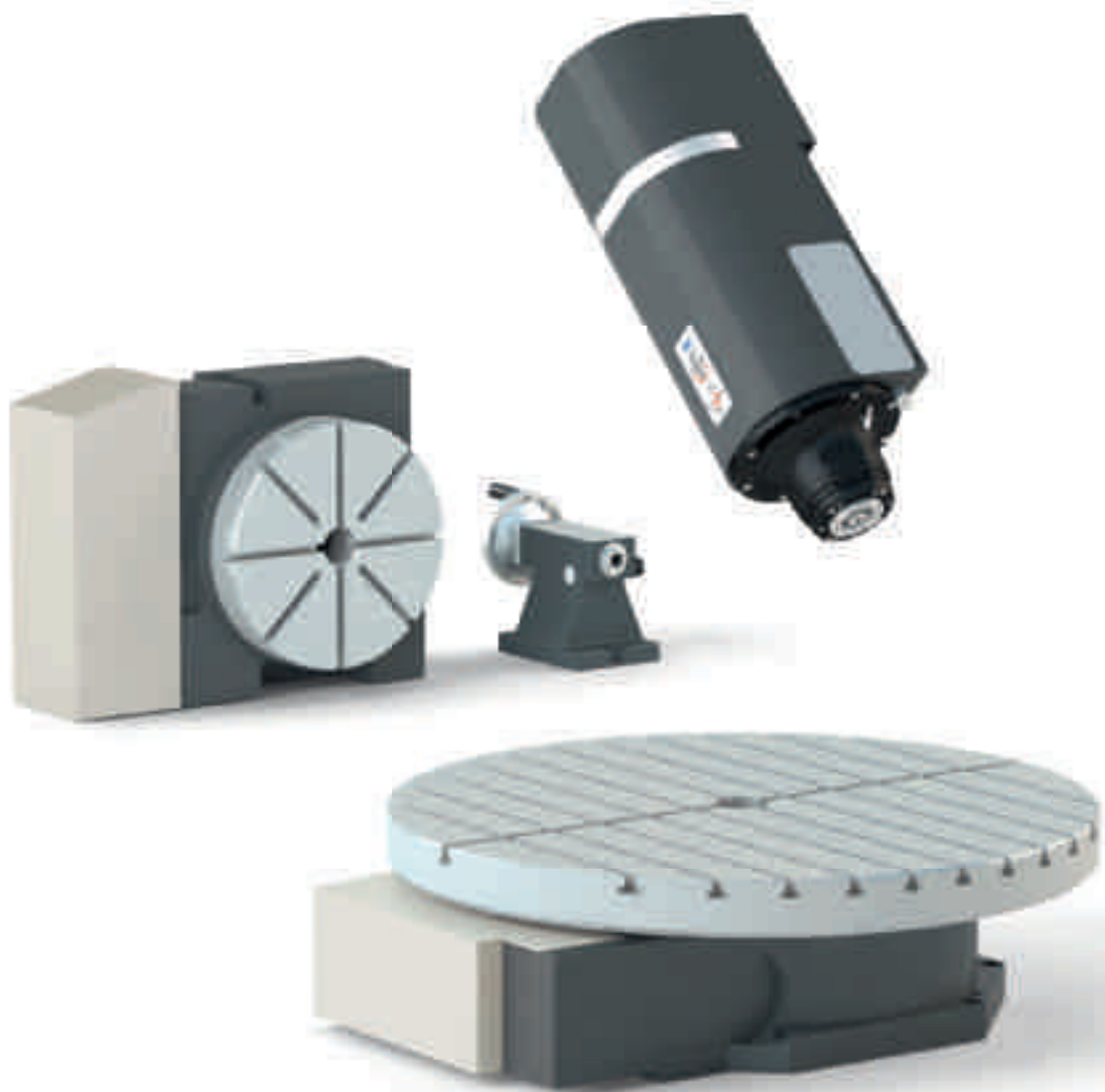


## Original components



**Pure technology!**



Entwicklungs- und  
Maschinenbau GmbH



Turning spindle with 1500 rpm in combination with a tailstock that can be manually adjusted over the fixed machine table in longitudinal direction for varying lengths of the turning workpieces

# Pure technology!



Manually adjustable jaw chuck or hydraulic jaw chuck with automatic stroke of the main jaws which are also manually adjustable

## We know our trade inside out – High performance components from AXA

AXA Entwicklungs- und Maschinenbau has been stood for innovative and reliable machine tools with a pronounced level of vertical integration ever since 1965. We design, develop and build important machine components ourselves, such as rotary tables, tailstocks, counter bearings and spindles.

That means: We can exactly fulfil your requirements for all types of component groups of your machine. We focus on your ideas and then always provide you with the plan to fit.

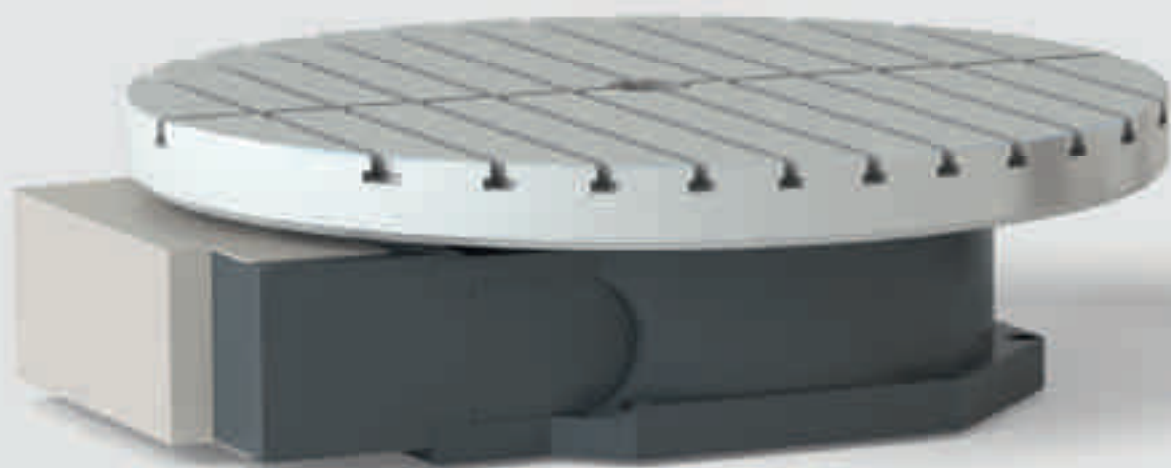
This is important. At the end of the day, the decisive factors often lie in the detail. This is our core competence. We have a wide range of high-performance system components. These include fast turning and NC-controlled rotary tables, flexible

and powerful spindles and made-to-measure tailstocks and counter bearings – everything you need to appropriately and individually create your machine park.

AXA components secure the process of even the most challenging workpieces in an efficient and flexible manner. These are the best preconditions for your success.

Ready for use in many areas:

- Plant and equipment manufactories
- Precision tool making including fixtures, mould and press tools
- Automotive industry
- Aerospace industry
- Subcontract machining
- Jobbing shop for large and small manufacturing series
- Rail track and rolling stock equipment
- Medical industry
- Automation technology
- Packaging machines
- Hydraulic components
- Valve manufacture
- Profile machining
- Plastics and aluminium machining
- Machining of glass, ceramics, wood or graphite



Axis expansions for machine tools: rotary tables, horizontally or vertically integrated, in 1 or 2 axes, in positioning operation, simultaneous operation or for the turning operation

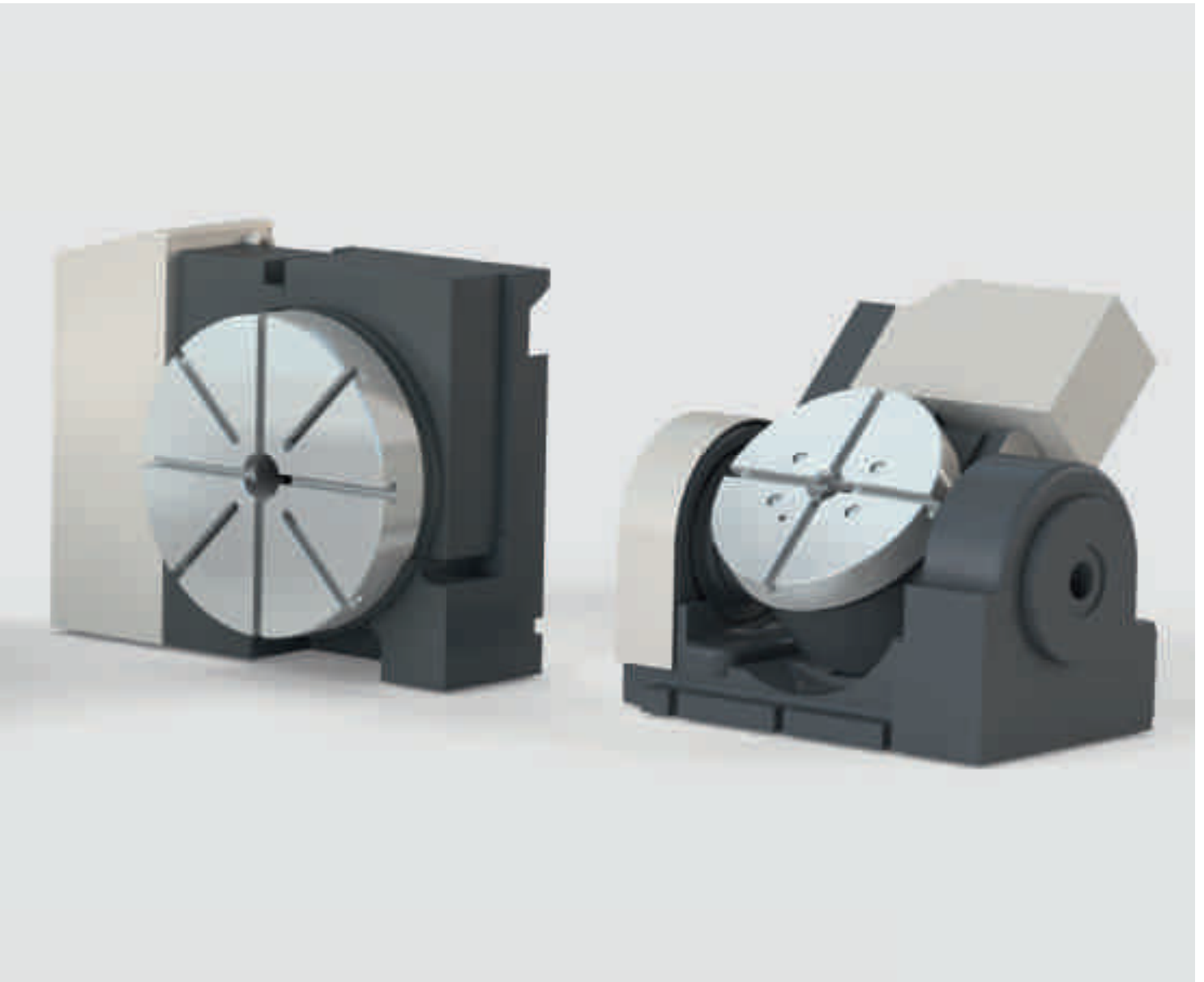
## An all-round solution: rotary tables for milling, drilling and turning

Regardless whether it is in positioning operation for milling and drilling, in simultaneous operation for rotary and multi-processing or for fast turning production processes: AXA rotary tables ensure that everything runs smoothly within your production process. You can choose from a wide variety of different

construction forms and sizes to create your own individual application scenarios for your own needs.

### Design

- NC-rotary tables with worm gear
- Highly dynamic NC-rotary tables with torque direct drive
- Swivelling rotary tables as entrance into 5-axis machining
- Integrated hydraulic clamping on rotary tables with multi-canal rotary union



- Rotary tables driven by NC axis for flexible workpiece machining
- Individual, customer-specific special solutions

**Benefits**

- Robust, stable, reliable, durable
- High torques in positioning and turning operation
- Large openings for bar loading
- High precision by high-definition, direct measuring systems
- Compact build for quick and perfect integration into AXA machines

- Mechanics, electronics and software all from the same source
- Base bodies and face plates from top-quality cast iron
- Flexible to adapt

## Technical data: NC-rotary tables / Swivelling rotary table

Type		RTA 2 300	RTA 3 400	RTA 3 520	RTA 3 630
<b>Base</b>					
Face plate	[mm]	300	400	520	630
Weight	[kg]	165	320	360	410
Centre height (horizontal rotation axis)	[mm]	200	250	280	330
Overall height (vertical rotation axis)	[mm]	240	280	280	280
Max. table inside diameter	[mm]	100 <sup>4</sup>	140 <sup>4</sup>	140 <sup>4</sup>	140 <sup>4</sup>
Permitted mass moment of inertia (consisting of workpiece, equipment and face plate <sup>2</sup> )	[kgm <sup>2</sup> ]	10	40	40	40
Accuracy measuring system (direct / indirect)	["]	± 5 / ± 15	± 5 / ± 15	± 5 / ± 15	± 5 / ± 15
Max. operating pressure	[bar]	63	63	63	63
<b>Torque</b>					
Max. torque (by main drive)	[Nm]	300	900	900	900
Max. tangential moment (by hydraulic clamping)	[Nm]	2800	6000	6000	6000
<b>Transport weight</b>					
Max. loading (with vertical rotation axis <sup>1</sup> )	[kg]	1000	1500	1500	1500
Max. loading (with horizontal rotation axis <sup>1</sup> )	[kg]	300	500	500	500
<b>Speed range</b>					
Max. rapid speed range (intermittent duty mode)	[rpm]	11,0	8,0	8,0	8,0
Max. permanent speed range (constant operation with low stress)	[rpm]	2,0	2,0	2,0	2,0

<sup>1</sup> Permitted transport weight also limited by installation situation / machine and kind of application

<sup>2</sup> Adaptation of acceleration and speed parameter dependent on mass moment of inertia

<sup>3</sup> Optional with special measuring system

<sup>4</sup> Only with indirect measuring system or with special measuring system

For all specifications centred, balanced loading is required!

	<b>RTA 4L 520</b>	<b>RTA 4L 630</b>	<b>RTA 4L 800</b>	<b>RTA 4L 1000</b>	<b>RTA 4S 520</b>	<b>RTA 4S 630</b>
[mm]	520	630	800	1000	520	630
[kg]	460	530	650	770	470	540
[mm]	280	330	-	-	280	330
[mm]	290	290	290	290	295	295
[mm]	200 <sup>4</sup>	200 <sup>4</sup>	200 <sup>4</sup>	200 <sup>4</sup>	200 <sup>4</sup>	200 <sup>4</sup>
[kgm <sup>2</sup> ]	150	150	150	150	150	150
[°]	± 5 / ± 15	± 5 / ± 15	± 5 / ± 15	± 5 / ± 15	± 5 / ± 15	± 5 / ± 15
[bar]	63	63	63	63	63	63
[Nm]	1600	1600	1600	1600	1600	1600
[Nm]	8000	8000	8000	8000	10000	10000
[kg]	2500	2500	2500	2500	3000	3000
[kg]	800	800	-	-	1200	1200
[rpm]	6,7	6,7	6,7	6,7	6,7	6,7
[rpm]	2,0	2,0	2,0	2,0	2,0	2,0

## Technical data: NC-rotary tables / Swivelling rotary table

Type		RTA 4S 800	RTA 4S 1000	RTA 5S 800	RTA 5S 1000
<b>Base</b>					
Face plate	[mm]	800	1000	800	1000
Weight	[kg]	660	780	840	1000
Centre height (horizontal rotation axis)	[mm]	-	-	-	-
Overall height (vertical rotation axis)	[mm]	295	295	295	295
Max. table inside diameter	[mm]	200 <sup>4</sup>	200 <sup>4</sup>	200 <sup>3</sup>	200 <sup>3</sup>
Permitted mass moment of inertia (consisting of workpiece, equipment and face plate <sup>2</sup> )	[kgm <sup>2</sup> ]	150	150	400	400
Accuracy measuring system (direct / indirect)	["]	± 5 / ± 15	± 5 / ± 15	± 5 / -	± 5 / -
Max. operating pressure	[bar]	63	63	63	63
<b>Torque</b>					
Max. torque (by main drive)	[Nm]	1600	1600	2200	2200
Max. tangential moment (by hydraulic clamping)	[Nm]	10000	10000	10000	10000
<b>Transport weight</b>					
Max. loading (with vertical rotation axis <sup>1</sup> )	[kg]	3000	3000	6000	6000
Max. loading (with horizontal rotation axis <sup>1</sup> )	[kg]	-	-	-	-
<b>Speed range</b>					
Max. rapid speed range (intermittent duty mode)	[rpm]	6,7	6,7	5,0	5,0
Max. permanent speed range (constant operation with low stress)	[rpm]	2,0	2,0	1,0	1,0

<sup>1</sup> Permitted transport weight also limited by installation situation / machine and kind of application

<sup>2</sup> Adaptation of acceleration and speed parameter dependent on mass moment of inertia

<sup>3</sup> Optional with special measuring system

<sup>4</sup> Only with indirect measuring system or with special measuring system  
For all specifications centred, balanced loading is required!



	<b>RTA 5S 1100x1100</b>	<b>RTA 6S 1500</b>	<b>RTA 8 2300</b>	<b>RTA 8 2800</b>	<b>SRTA 2 300</b>
[mm]	1100 x 1100	1500	2300	2800	300
[kg]	1650	2700	6500	8000	350
[mm]	-	-	-	-	200
[mm]	370	380	460	500	328
[mm]	200 <sup>3</sup>	370 <sup>3</sup>	370 <sup>3</sup>	370 <sup>3</sup>	100 <sup>4</sup>
[kgm <sup>2</sup> ]	400	2000	8000	8000	n. s.
["]	± 5 / -	± 5 / -	± 5 / -	± 5 / -	± 5 / ± 15
[bar]	63	63	63	63	120
[Nm]	2200	3500	7500	7500	n. s.
[Nm]	10000	18000	40000	40000	2800
[kg]	6000	10000	18000	18000	1000
[kg]	-	-	-	-	200
[rpm]	5,0	6,0	4,5	4,5	11,0
[rpm]	1,0	1,0	1,0	1,0	2,0

## Technical data: NC-rotary tables fast turning

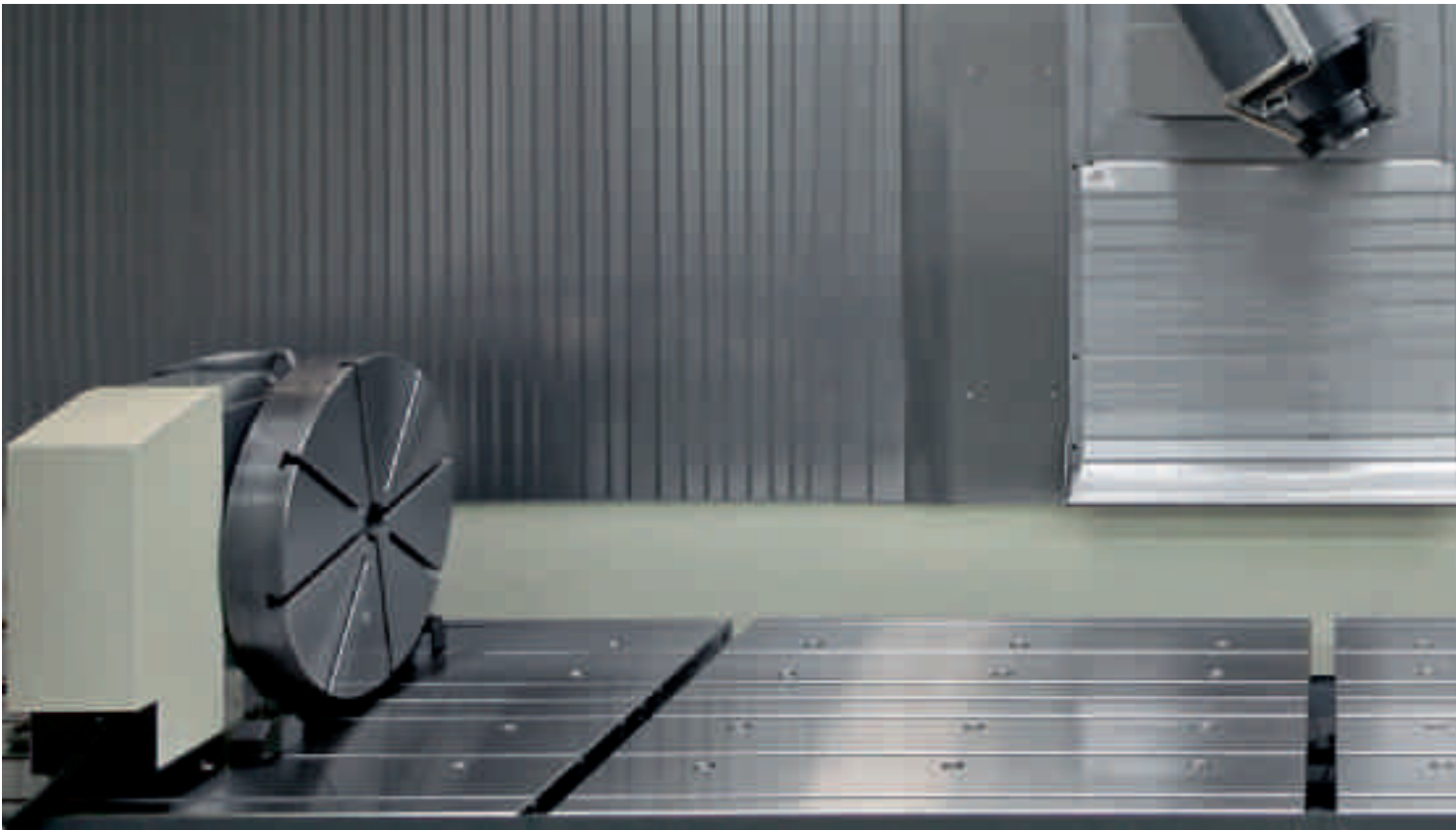
Type		RTA 3D 300	RTA 3D 400	RTA 3D 520	RTA 4D 520
<b>Base</b>					
Face plate	[mm]	300	400	520	520
Weight	[kg]	340	380	430	530
Centre height (horizontal rotation axis)	[mm]	250	-	-	280
Centre height (vertical rotation axis)	[mm]	335	335	335	360
Max. table inside diameter	[mm]	80	80	80	110
Accuracy measuring system (absolute)	["]	± 5	± 5	± 5	± 5
Max. operating pressure	[bar]	43	43	43	43
<b>Torque</b>					
Max. torque (by main drive)	[Nm]	500	500	500	700
Course of torque					
For 0 rpm	[Nm]	500	500	500	-
For 300 rpm	[Nm]	250	250	250	-
For 500 rpm	[Nm]	80	80	80	-
For 0 rpm	[Nm]	-	-	-	700
For 300 rpm	[Nm]	-	-	-	500
For 350 rpm	[Nm]	-	-	-	300
From 0 to 150 rpm	[Nm]	-	-	-	-
For 300 rpm	[Nm]	-	-	-	-
Max. tangential moment (by hydraulic clamping)	[Nm]	4000	4000	4000	6000
<b>Positioning operation</b>					
Max. loading (with vertical rotation axis <sup>1</sup> )	[kg]	800	800	800	1500
Max. loading (with horizontal rotation axis <sup>1</sup> )	[kg]	300	-	-	800
Permitted mass moment of inertia (consisting of workpiece, equipment and face plate <sup>2</sup> )	[kgm <sup>2</sup> ]	80	80	80	300
Max. speed range	[rpm]	20	20	20	20
<b>Turning operation</b>					
Max. loading (with vertical rotation axis <sup>1</sup> )	[kg]	250	250	250	500
Max. loading (with horizontal rotation axis <sup>1</sup> )	[kg]	150	-	-	250
Permitted mass moment of inertia (consisting of workpiece, equipment and face plate <sup>2</sup> )	[kgm <sup>2</sup> ]	20	20	20	80
Max. speed range	[rpm]	500	500	500	350

<sup>1</sup> Permitted transport weight also limited by installation situation / machine and kind of application

<sup>2</sup> Adaptation of acceleration and speed parameter dependent on mass moment of inertia

For all specifications centred, balanced loading is required!

	<b>RTA 4D 630</b>	<b>RTA 4D 800</b>	<b>RTA 5D 850</b>	<b>RTA 5D 1000</b>	<b>RTA 5D 1250</b>
[mm]	630	800	850	1000	1250
[kg]	595	725	840	1000	1650
[mm]	-	-	-	-	-
[mm]	360	360	170 (from flange plate) / 470	170 (from flange plate) / 470	170 (from flange plate) / 470
[mm]	110	110	200	200	200
[°]	± 5	± 5	± 3	± 3	± 3
[bar]	43	43	43	43	43
[Nm]	700	700	2000	2000	2000
[Nm]	-	-	-	-	-
[Nm]	-	-	-	-	-
[Nm]	-	-	-	-	-
[Nm]	700	700	-	-	-
[Nm]	500	500	-	-	-
[Nm]	300	300	-	-	-
[Nm]	-	-	2000	2000	2000
[Nm]	-	-	1000	1000	1000
[Nm]	6000	6000	10000	10000	10000
[kg]	1500	1500	3000	3000	3000
[kg]	-	-	-	-	-
[kgm <sup>2</sup> ]	300	300	1000	1000	1000
[rpm]	20	20	20	20	20
[kg]	500	500	1500	1500	1500
[kg]	-	-	-	-	-
[kgm <sup>2</sup> ]	80	80	300	300	300
[rpm]	350	350	300	300	300



Rotary tables in gantry mode for clamping bridges as well as further removable pick-up station left for pendulum operation or right for long bed operation

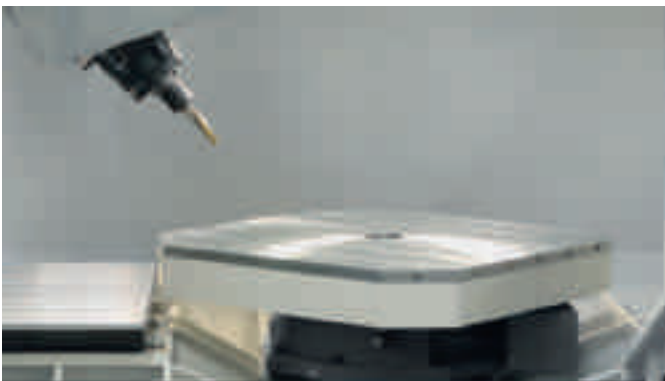
## How to rev up your production

Complex turning and milling processes done in one setting in a quick and efficient way. Individual customer wishes implemented reliably. Mastering the growing challenges with modern machine tools. All this

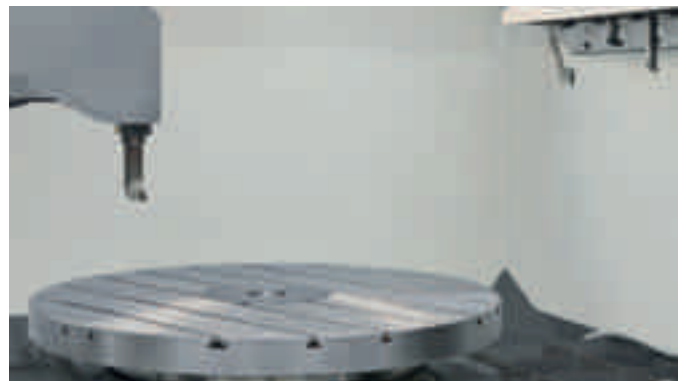
adds real value and increases productivity.

We are here to help you! Our fast turning rotary tables directly driven by high-performance torque

motors or turning spindles for high rotation speeds help really rev up your production.



1-axis tilting head and rotary table for full machining of workpieces in one single clamping



Simple turning machining by fast turning rotary table, separate turning tool holder besides spindle and a pick-up magazine for turning tools



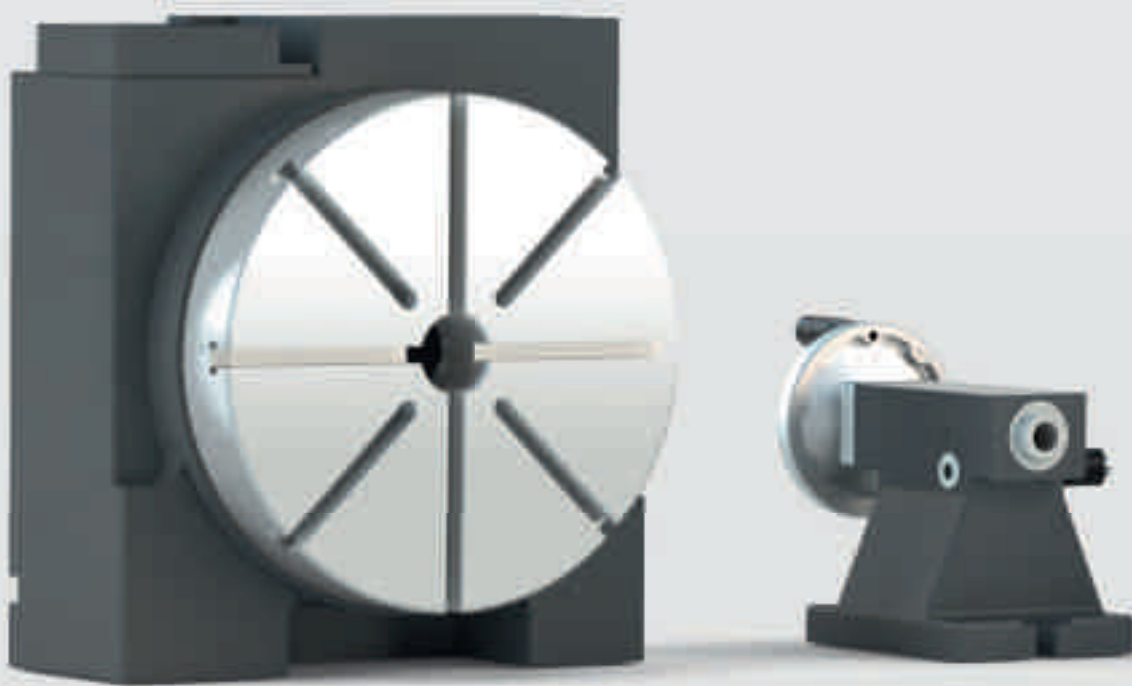
Manual or NC-driven pre-centering and presetting of the clamping elements for the next workpiece diameter



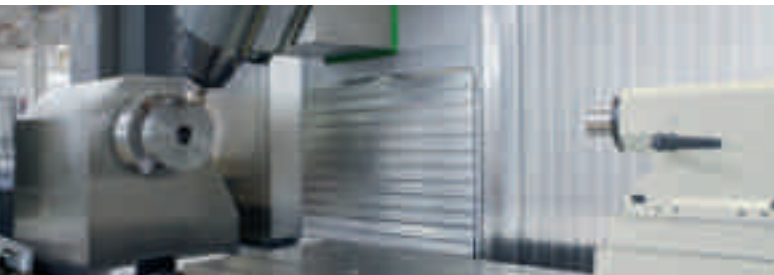
2-axis NC-tilting rotary table from AXA with continuous 360° round axis and tilting axis from 0° to 90°



Horizontal ring machining with 2-axis tilting head and a rotary table



Tailstocks and counter bearings: combined with a rotary table, these serve to support long workpieces or to set up clamping bridges



Turning spindle (1500 rpm) in combination with a tailstock that can be manually adjusted over the fixed machine table in longitudinal direction for varying lengths of the turning workpieces



Rotary table with tailstock and swivel bridge for mechanical multiple clamping system

## Getting to the heart of the matter: tailstocks and counter bearings

Keep on the right track to process longer and heavier workpieces thanks to our robust tailstocks and counter bearings. Originally developed for working with rotary tables on AXA machine tools, this can simply be integrated

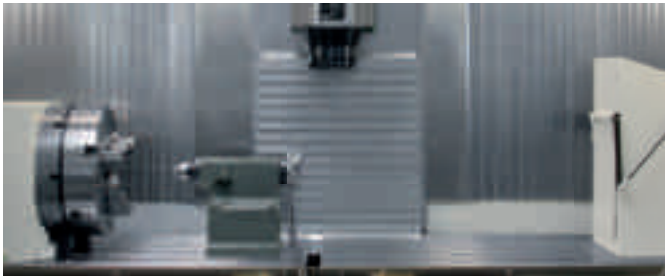
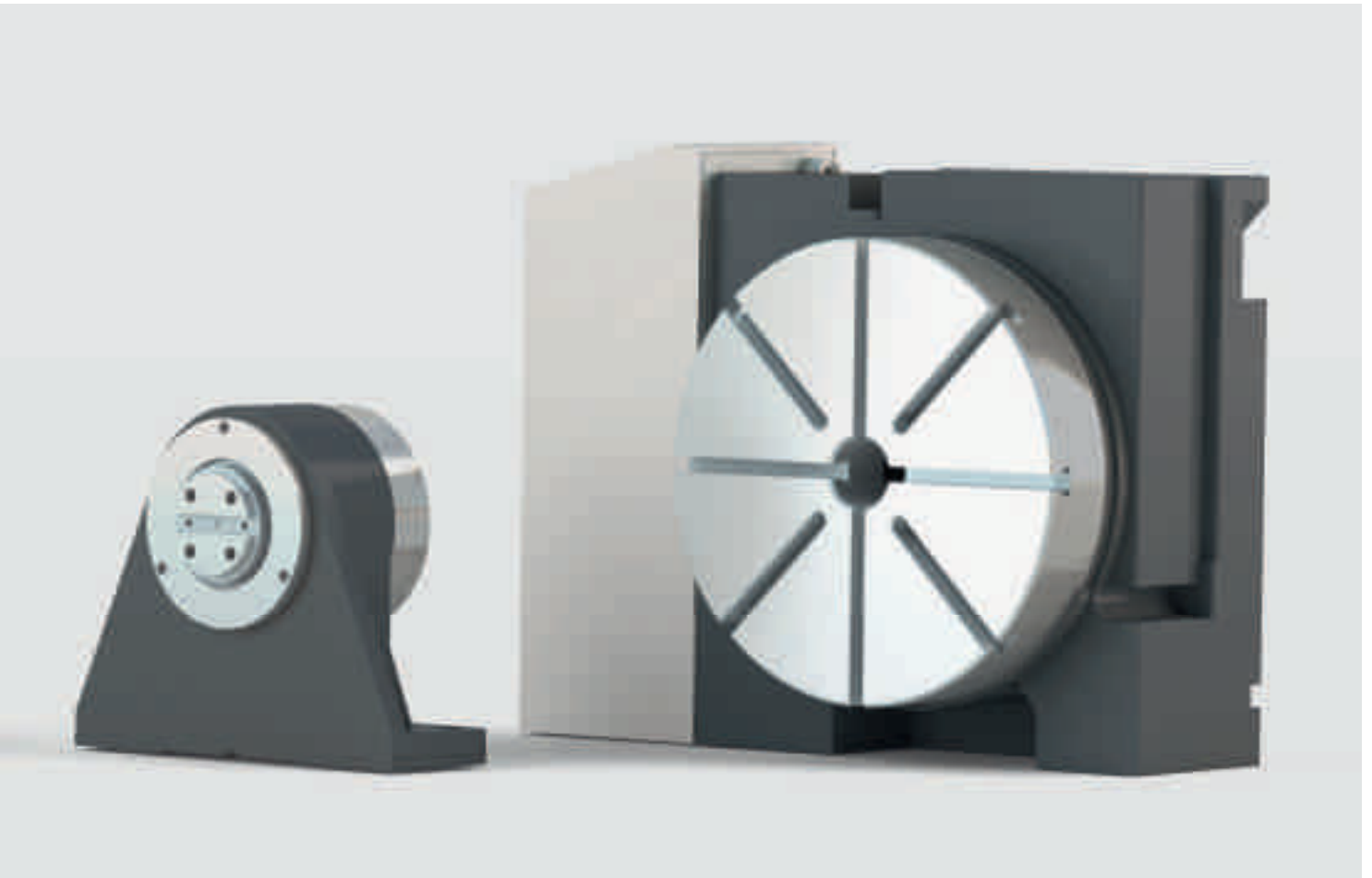
into many varied fields of application. You can also find driveless rotary tables in our product range as the particularly stable version of the hydraulically clamped counter bearing. Due to its robust construction, it is especially recommended for

use with large and heavy clamping bridges.

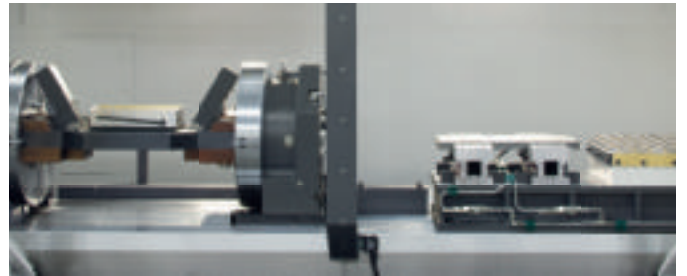
### Design

- Tailstocks in various build sizes and with different spindle strokes
- Tailstock sleeves with morse taper





Rotary table combined with a tailstock as well as an additional pick-up station for special tools, angular heads or multiple spindle heads



Rotary table built on machine table with counter bearing and combined to a clamping bridge

- for use different centre points
- Tailstock sleeves available adjustable by hand wheel, hydraulics or pneumatics
- Hydraulically clamped counter bearing in various build sizes
- Rotary union for counter bearing

- to supply the clamping circuits of a clamping bridge
- Hydraulically clamped rotary tables without drive as especially stable counter bearing
- Variable centre heights available, adapted to the rotary table

**Benefits**

- Robust, flexible, individual
- Base bodies from top-quality grey cast iron



## Always on the move: the main spindle drives

The main spindle makes up one of the most important components in a machine tool. It goes without saying that we design and manufacture these complex, electro-mechanical system components ourselves. The requirements placed on modern drives are extremely varied. We constantly strive to completely fulfil these wishes and demands.

That requires continued and steady further development. We have been mastering this task successfully for decades.

### Design

- Directly driven spindles, belt-driven spindles or gear-driven spindles as special solution
- Water or air cooled motors in asynchronous or synchronous design
- Various standard and special solutions of taper for the main spindle
- Combined milling and drilling processing by additionally placed



Large choice of main spindle drives: various combination choices available in speed range, torque and performance



steel turning tool holder on the main spindle

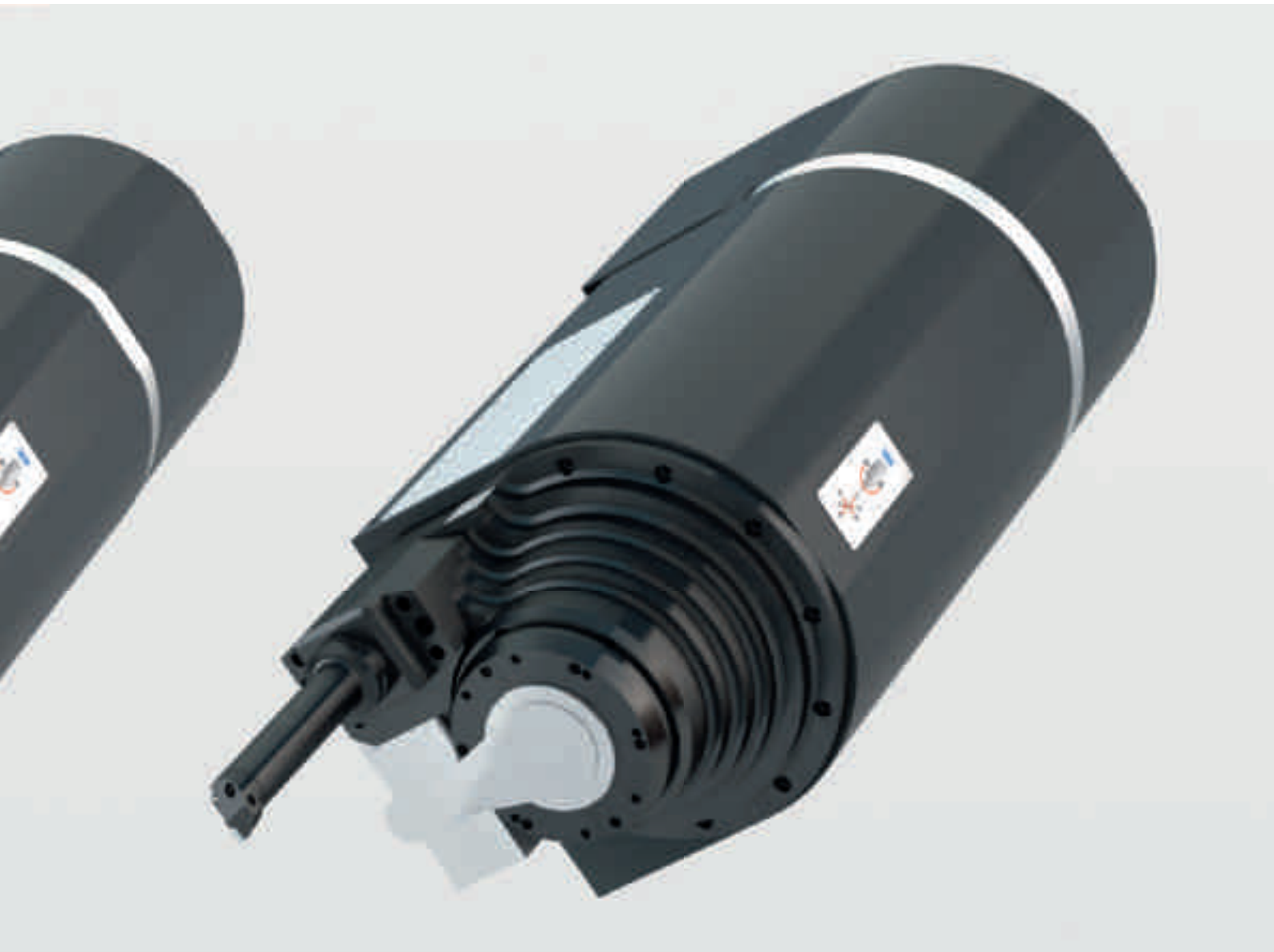
- Spindle adaption for support of angular heads and multi-spindle heads or fast turning spindles by simple torque support or three-point support

#### Benefits

- High drive performance
- High and constant torque right up to breakpoint speed
- Large speed adjustment ranges with stepless regulation
- Quick start-up and braking processes
- Possibility of angular positioning
- Complete spindle service from

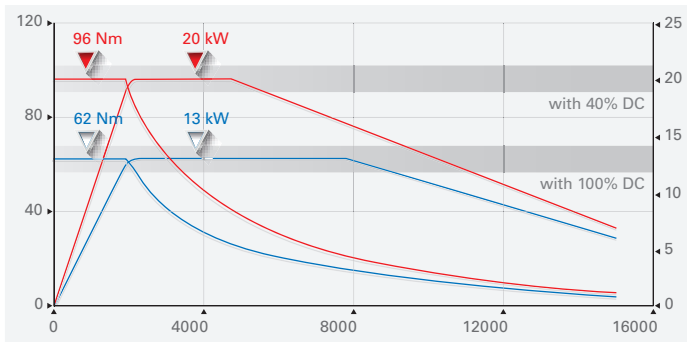
development up to service

- Short reaction times and reliable spare part and exchange service thanks to in-house manufacturing
- Long-standing product competency





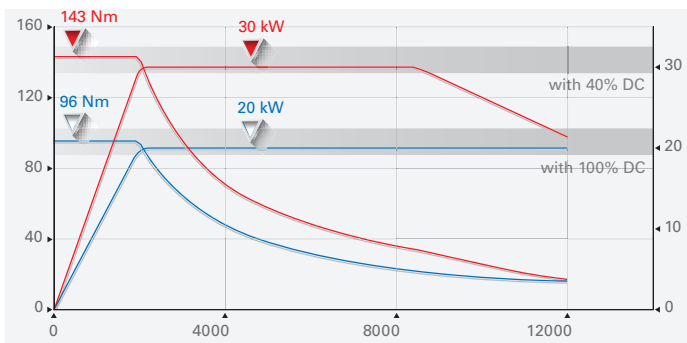
# Diagrams – Spindle configurations



## Particulars

## Drive No. 100

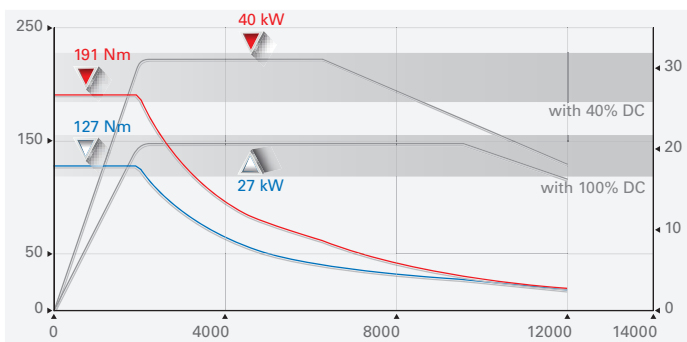
Drive type	AC-hollow shaft motor
Max. torque	96 Nm with 40% DC 62 Nm with 100% DC
Max. power	20 kW with 40% DC 13 kW with 100% DC
Breakpoint speed	2000 rpm
Optional N <sub>max</sub>	15000 rpm
Tool holding fixture	SK 40, opt. BT 40, HSK A63, C6



## Particulars

## Drive No. 110

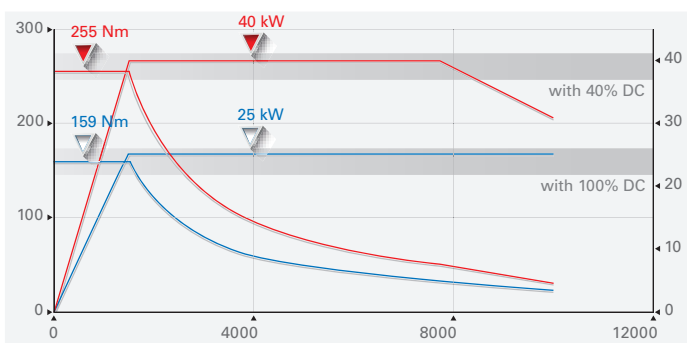
Drive type	AC-hollow shaft motor
Max. torque	143 Nm with 40% DC 96 Nm with 100% DC
Max. power	30 kW with 40% DC 20 kW with 100% DC
Breakpoint speed	2000 rpm
Optional N <sub>max</sub>	12000 rpm
Tool holding fixture	SK 40, opt. BT 40, HSK A63, C6



## Particulars

## Drive No. 111

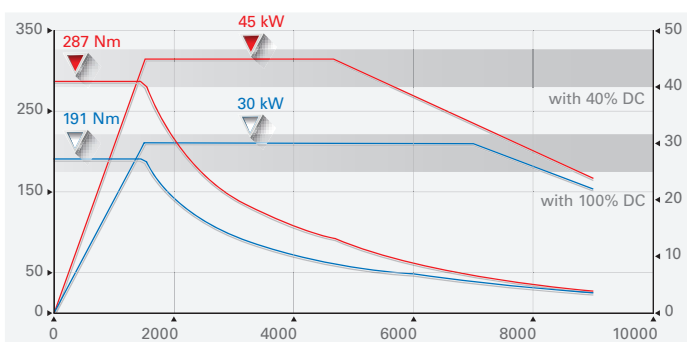
Drive type	AC-hollow shaft motor
Max. torque	191 Nm with 40% DC 127 Nm with 100% DC
Max. power	40 kW with 40% DC 27 kW with 100% DC
Breakpoint speed	2000 rpm
Optional N <sub>max</sub>	12000 rpm
Tool holding fixture	SK 40, opt. BT 40, HSK A63, C6



## Particulars

## Drive No. 113

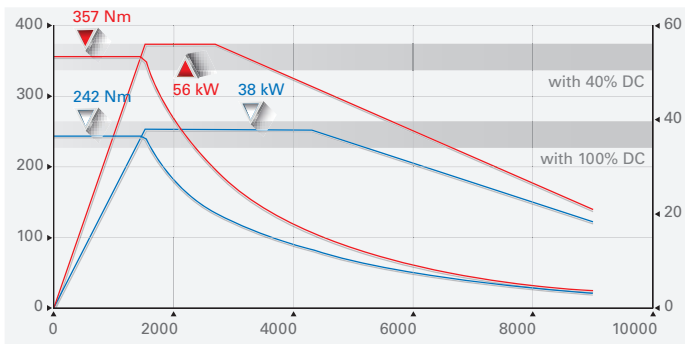
Drive type	AC-hollow shaft motor
Max. torque	255 Nm with 40% DC 159 Nm with 100% DC
Max. power	40 kW with 40% DC 25 kW with 100% DC
Breakpoint speed	1500 rpm
Optional N <sub>max</sub>	10000 rpm
Tool holding fixture	SK 40, opt. BT 40, HSK A63, C6



## Particulars

## Drive No. 131

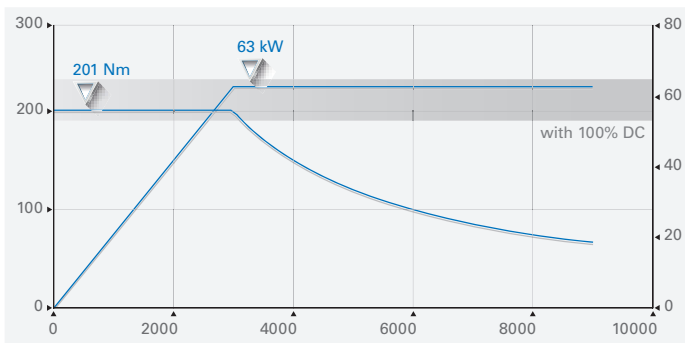
Drive type	AC-hollow shaft motor
Max. torque	287 Nm with 40% DC 191 Nm with 100% DC
Max. power	45 kW with 40% DC 30 kW with 100% DC
Breakpoint speed	1500 rpm
Optional N <sub>max</sub>	9000 rpm
Tool holding fixture	SK 50, opt. BT 50, HSK A100, C8



## Particulars

## Drive No. 133

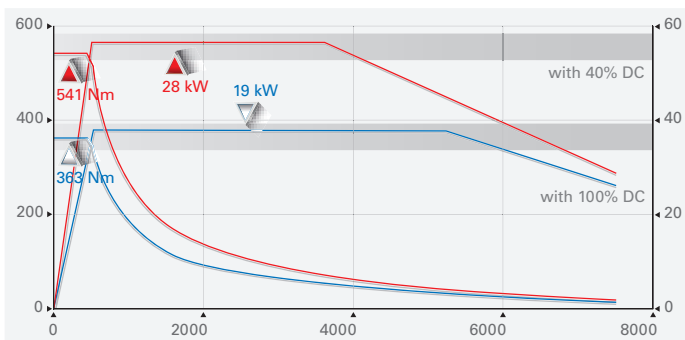
Drive type	AC-hollow shaft motor
Max. torque	357 Nm with 40% DC 242 Nm with 100% DC
Max. power	56 kW with 40% DC 38 kW with 100% DC
Breakpoint speed	1500 rpm
Optional $N_{max}$	9000 rpm
Tool holding fixture	SK 50, opt. BT 50, HSK A100, C8



## Particulars

## Drive No. 140

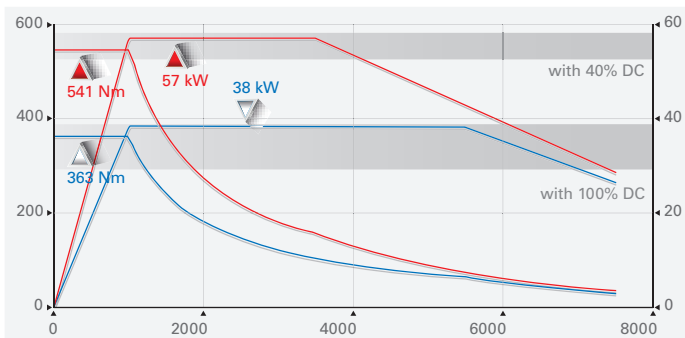
Drive type	Synchronous hollow shaft motor
Max. torque	- 201 Nm with 100 % DC
Max. power	- 63 kW with 100% DC
Breakpoint speed	3000 rpm
Optional $N_{max}$	9000 rpm
Tool holding fixture	SK 50, opt. BT 50, HSK A100, C8



## Particulars

## Drive No. 161

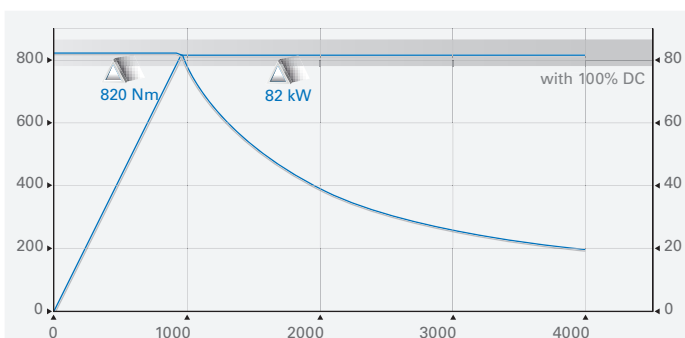
Drive type	AC-hollow shaft motor
Max. torque	541 Nm with 40% DC 363 Nm with 100% DC
Max. power	28 kW with 40% DC 19 kW with 100% DC
Breakpoint speed	500 rpm
Optional $N_{max}$	7500 rpm
Tool holding fixture	SK 50, opt. BT 50, HSK A100, C8



## Particulars

## Drive No. 163

Drive type	AC-hollow shaft motor
Max. torque	541 Nm with 40% DC 363 Nm with 100% DC
Max. power	57 kW with 40% DC 38 kW with 100% DC
Breakpoint speed	1000 rpm
Optional $N_{max}$	7500 rpm
Tool holding fixture	SK 50, opt. BT 50, HSK A100, C8



## Particulars

## Drive No. 182

Drive type	Synchronous hollow shaft motor
Max. torque	- 820 Nm with 100% DC
Max. power	- 82 kW with 100% DC
Breakpoint speed	950 rpm
Optional $N_{max}$	4000 rpm
Tool holding fixture	SK 50, opt. BT 50, HSK A100, C8

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