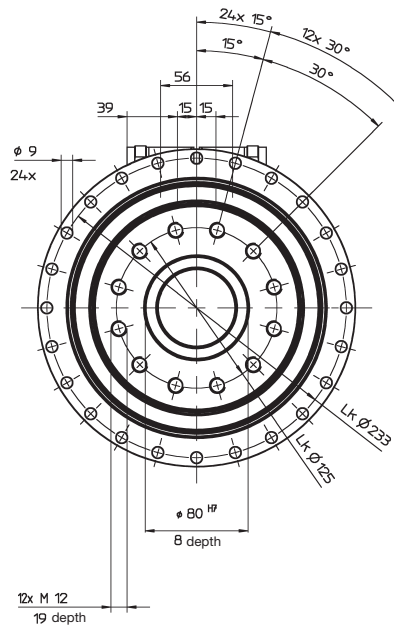
Classic TPM model with straight-toothed high torque gearhead

Ratio	<i>i</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	1980	3960
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 moment (distance between the pivot point and the output flange: 106.8 mm)	M_{Kmax}	Nm	3064	
Weight	m	kg	43.6	
Operating noise (measured at 3000 rpm motor speed)	L_{PA}	dB(A)	70	
Max. permitted housing temperature		°C	+90	
Ambient temperature		°C	0 to +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)	

For torque speed curve based on the above data, please see the chapter entitled "Information."

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 ⁺ dynamic 004 S TPM ⁺ dynamic 010 S	TPM ⁺ dynamic 025 S	TPM ⁺ dynamic 050 S TPM ⁺ dynamic 110 S
Holding torque at 100°C	Nm	1.1	2.2	11
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	2	4.5	18
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, 1V_{ss}, 2048 S/R
EnDat Singleturn, 512 S/R
EnDat Multiturn, 512 S/R, 4096 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

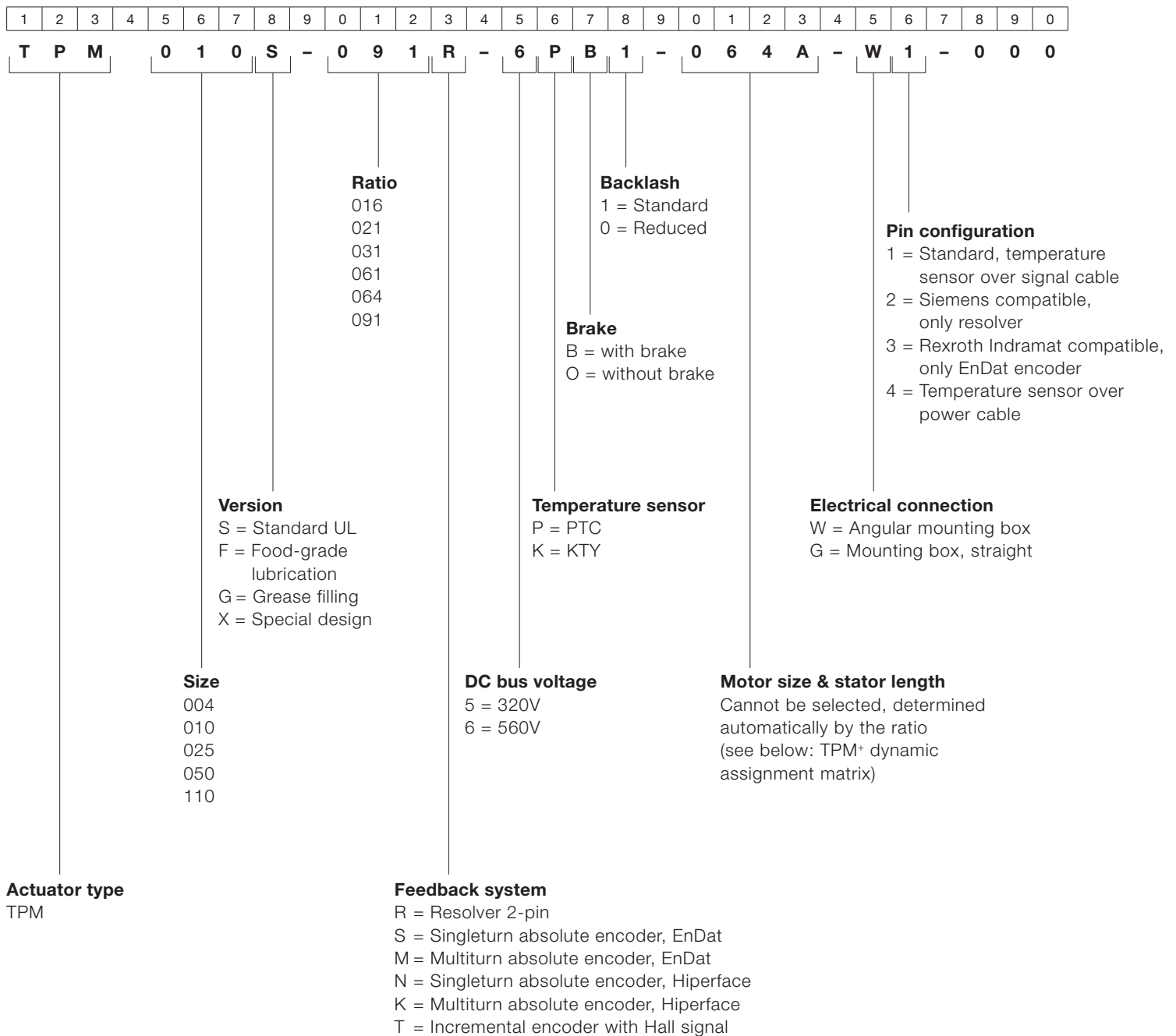
The TPM⁺ dynamic can be operated with a wide variety of servo controllers. The following table contains all servo controllers that have already been tested with the TPM⁺ dynamic and provides information on selection of the correct options.

You can obtain brief instructions containing all important parameters for programming the servo controller on request.

Overview of servo controllers tested on the TPM+ dynamic

Manufacturer	Series/Type	TPM(A) size					Feedback signal			Temperature sensor		DC bus current	
		004	010	025	050	110	Re-solver	EnDat	Hiper-face	PTC	KTY	320V DC	560V DC
AMK	AMKAYSN KU	x	x	x	x	x	x	x	x	x	-	x	x
Baldor	Flex + II	x	x	x	-	-	x	x	-	-	-	x	-
Bosch	EcoDrive 03	-	x	x	x	x	x	x	-	x	-	x	x
	DIAX 04	-	x	x	x	x	x	x	-	x	-	x	x
	IndraDrive	x	x	x	x	x	x	x	x	x	x	x	x
B & R	AcoPos	x	x	x	x	x	x	x	-	x	x	-	x
Control Techniques	UniDrive SP	x	x	x	x	x	x	x	x	x	-	x	x
Danaher motion	Servostar 600	x	x	x	x	x	x	x	x	x	-	x	x
	Servostar 400	x	x	x	x/-	-	x	x	x	x	-	x	x
	Servostar 300	x	x	x	x/-	-	x	x	x	x	-	x	x
ESR Pollmeier	TrioDrive D/xS	x	x	x	x	-	x	x	x	x	x	x	-
	MidiDrive D/xS	x	x	x	x	x	x	x	x	x	x	-	x
ELAU	PacDrive MC-4	x	x	x	x	x	-	-	x	x	-	x	x
Hannifin Hauser	Compax	x	x	x	x	x	x	-	x	x	-	x	x
	Compax 3	x	x	x	x	x	x	-	x	x	-	x	x
KEB	Combivert S4	x	x	x	x	x	x	-	-	x	-	x	x
	Combivert F5-Servo	x	x	x	x	x	x	x	x	x	-	x	x
	Combivert F5-A Servo	x	x	x	x	x	x	-	-	x	-	x	x
Lenze	Global Drive 93xxx	x	x	x	x	x	x	-	x	x	x	-	x
	Global Drive 94xx	x	x	x	x	x	x	-	x	x	x	x	x
	ECS Servosystem	x	x	x	x	x	x	-	x	x	x	x	x
NUM	MDLU 3	x	x	x	x	x	-	-	x	x	-	-	x
Siemens	SimoDrive 611U	x	x	x	x	x	x	x	-	-	x	-	x
	SimoDrive 611D	x	x	x	x	x	-	x	-	-	x	-	x
	Masterdrive MC	x	x	x	x	x	x	x	-	x	x	-	x
	Sinamics S120	x	x	x	x	x	x	x	-	-	x	-	x

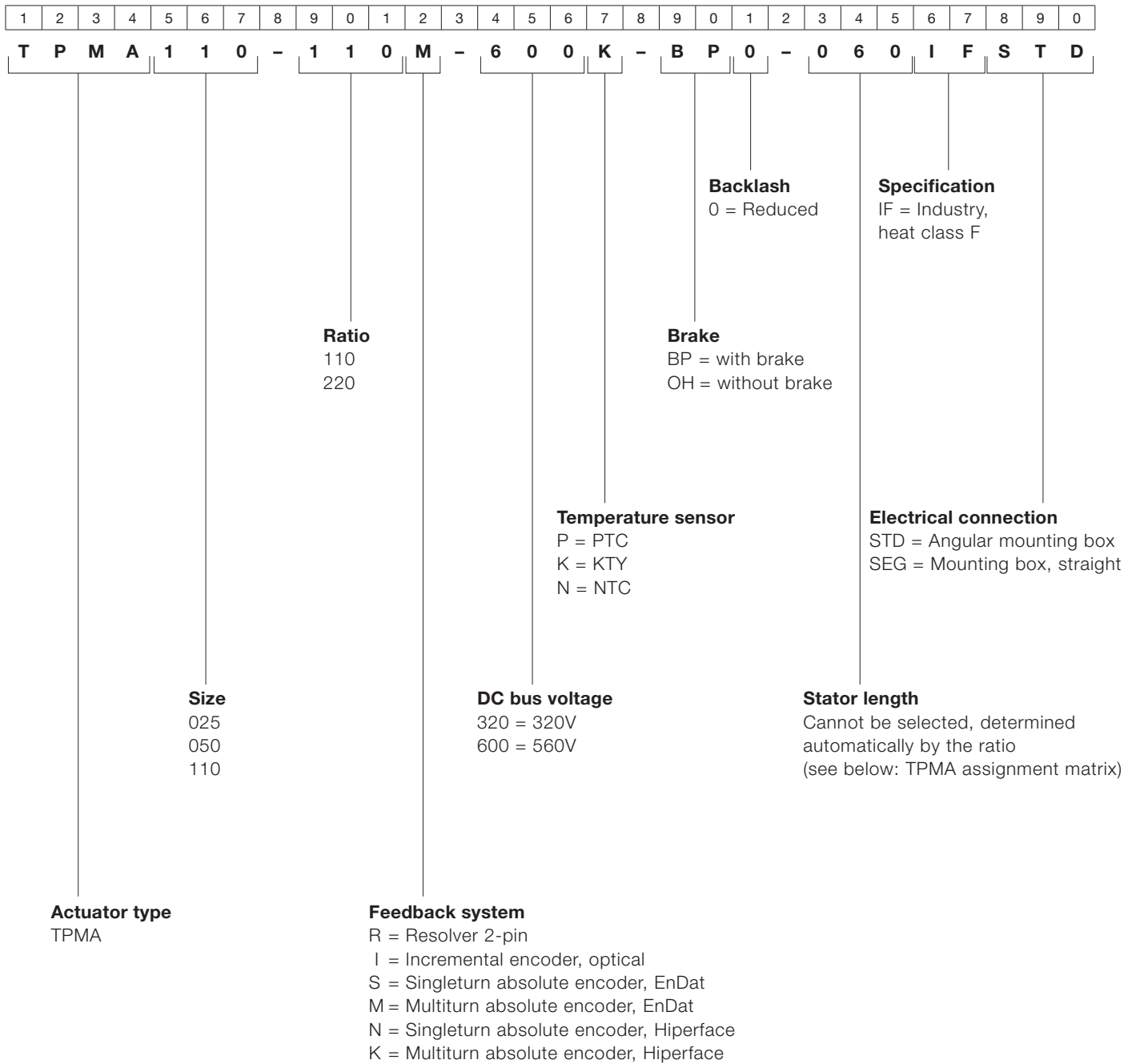
Order code TPM+ dynamic



Assignment matrix TPM+ dynamic

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

Order code TPMA



Assignment matrix TPMA

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

Cable order code for TPM+ dynamic

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

Assembly, controller end
 SIEMEN = Siemens Simodrive 61U
 etc... see table Abbr. for cable orders

Assembly motor end
 S = Connector

Length
 L0500 = 5m
 L1000 = 10m
 L1500 = 15m
 L2000 = 20m
 L2500 = 25m
 L3000 = 30m
 L4000 = 40m
 L5000 = 50m

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

Cable diameter
 D0150 = 1.5mm² on TPM+ dynamic 004, 010,
 025 and 050 i ≥ 61
 D0250 = 2.5mm² on TPM+ dynamic 050 i ≤ 31,
 and 110

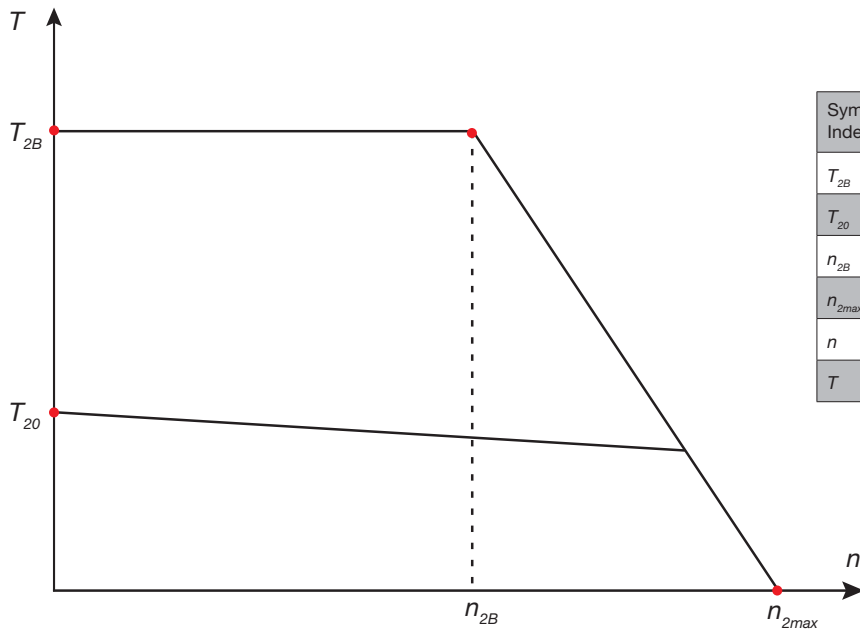
Abbr. for cable orders

Manufacturer	Controller	Abbr. for cable orders
Bosch Rexroth	EcoDrive 03	BRCECO
	EcoDrive 03 16A	BRCECO
	IndraDrive	BRCIND
B&R	AcoPos	BURACO
	AcoPos Multi	BURACO
Control Technique	UniDrive SP	CT_SP_
Danaher motion	Servostar 600	DANSR_
	Servostar 400	DANSR_
	Servostar 300	DANSR_
	Servostar 700	DANSR_
ESR Pollmeier	Trio / MidiDrive Digital	ESRTMD
	Trio / MidiDrive D/xS	ESRTMD
ELAU	PacDrive MC-4	ELAMC4

Manufacturer	Controller	Abbr. for cable orders
Hannifin / Hauser	Compax	PARCO_
	Compax 3	PARCO3
KEB	Combivert S4	KEBS4_
	Combivert F5-Servo	KEBF5_
	Combivert F5-A Servo	KEBF5_
Lenze	Global Drive 93xxx	LENZE_
	Global Drive 94xx	LENZ94
	ECS Servosystem	LENZE_
NUM	MDLU 3	NUMMD3
Siemens	SimoDrive 611U	SIEMEN
	SimoDrive 611D	SIEMEN
	Masterdrive MC	SIEMEN
	Sinamics S120	SIEMEN

Information

Torque speed curves are on pages 6, 8, 10, 12, 14, 14, 16, 18 and 20.



Symbols/ Index	Designation
T_{2B}	Max. acceleration torque
T_{20}	Stop torque
n_{2B}	Limit speed for T_{2B}
n_{2max}	Max. speed
n	Speed
T	Torque

Any queries?

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



motion control

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