

Rotary Tables

HIWIN rotary tables TMA

6. HIWIN rotary tables TMA

6.1 Characteristics of the TMA rotary tables

The rotary tables of the TMA series with air bearings were developed especially for applications with high synchronism and precision. The running tolerances have been reduced to a minimum.

The rotary table thereby achieves a positioning accuracy of 20 arcsec and a repeat accuracy of 2 arcsec.

Key features:

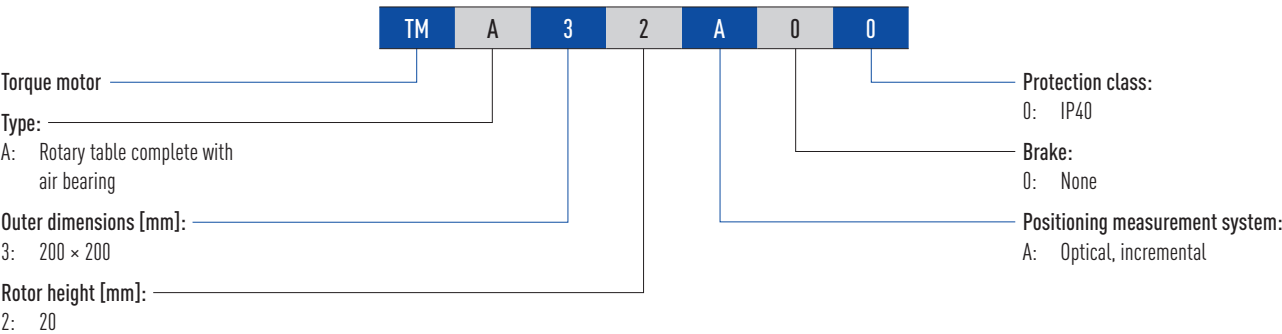
- Backlash-free and extremely dynamic
- Air bearings
- High accuracy and high synchronism
- Integrated optical rotary encoder

Typical applications:

- Measuring technology
- Test machines



6.2 Order code for TMA rotary tables



6.3 Technical data for TMA32

Torque-speed curve (DC bus voltage: 560 VDC)

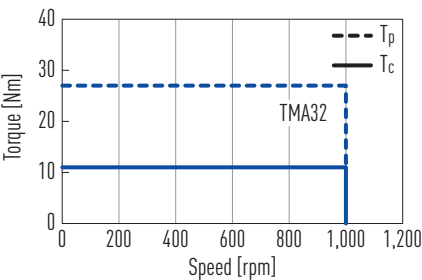


Table 6.1 Technical data for TMA32 HIWIN rotary tables

	Symbol	Unit	TMA32
Technical data of rotary table			
Peak torque (for 1 sec.)	T_p	Nm	27
Continuous torque	T_c	Nm	11
Stall torque	T_s	Nm	8
Inertia of rotating parts	J	kgm ²	0.019
Weight	M_m	kg	16
Max. axial load	F_a	N	2,500
Max. radial load	F_r	N	2,500
Max. moment of tilt	M_k	Nm	70
Rigidity of axial bearing		N/μm	350
Rigidity of radial bearing		N/μm	125
Resistance to tilting		Nm/μrad	0.58
Nominal speed (at 400 VAC)	n	1/min	1,000
Position accuracy		arc sec	± 20
Repeating accuracy		arc sec	± 2
Radial run-out		mm	0.002
Axial run-out		mm	0.002
Operating pressure		bar	5
Air consumption	v_n	Nl/min	18
Height	H	mm	140
Protection class			IP40
Technical data of motor			
Peak current (for 1 sec.)	I_p	A_{eff}	8
Continuous current	I_c	A_{eff}	3.0
Motor constant	K_m	Nm/√W	1.0
Resistance ¹⁾	R_{25}	Ω	2.9
Inductance ¹⁾	L	mH	10.0
Electrical time constant	T_e	ms	3.9
Torque constant	K_t	Nm/A _{eff}	3.5
Back emf constant	K_u	V _{eff} /rad/s	1.6
Number of poles	$2p$		22
Thermal resistance	R_{th}	°C/W	0.7
Thermal sensor			PTC SNM 100
Max. DC Bus		V	600

All the specifications in the table (except dimensions) are in ± 10 % of tolerance at 25 °C ambient temperature

¹⁾ Line-to-line

Encoder specifications (optical, incremental)

- 9,000 lines/cycle
- Index mark
- Signal output sin/cos 1 V_{pp}

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Dimensions of the TMA32 HIWIN rotary table

(For values, see [Table 6.1](#))

