HIWIN®

Motion Control & Systems

Direct Drive Rotary Tables

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Note:
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Motors, Drives & Accessories

Direct Drive Rotary Tables

HIWIN direct drive rotary tables are ready-to-install rotary axes that can be incorporated directly into the machine concept without the need for any design work. Thanks to the range of encoder interfaces provided, the direct drive rotary tables can be integrated easily into all commercially available machine control systems and thus all existing machine concepts.

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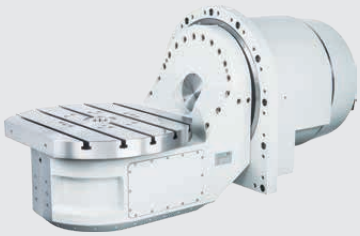

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- Compact rotary and tilting axis
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2. General information

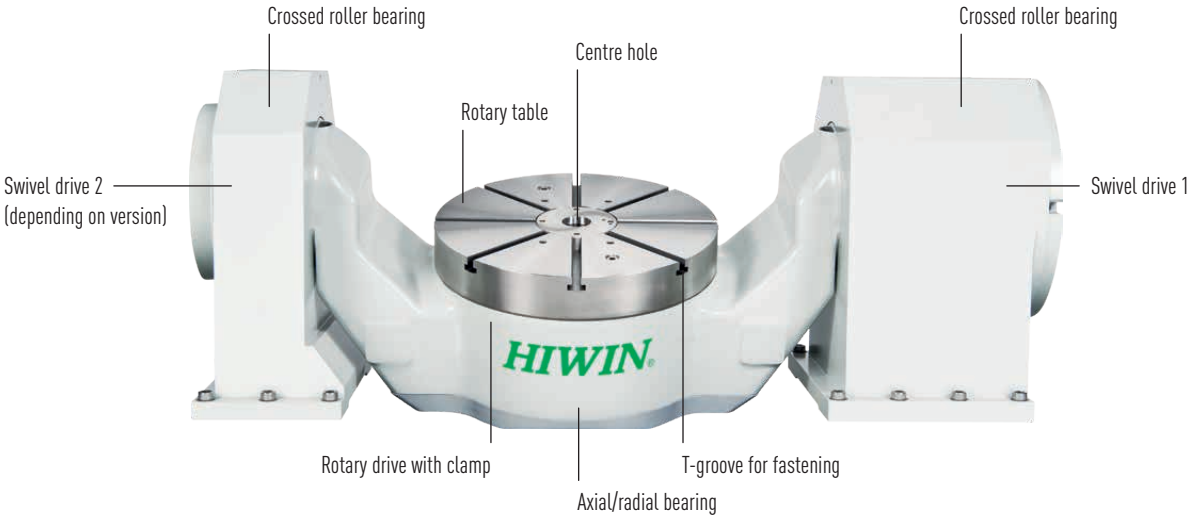
2.1 Properties of direct drive rotary tables

HIWIN direct drive rotary tables are ready-to-install rotary axes that can be incorporated directly into the machine concept without the need for any design work. The maintenance-free direct drives they use ensure that the rotary axes deliver high-torque performance with exceptional accuracy. Thanks to the range of encoder interfaces provided, the direct drive rotary tables can be integrated easily into all commercially available machine control systems and thus all existing machine concepts.

Advantages

- Ready to install
- Maintenance-free
- Highly precise
- Extremely durable
- Tilt-resistant design
- Large-diameter turntable

2.2 Design of direct drive rotary tables



3. HIWIN RAB tilting axes

3.1 Properties of RAB tilting axes

RAB tilting axes are directly driven, maintenance-free precision axes. They use water-cooled torque motors from the TMRW series, guaranteeing high levels of acceleration and torque. Equipped with various high-resolution encoders, the tilting axes achieve accuracies of just a few arc seconds and can be integrated into all standard control concepts. Featuring crossed roller and axial/radial bearings, the tilt-resistant mechanical design is able to accommodate maximum loads.

Key features:

- Plug-and-play tilting axis ready for installation
- Maintenance-free direct drives in all axes
- High acceleration, torque and accuracy
- Tilt-resistant mechanical design with large diameter
- Swivel axis with precision crossed roller bearings
- Rotary axis with extremely rigid axial/radial bearing
- Integrated clamp

Typical applications:

- 5-axis milling machines
- Laser processing machines

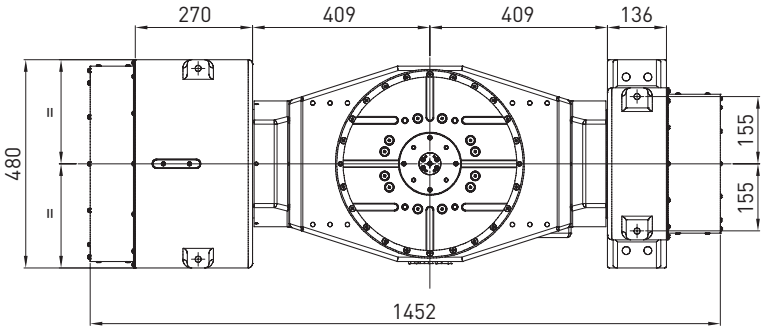
3.2 Specifications of RAB tilting axes

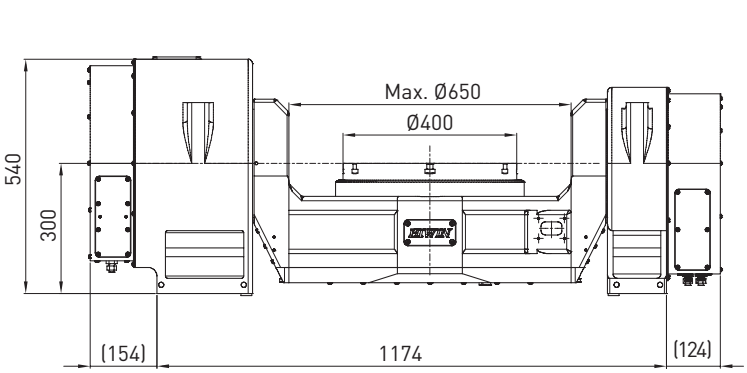
Table 3.1 **RAB technical data**

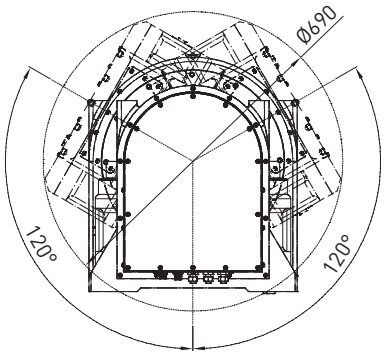
	Unit	RAB-400		RAB-500		RAB-630		RAB-800	
									
Axis		Rotary axis	Swivel axis ±120°	Rotary axis	Swivel axis ±120°	Rotary axis	Swivel axis ±120°	Rotary axis	Swivel axis ±120°
Drive motor		TMRWA5	TMRWAA	TMRWA7	TMRWAF	TMRWA7	TMRWAF	TMRWDF	TMRWDF
Max. speed	rpm	90	60	100	60	100	60	90	60
Continuous torque	Nm	430	860	600	1,290	600	2,580	2,000	4,000
Peak torque	Nm	810	1,600	1,100	2,400	1,100	4,800	3,600	7,200
Clamp		Pneumatic (6 bar)							
Clamp holding torque	Nm	2,400	3,240	2,400	4,800	2,400	4,800	4,200	8,400
Accuracy	arc sec	2.5/5.0/15.0							
Table diameter	mm	400		500		630		800	
Centre of swivel axis	mm	300		350		325		325	
Table height	mm	300		300		225		225	
T-groove width	mm	14 H8							
Weight	kg	750		1,000		1,500		2,200	
Max. load	kg	300		500		850		1,200	

3.3 Dimensions of RAB tilting axes

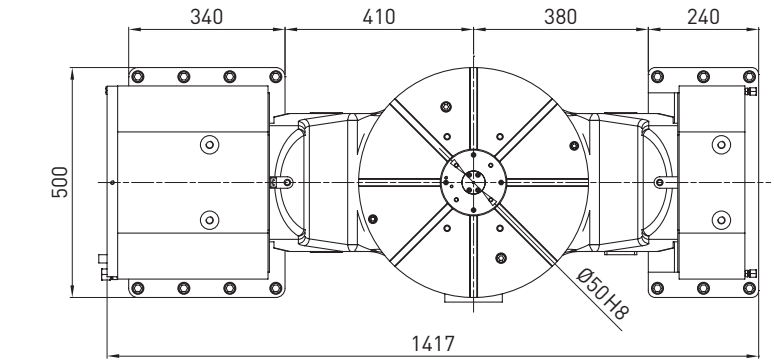
RAB-400 dimensions

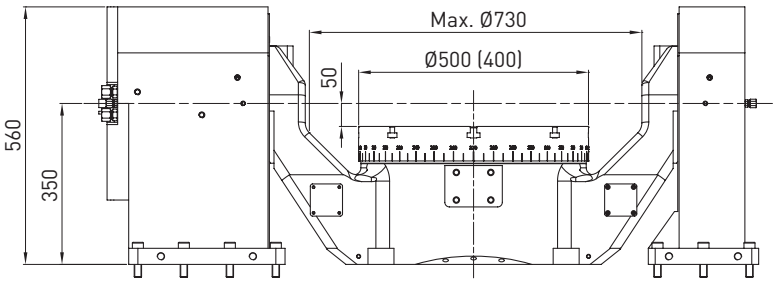


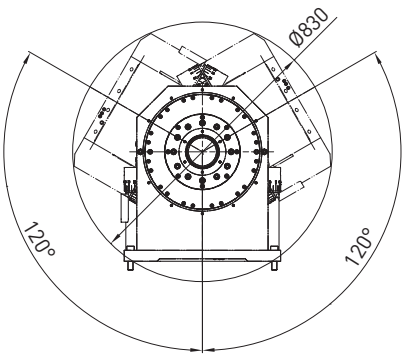




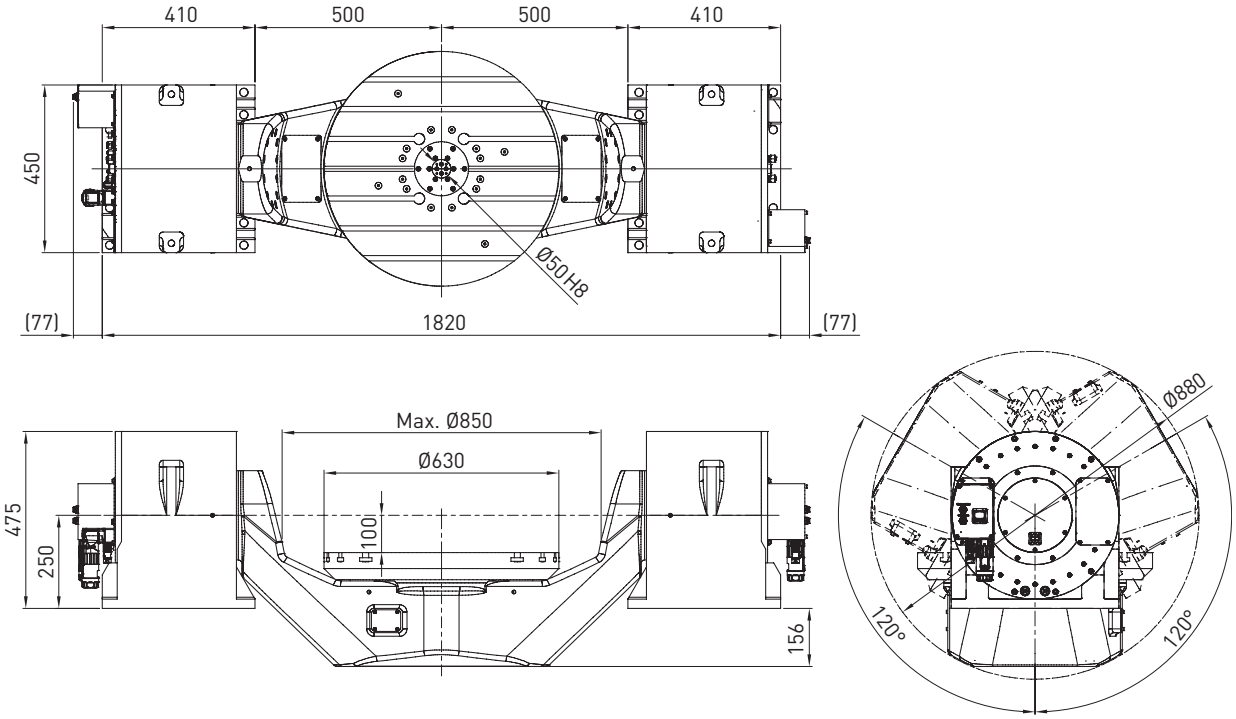
RAB-500 dimensions



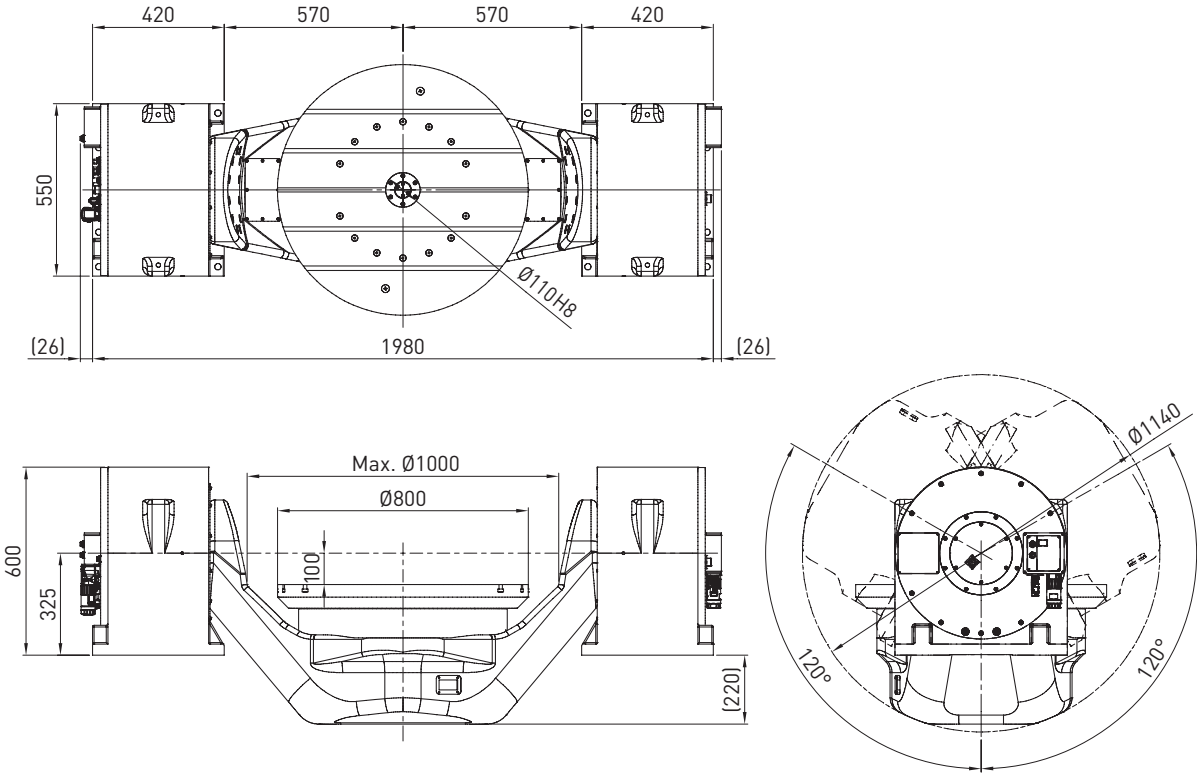




RAB-630 dimensions



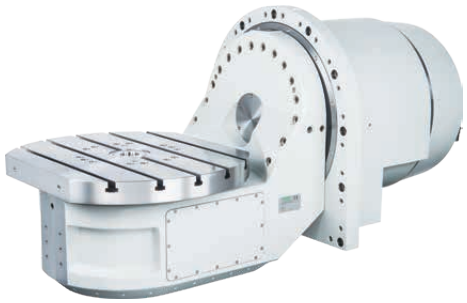
RAB-800 dimensions



4. HIWIN RAS tilting axes

4.1 Properties of RAS tilting axes

RAS tilting axes are directly driven, maintenance-free precision axes. They use water-cooled torque motors from the TMRW series, guaranteeing high levels of acceleration and torque. Equipped with various high-resolution encoders, the tilting axes achieve accuracies of just a few arc seconds and can be integrated into all standard control concepts. Featuring crossed roller and axial/radial bearings, the tilt-resistant mechanical design is able to accommodate maximum loads.



Key features:

- Plug-and-play tilting axis ready for installation
- Maintenance-free direct drives in all axes
- High acceleration, torque and accuracy
- Tilt-resistant mechanical design with large diameter
- Swivel axis with precision crossed roller bearings
- Rotary axis with extremely rigid axial/radial bearing
- Integrated clamp

Typical applications:

- 5-axis milling machines
- Laser processing machines

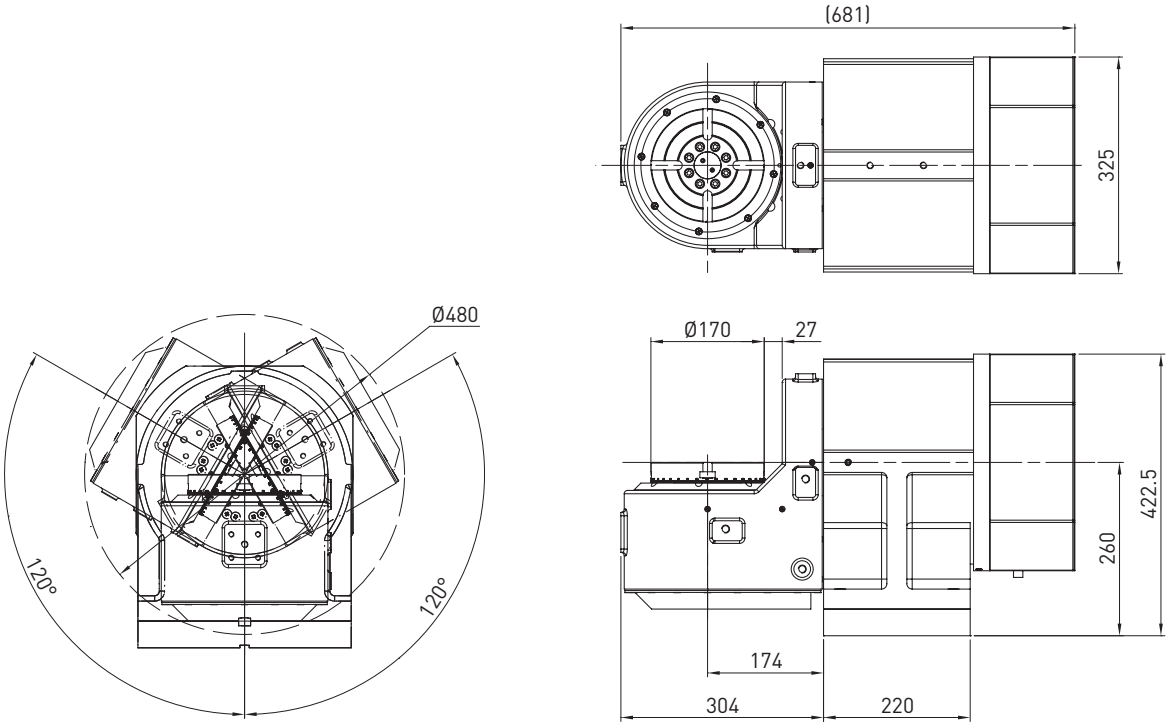
4.2 Specifications of RAS tilting axes

Table 4.1 **RAS technical data**

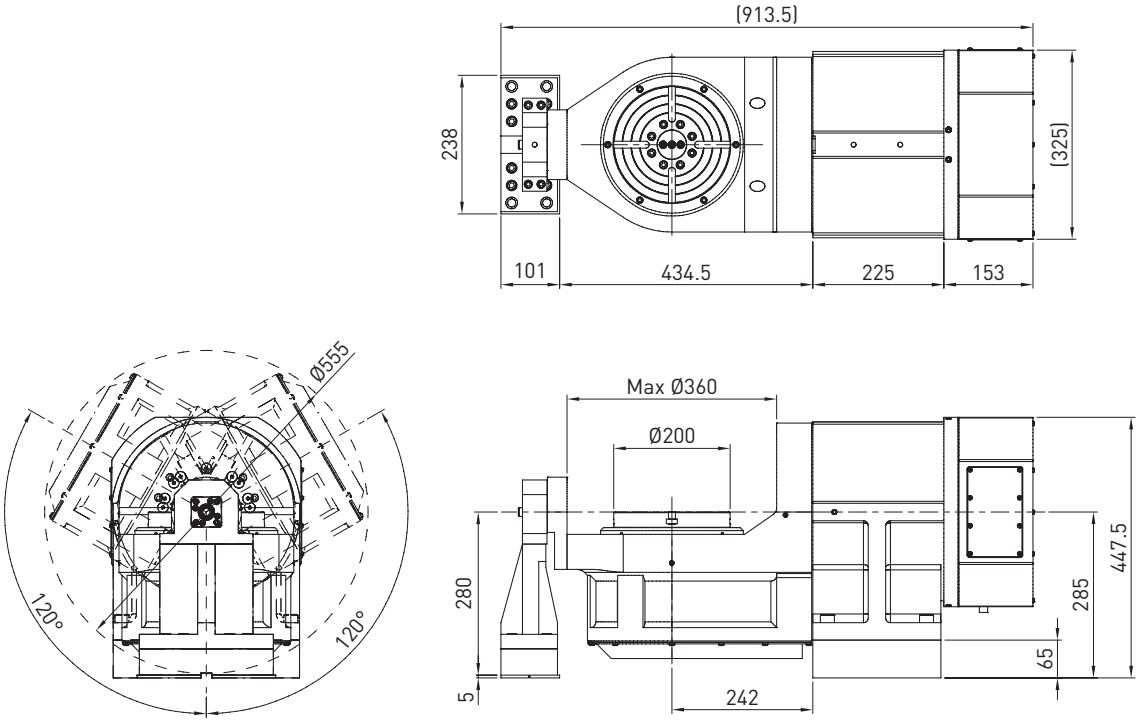
	Unit	RAS-170		RAS-200		RAS-200-SP		RAS-250		RAS-320		RAS-650	
													
Axis		Rotary axis	Swivel axis ±120°	Rotary axis	Swivel axis ±120°	Rotary axis	Swivel axis ±120°	Rotary axis	Swivel axis ±120°	Rotary axis	Swivel axis ±120°	Rotary axis	Swivel axis ±120°
Drive motor		TMRW23	TMRW4A	TMRW45	TMRW4A	TMRW43 -SB	TMRW4A	TMRW73	TMRW77	TMRW4A	TMRWAL	TMRWA7	TMRWDF
Max. speed	rpm	300	100	200	100	2,000	100	200	80	150	60	100	60
Continuous torque	Nm	35	205	106	205	27.9	205	145	335	205	1,900	600	2,000
Peak torque	Nm	66.5	390	203	390	52.7	390	275	640	390	3,360	1,100	3,600
Clamp		Pneumatic (6 bar)											
Clamp holding torque	Nm	300	840	300	840	300	840	600	1,500	840	2,400	2,400	4,200
Accuracy	arc sec	2.5/5.0/15.0											
Table diameter	mm	170		200		200		250		320		650	
Centre of swivel axis	mm	260		285		285		185		235		300	
Table height	mm	280		285		285		185		185		250	
T-groove width	mm	14 H8		12 H8		12 H8		12 H8		14 H8		14 H8	
Weight	kg	220		260		260		300		600		1,300	
Max. load	kg	30		50		50		85		200		300	

4.3 Dimensions of RAS tilting axes

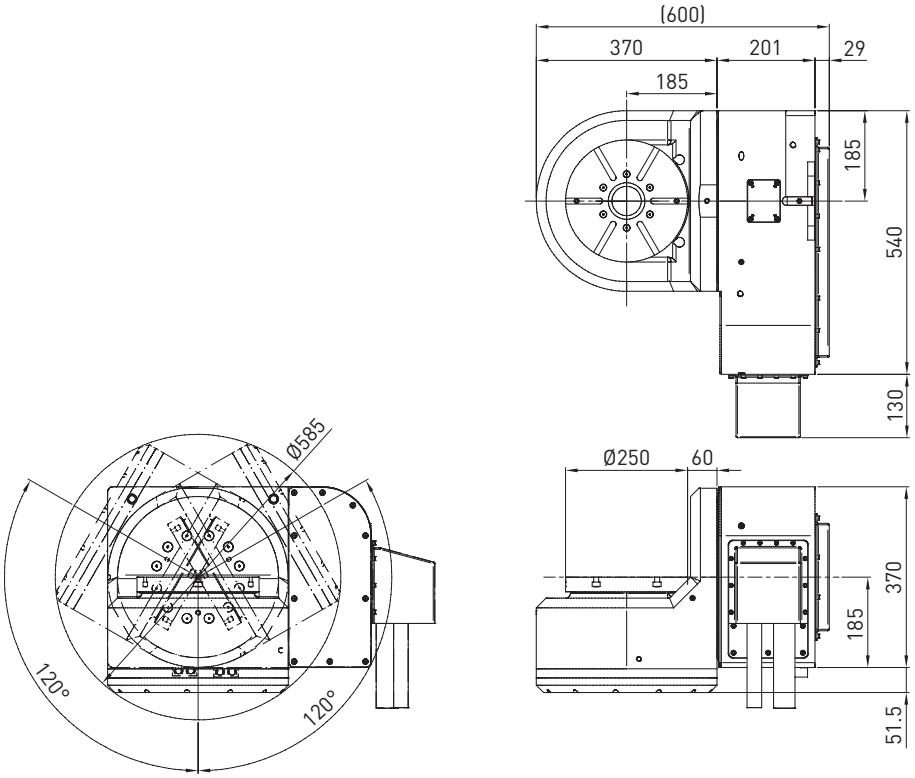
RAS-170 dimensions



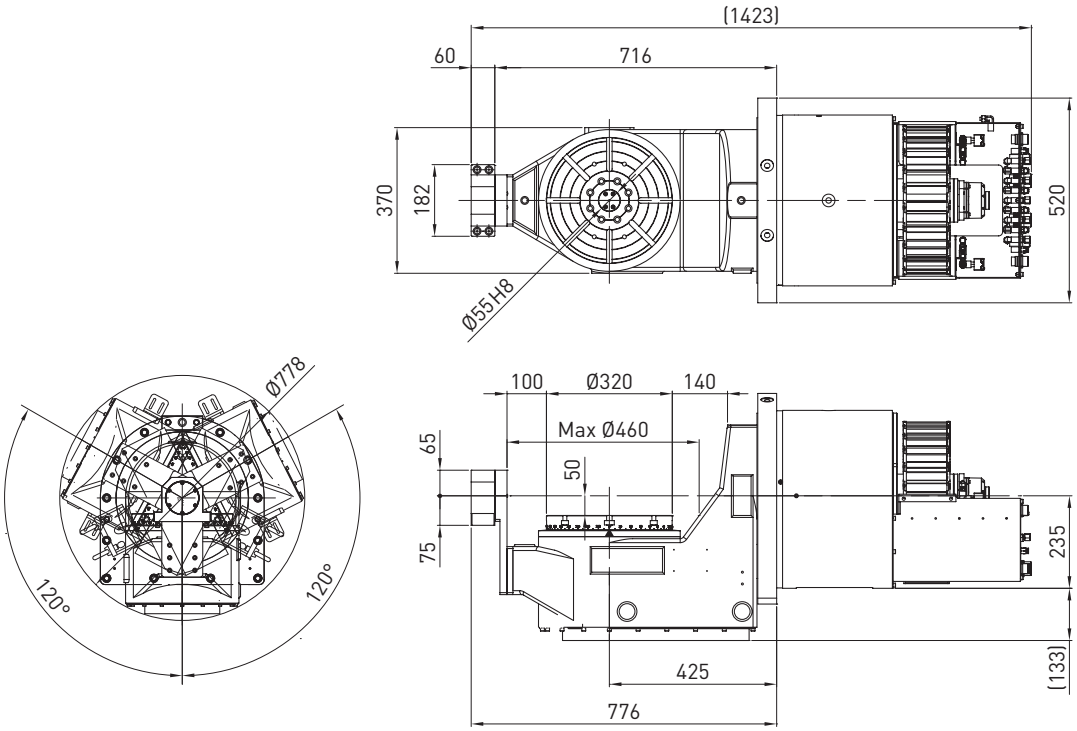
RAS-200/RAS-200-SP dimensions



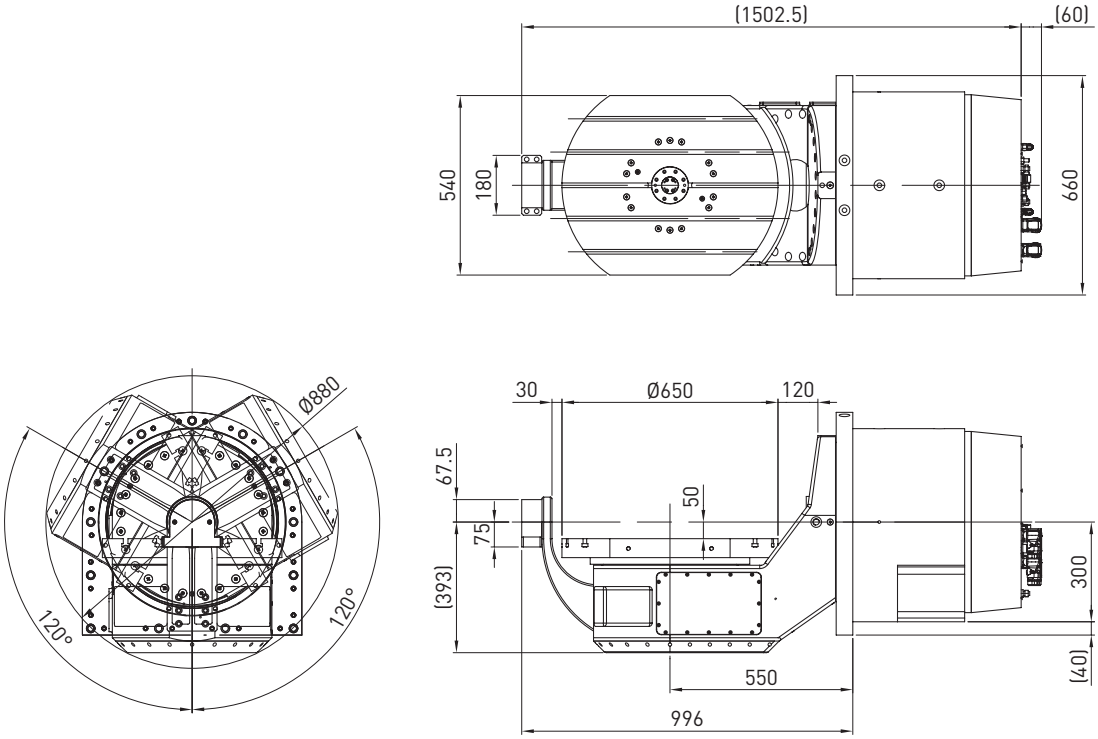
RAS-250 dimensions



RAS-320 dimensions



RAS-650 dimensions



5. HIWIN RCV rotary tables

5.1 Properties of RCV rotary tables

RCV rotary tables are directly driven, maintenance-free precision axes. They use water-cooled torque motors from the TMRW series, guaranteeing high levels of acceleration and torque. Equipped with various high-resolution encoders, the rotary tables achieve accuracies of just a few arc seconds and can be integrated into all standard control concepts. Featuring crossed roller bearings, the tilt-resistant mechanical design is able to accommodate maximum loads.

Key features:

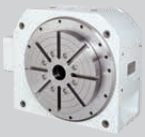
- Plug-and-play rotary table ready for installation
- Maintenance-free direct drives
- High acceleration, torque and accuracy
- Tilt-resistant mechanical design with large diameter
- Extremely rigid crossed roller bearings
- Integrated clamp
- With option of tailstock as additional support bearing

Typical applications:

- Additional rotary axis in machine tools
- Laser processing machines

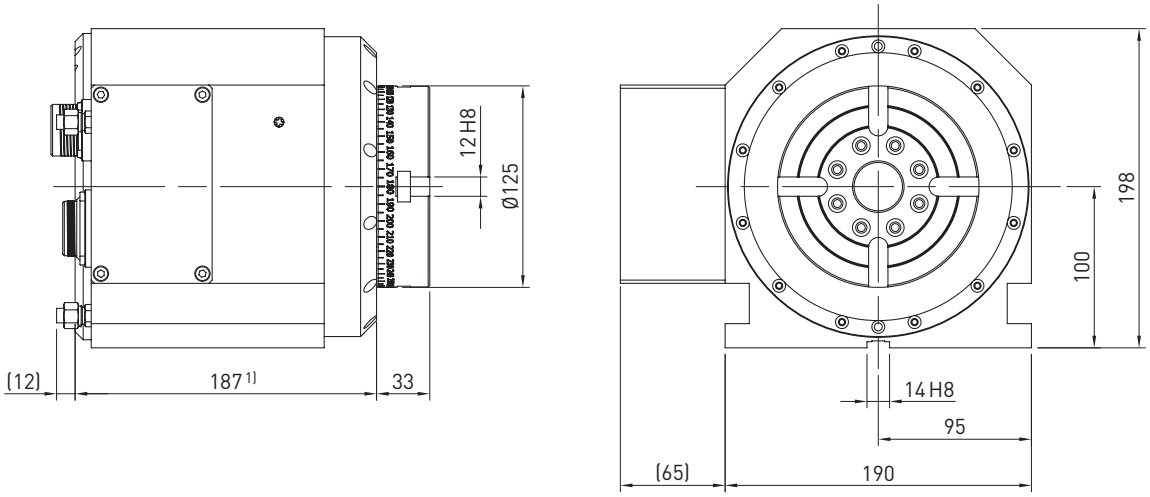
5.2 Specifications of RCV rotary tables

Table 5.1 **RCV technical data**

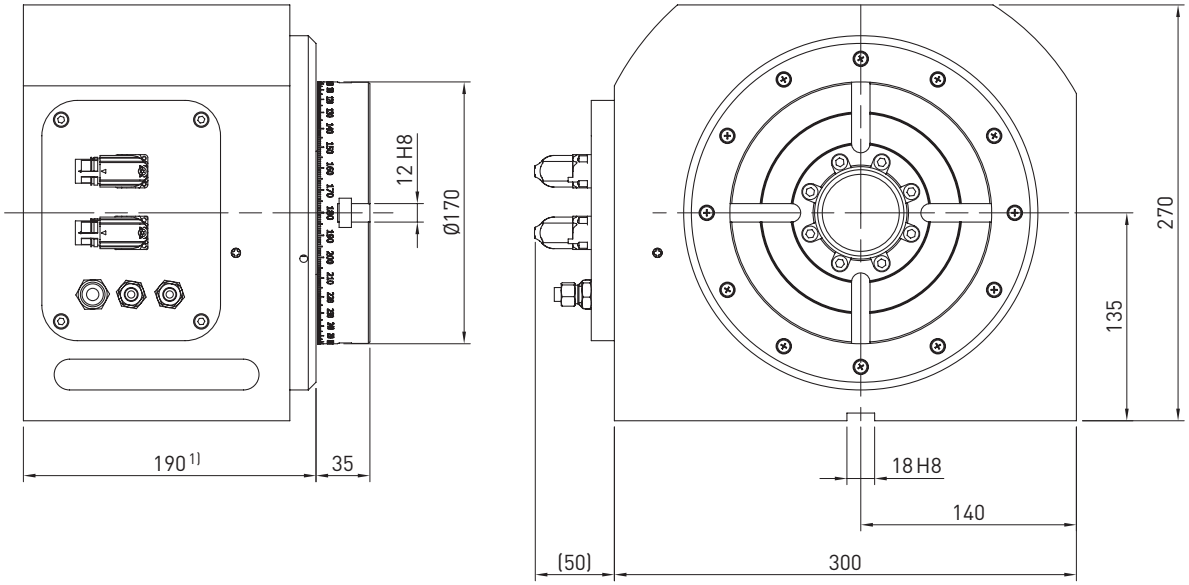
	Unit	RCV-125	RCV-170	RCV-250	RCV-320
					
Drive motor		TMRW15	TMRW45	TMRW47	TMRWA5
Max. speed	rpm	400	200	140	90
Continuous torque	Nm	31.3	106	148	430
Peak torque	Nm	59.4	203	280	810
Clamp		Pneumatic (6 bar)			
Clamp holding torque	Nm	100	300	600	1,200
Accuracy	arc sec	2.5/5.0/15.0			
Table diameter	mm	125	170	250	320
Centre of swivel axis	mm	100	135	160	220
Diameter of hollow shaft	mm	Ø30 × 26L	Ø60	Ø60	Ø60
T-groove width	mm	12 H8	12 H8	12 H8	14 H8
Weight	kg	30	95	150	320
Max. load	kg	20	50	120	250

5.3 Dimensions of RCV rotary tables

RCV-125 dimensions

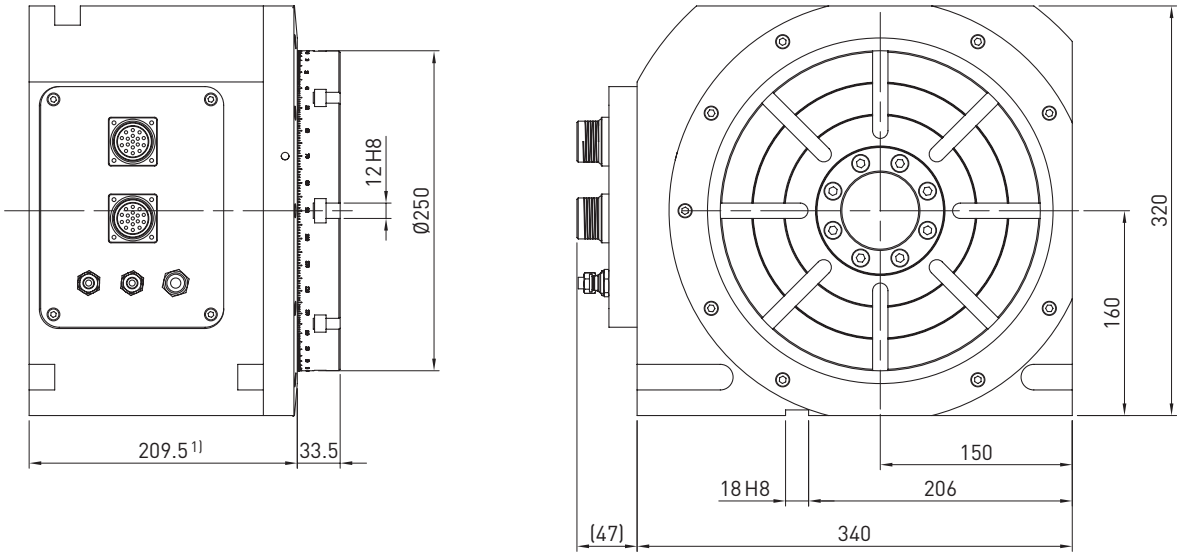


RCV-170 dimensions

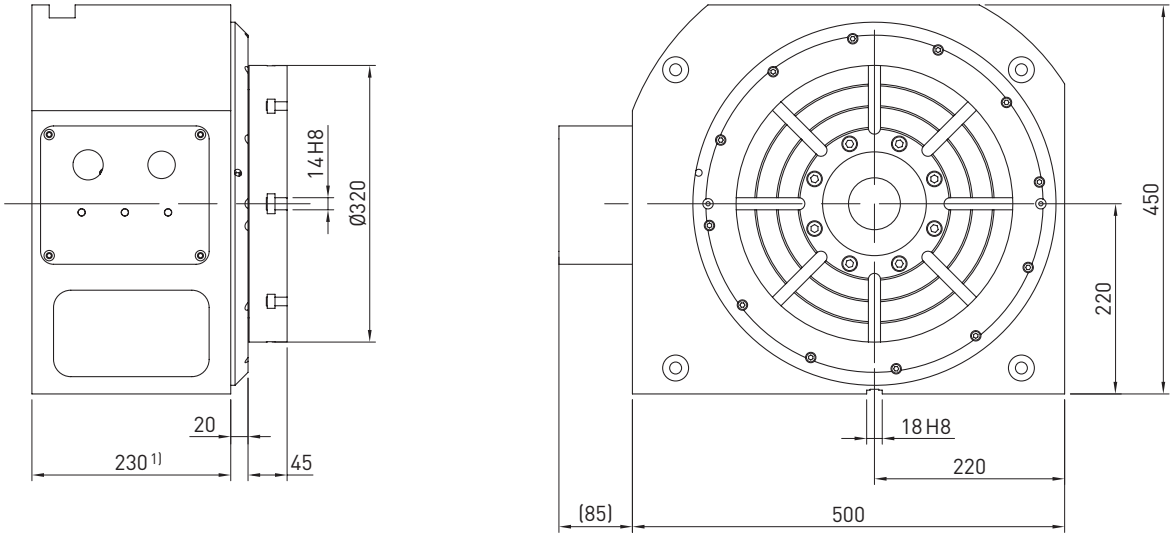


1) Size varies depending on the choice of distance measuring system

RCV-250 dimensions



RCV-320 dimensions



1) Size varies depending on the choice of distance measuring system

6. HIWIN RCH rotary tables

6.1 Properties of RCH rotary tables

RCH rotary tables are directly driven, maintenance-free precision axes. They use water-cooled torque motors from the TMRW series, guaranteeing high levels of acceleration and torque. Equipped with various high-resolution encoders, the rotary tables achieve accuracies of just a few arc seconds and can be integrated into all standard control concepts. Featuring axial/radial bearings, the tilt-resistant mechanical design is able to accommodate maximum loads.

Key features:

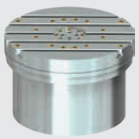
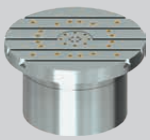
- Plug-and-play rotary table ready for installation
- Maintenance-free direct drives
- High acceleration, torque and accuracy
- Tilt-resistant mechanical design with large diameter
- Extremely rigid axial/radial bearings
- Integrated clamp

Typical applications:

- Horizontal rotary tables in machine tools
- Grinding machines
- Laser processing machines

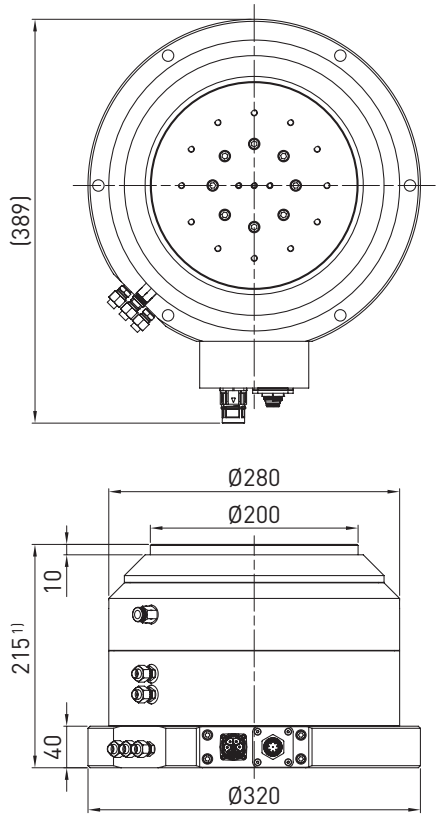
6.2 Specifications of RCH rotary tables

Table 6.1 **RCH technical data**

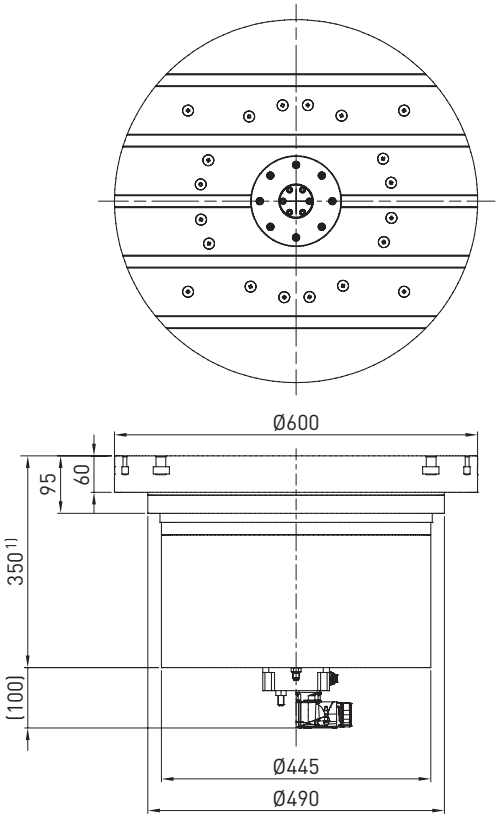
	Unit	RCH-200-SP	RCH-200	RCH-400	RCH-600	RCH-800
						
Drive motor		TMRW43-SB	TMRW43	TMRW7A	TMRWAF	TMRWDF
Max. speed	rpm	2,000	300	130	100	90
Continuous torque	Nm	27.9	63.5	480	1,290	2,000
Peak torque	Nm	52.7	120	910	2,400	3,600
Clamp		Pneumatic (6 bar)		Hydraulic (70 bar)		Pneumatic (6 bar)
Clamp holding torque	Nm	500	500	2,000	3,200	4,200
Accuracy	arc sec	2.5/5.0/15.0				
Table diameter	mm	200	200	400	600	800
Weight	kg	85	85	190	430	750
Max. load	kg	50	50	500	850	1,800

6.3 Dimensions of RCH rotary tables

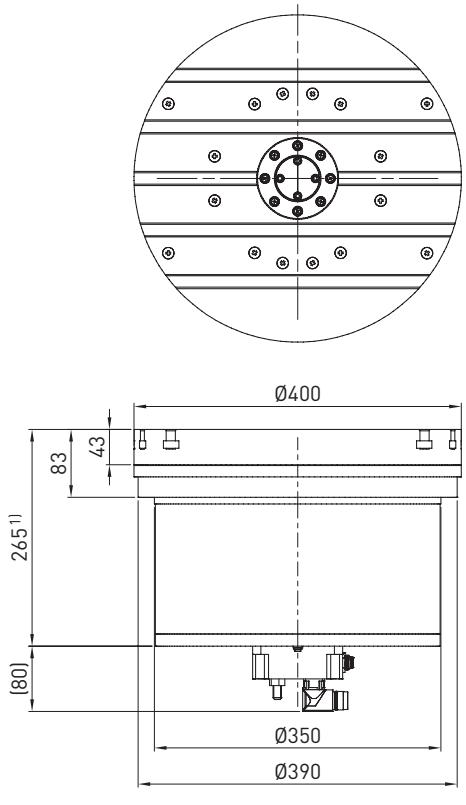
RCH-200 dimensions



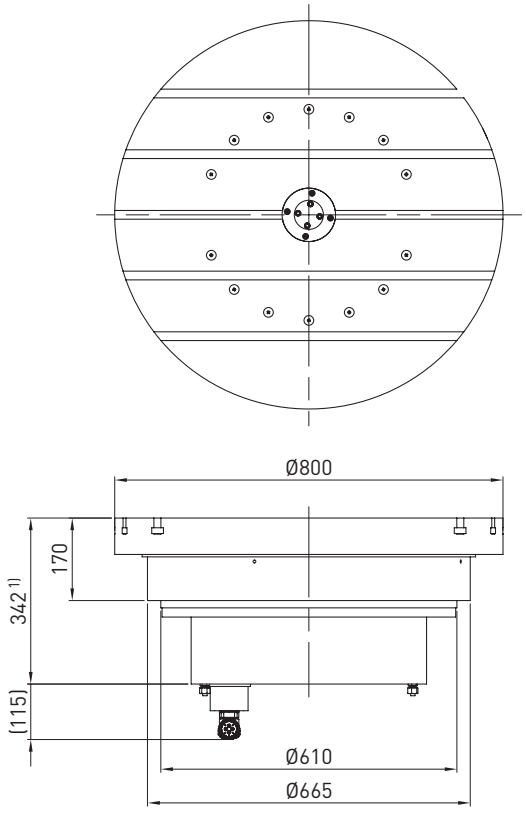
RCH-600 dimensions



RCH-400 dimensions



RCH-800 dimensions



1) Size varies depending on the choice of distance measuring system

7. Selection tables for direct drive rotary tables

Table 7.1 **Control system compatibility with rotary table**

		Series			
		RAB	RAS	RCV	RCH
Control system	FANUC	●	●	●	●
	MITSUBISHI	●	●	●	●
	SIEMENS	●	●	●	●
	HEIDENHAIN	●	●	●	●
	NUM	●	●	●	●
	Syntec	●	●	●	●
	Lynuc	●	●	●	●
	Huazhong CNC	●	●	●	●
	GSK	●	●	●	●

● Compatible

Table 7.2 **Selecting a distance measuring system for the rotary table**

		Series			
		RAB	RAS	RCV	RCH
Distance measuring system	HEIDENHAIN	●	●	●	●
	RENISHAW	–	–	●	●
	NIKON	–	–	●	●

● Available

8. Project planning sheet for direct drive rotary tables

Company:	Processed by:
Technical consultant:	Date:
Purchasing consultant:	Project name:

Project plan (current state of project/schedule/aimed price)

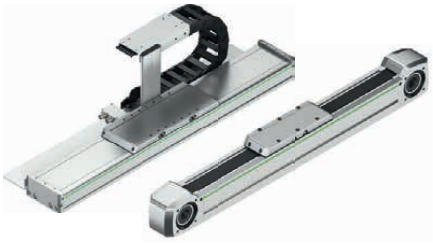
Product selection				
Series	☐ RCV	☐ RCH	☐ RAB	☐ RAS
Table diameter	☐ 125 mm ☐ 170 mm ☐ 250 mm ☐ 320 mm ☐ _____ mm	☐ 200 mm ☐ 400 mm ☐ 600 mm ☐ 800 mm ☐ _____ mm	☐ 400 mm ☐ 500 mm ☐ 630 mm ☐ 800 mm ☐ _____ mm	☐ 170 mm ☐ 200 mm ☐ 250 mm ☐ 320 mm ☐ 650 mm ☐ _____ mm
Distance measuring system	☐ HEIDENHAIN ☐ RENISHAW ☐ NIKON	☐ HEIDENHAIN ☐ RENISHAW ☐ NIKON	☐ HEIDENHAIN ☐ RENISHAW	☐ HEIDENHAIN ☐ RENISHAW
Accuracy	☐ ± 2,5" ☐ ± 5" ☐ ± 15"	☐ ± 2,5" ☐ ± 5" ☐ ± 15"	☐ ± 2,5" ☐ ± 5" ☐ ± 15"	☐ ± 2,5" ☐ ± 5" ☐ ± 15"
Control system	☐ HEIDENHAIN ☐ SIEMENS ☐ MITSUBISHI ☐ FANUC ☐ _____	☐ HEIDENHAIN ☐ SIEMENS ☐ MITSUBISHI ☐ FANUC ☐ _____	☐ HEIDENHAIN ☐ SIEMENS ☐ MITSUBISHI ☐ FANUC ☐ _____	☐ HEIDENHAIN ☐ SIEMENS ☐ MITSUBISHI ☐ FANUC ☐ _____
Options	☐ Motor cable _____ m [1] ☐ Encoder cable _____ m [1] ☐ None	☐ Motor cable _____ m [1] ☐ Encoder cable _____ m [1] ☐ None	☐ Motor cable _____ m [1] ☐ Encoder cable _____ m [1] ☐ None	☐ Motor cable _____ m [1] ☐ Encoder cable _____ m [1] ☐ None
Operating mode	☐ Simultaneous machining ☐ Cyclic operation ☐ _____	☐ Simultaneous machining ☐ Cyclic operation ☐ _____	☐ Simultaneous machining ☐ Cyclic operation ☐ _____	☐ Simultaneous machining ☐ Cyclic operation ☐ _____
Further requirements	☐ Speed _____ ☐ IP class _____		☐ Torque _____ ☐ Other brands _____	

[1] Available cable lengths: 3 m, 5 m, 7 m, 9 m

We live motion.

Linear Guideways

Ballscrews



Linear Axes

Linear Axis Systems

Torque Motors

Robots

Linear Motor Components

Rotary Tables

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