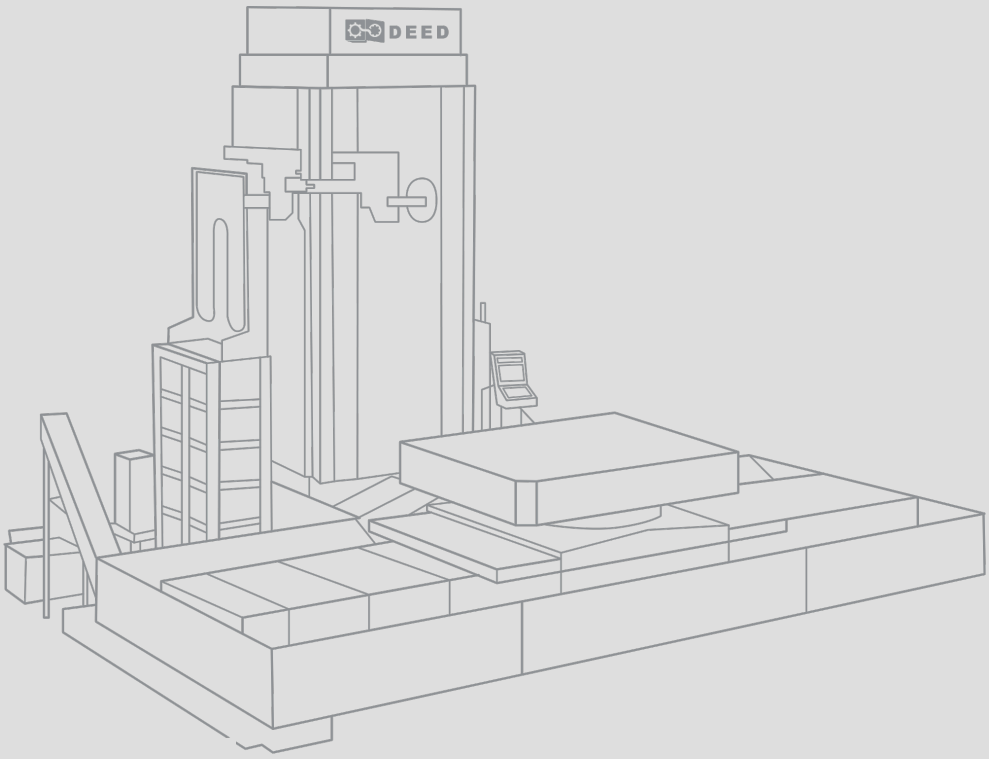
DEED BENELUX

HBC / HBP / HBF SERIES

MILLING & BORING MACHINING CENTER

ADVANCED GERMAN TECHNOLOGY WITH THE STRENGTH OF CHINESE MANUFACTURING



COMPANY PROFILE



Shandong Deed Precision Machine Tool Co., Ltd. is a high-end equipment enterprise integrating R&D, production and sales of high-end CNC machine tools, located in Yanzhou District, Jining City. The company takes high-speed vertical machining center, large scale gantry machining center, high-efficiency drilling & tapping machining center, high-precision turning center, high-precision five-axis linkage machining center, horizontal milling & boring machining center and horizontal machining center as the leading products, and serves a wide range of key industries such as aviation, aerospace, military, shipbuilding, automobile, construction machinery, rail transit, 5G, precision mold and others, both in the domestic and overseas markets. The company vigorously implements the development strategy of “going out and bringing in”, and has reached a comprehensive strategic cooperation with the well-known German CNC machine tool manufacturing enterprise ROTTLER to jointly develop high-grade precision machine tools of the world’s leading level and jointly explore the global high-end market. Establishing a high-end machine tool R & D center and manufacturing base in Germany - “Hipreed Technology GmbH”, fully implementing international operations and achieving the perfect combination of German technology and Chinese manufacturing. The company has five domestic and foreign R & D centers, with six provincial and municipal innovation platforms, with comprehensive R & D, experiment, testing, manufacturing advantages of high-grade machine tool research and development, new material development, advanced technology testing and reliability improvement. Through continuous innovation and breakthrough, it has undertaken 25 key government science and technology projects, obtained more than 200 intellectual property rights of various types, 15 scientific and technological achievement awards, and is in a leading position of the overall development and innovation ability in the industry. With strong technology and innovation advantages, the company has passed the ISO9001 quality management system certification, ISO14001 environmental management system certification and ISO45001 occupational health and safety management system certification. It has won more than 80 key awards such as the “National High-Tech Enterprise”, “National Specialized New Little Giant Enterprise”, the highest award of China’s machine tool industry the “ Spring Swallow Award”, “ Top 10 Product Quality of China’s Machine Tool Industry”, and “Chinese Machinery Industry Science & Technology Progress 2nd Award “ etc.

CATALOG

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8 HBC Series: technical parameters

9 HBC Series: configurations

10 HBP Series planer type milling & boring center

12 HBP Series: technical parameters

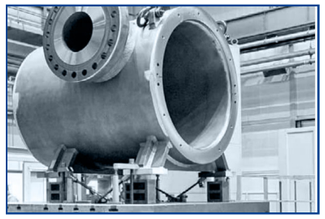
13 HBP Series: configurations

14 HBF Series floor type milling & boring center

16 HBF Series: technical parameters

17 HBF Series: applications







Typical workpieces: turbine rotors, valve and pump housings, large box-type parts.

DEED BENELUX



HBC SERIES

HORIZONTAL MILLING & BORING MACHINING CENTER

Fixed column, cross slide table

Key equipment for box-type, housing and frame parts

PRODUCT OVERVIEW

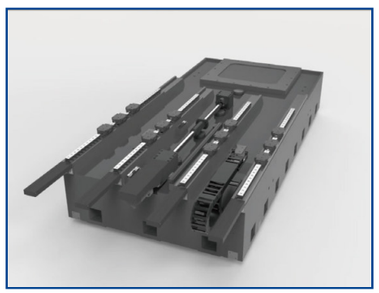
The HBC series is a horizontal milling and boring center with fixed column and bed and a cross slide table structure: the table moves left and right (X), the spindle box moves up and down on the column (Y), the table moves back and forth (Z), the boring spindle moves axially (W) and the table rotates (B). The bed is made of a new mineral casting material for more stable accuracy. Widely used in shipbuilding, transportation, railway, energy, wind power, heavy industry, metallurgy, mining, construction and petrochemical machinery, engines, pumps, high-voltage switchgear and mold making.

PRODUCT ADVANTAGES

Basic large parts

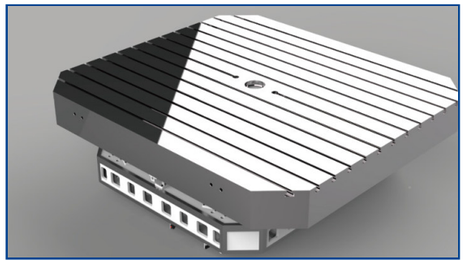
- The bed is made of new mineral casting material, designed with 3D synchronous design and FEM analysis for high resistance against torsion and bending, with excellent precision stability.
- All other large parts are also optimized with 3D design and FEM analysis, and receive a secondary tempering treatment to eliminate stress and keep precision stable after machining.

Machine bed



- X and Z axes run on high-rigidity linear roller guideways: low static and dynamic friction, fast response, high-speed positioning and no stick-slip at low speed.
- X and Z are driven by AC servo motors and precision servo planetary reducers, connected to the ball screws through precision elastic couplings.

Rotary table



The table runs on an imported crossed roller bearing (outer ring with gear teeth), driven by two motors and double gears with full closed-loop control for precise indexing at any angle. Disc-spring clamping, hydraulic release, pressure detection and release-position detection ensure smooth, trouble-free operation.

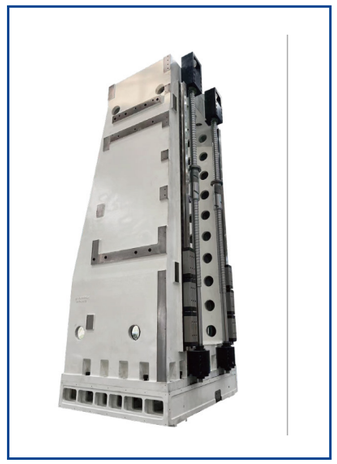


Dual-motor electrical anti-backlash

Two motors drive the main gear through two pinions, following a dedicated anti-backlash control curve. The torques of both motors are never zero at the same time, so at least one motor always applies torque to the main gear and backlash is eliminated.

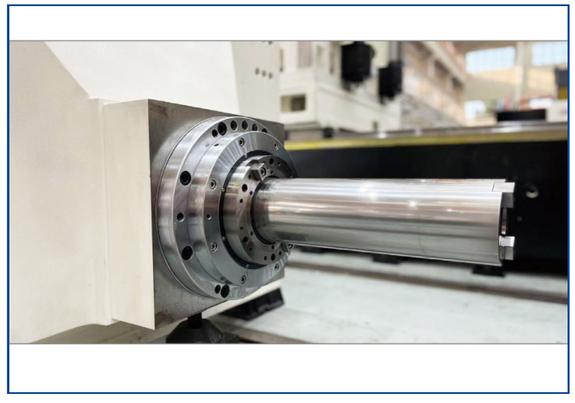
PRODUCT ADVANTAGES

Column



The Y axis uses four high-rigidity linear guideways (front and back), driven by an AC servo motor with brake via a precision planetary reducer, coupling and ball screws. A symmetric double ball screw structure in an upright box gives maximum thermal stability. With master-slave servo control by the CNC, this replaces the traditional counterweight, reduces failures and improves dynamic response and positioning accuracy.

Spindle box



A two-stage gearbox (with constant-temperature oil cooling) between spindle motor and spindle delivers high torque at low speed, ideal for heavy cutting. Imported spindle bearings and oil cooling give long-term accuracy and service life.

The boring spindle moves axially along the guide key in the hollow spindle and rotates with it. Tools are clamped by disc springs via a pull rod; for unclamping, oil pressure pushes the piston in the tail cylinder forward, which pushes the pull rod and opens the collet.

TECHNICAL PARAMETERS

HBC Series horizontal milling & boring center | standard configuration

Configuration / Model		Unit	HBC110	HBC130
Spindle	Spindle diameter	mm	Ø110	Ø130
	Spindle speed	rpm	3000	2500
	Spindle taper	/	BT50 (7:24)	
	Power FANUC (S1/S6)	kW	22/26	
	Power SIEMENS (S1/max.)	kW	22/59.7	
	Torque FANUC (S1/S6)	Nm	1155/1839	
	Torque SIEMENS (S1/max.)	Nm	1155/3135	
Rotary table	Table size (W × L)	mm	1250×1250	1250×1400
	Table size, optional	mm	1250×1400	1400×1600
	Table load (standard / optional)	kg	5000 / 6000	
	Table rotation	°	Automatic, continuous 360°	
Travel	X axis	mm	1600	2000
	Y axis	mm	1200	1500
	Z axis	mm	1200	
	W axis	mm	550	700
Speeds	Rapid traverse X/Y/Z/W	m/min	12/12/12/6	
	Rapid traverse B	rpm	5	
	Feed rate X/Y/Z	m/min	8	
	Feed rate B	rpm	2	
Accuracy	Positioning X/Y/Z/W	mm	0.02	
	Positioning B (full-closed)	″	6	
	Repeatability X/Y/Z/W	mm	0.015	
	Repeatability B (full-closed)	″	4	
Weight	Machine weight	t	33	35

* Values shown apply to the standard configuration. Options are available on request. Travel of each axis and rotary table parameters can be customized. The parameters are subject to the technical agreement.

Thanks to our direct contact with the factory, additional options and custom-made solutions are possible.
Please ask about the possibilities.

CONFIGURATIONS | HBC

Standard configuration

No.	Standard Configuration	No.	Standard Configuration
1	CNC control system	11	Front lighting
2	Roller linear guideways	12	Simple splash guard
3	Ball screws	13	Workpiece water cooling
4	Spindle taper air blow	14	Workpiece air cooling
5	Spindle circulating cooling	15	Full-closed loop rotary table
6	Spindle encoder	16	Electric cabinet air conditioner
7	Guideway protective covers	17	Ball screw pre-stretching
8	Tri-color signal light	18	Leveling pads and adjusting bolts
9	Automatic lubrication system	19	Handheld pulse generator
10	Electric cabinet lighting	20	Operation and maintenance manual

Options

No.	Options	No.	Options
1	Spindle support sleeve	10	Spindle CTS (coolant through spindle)
2	CE conformity	11	Water gun
3	Tool setter	12	Tool magazine
4	Tool break detection	13	Manual right-angle milling head
5	Workpiece measurement	14	Manual extended right-angle milling head
6	X/Y/Z axis linear scales	15	Manual universal milling head
7	B axis circular encoder	16	Manual extended universal milling head
8	Table protective sheet metal	17	CNC facing head
9	Fully enclosed sheet metal guarding	18	Foundation subsidence

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DEED BENELUX



HBP SERIES

PLANER TYPE MILLING & BORING MACHINING CENTER

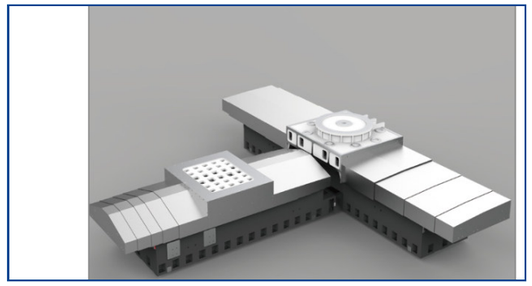
Separate table bed and column bed

For heavy box-type, housing and base parts

PRODUCT OVERVIEW

The HBP series is a planer type milling and boring center: the table moves left and right on the front bed (X), the spindle box moves up and down on the column (Y), the column moves back and forth on the rear bed (Z), the boring spindle moves axially (W) and the table rotates (B). Front and rear beds are made of new mineral casting material for higher precision stability. Widely used in shipbuilding, transportation, railway, energy, wind power, heavy industry, metallurgy, mining, construction and petrochemical machinery, engines, pumps and mold making.

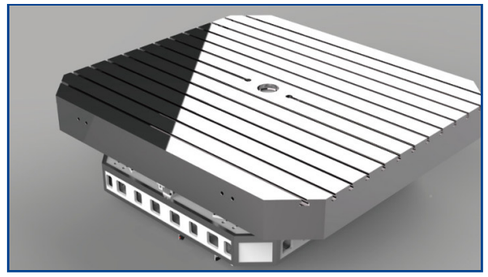
PRODUCT ADVANTAGES



Separate beds

Table bed (X) and column bed (Z) in a T layout. X and Z run on high-rigidity linear roller guideways driven by AC servo motors, precision planetary reducers and ball screws.

- Mineral casting beds
  3D synchronous design and FEM analysis for high resistance against torsion and bending; all large parts receive secondary tempering for lasting precision.
- Rotary table with dual-motor anti-backlash
  Imported crossed roller bearing, two motors and double gears with full closed-loop control for precise indexing at any angle; disc-spring clamping with hydraulic release.
- Column with double ball screws
  Four linear guideways and a symmetric double ball screw drive with master-slave servo control instead of a counterweight.
- Two-stage gearbox spindle
  High torque at low speed for heavy cutting, constant-temperature oil cooling and imported spindle bearings. Optional V axis (ram) on the HB(S)P130-II and HB(S)P160-II.





TECHNICAL PARAMETERS

HBP Series planer type milling & boring center | standard configuration

Configuration / Model		Unit	HBP110-I	HBP110-II	HBP130-I	HB(S)P130-II	HBP160-I	HB(S)P160-II
Spindle	Spindle diameter	mm	Ø110	Ø110	Ø130	Ø130	Ø160	Ø160
	Spindle speed	rpm	3000	3000	2500	2500	2000	2000
	Spindle taper	/	BT50 (7:24)					
	Power FANUC (S1/S6)	kW	22/26	30/37	30/37	37/45	37/45	60/75
	Power SIEMENS (S1/max.)	kW	22/59.7	31/89.1	31/89.1	31/89.1	37.7/116.2	58/148
	Torque FANUC (S1/S6)	Nm	1155/1839	2054/3085	2054/3085	2532/4793	2532/4793	3112/4672
	Torque SIEMENS (S1/max.)	Nm	1155/3135	2491/6105	2491/6105	2491/6105	2491/6105	3615/9225
Rotary table	Table size (W × L)	mm	1250×1400	1250×1400	1600×1800	1800×2200	1800×2200	2000×2500
	Table size, optional	mm	1400×1600	1400×1600	1800×2000	2000×2500	2000×2500	2500×3000
	Table load	kg	6000	8000	12000	20000	20000	30000
	Table load, optional	kg	10000	10000	15000	30000	30000	40000
	Table rotation	°	Automatic, continuous 360°					
Travel	X axis	mm	2000	2000	3000	3000	3000	4500
	Y axis	mm	1500	1500	2000	2000	2000	2500
	Z axis	mm	1200	1200	1600	1600	1600	2000
	W axis	mm	550	550	700	700	1000	1000
	V axis (ram)	mm	–	–	–	800	–	1000
Speeds	Rapid traverse X/Y/Z/W	m/min	12/12/12/6					
	Rapid traverse V	m/min	–	–	–	6	–	6
	Rapid traverse B	rpm	5	5	2	2	2	2
	Feed rate X/Y/Z	m/min	8					
	Feed rate B	rpm	2	2	1	1	1	1
Accuracy	Positioning X/Y/Z/W	mm	0.02	0.015	0.02	0.015	0.02	0.02
	Positioning V	mm	–	–	–	0.015	–	0.02
	Positioning B (full-closed)	″	6					
	Repeatability X/Y/Z/W	mm	0.015	0.012	0.015	0.012	0.015	0.015
	Repeatability V	mm	–	–	–	0.012	–	0.015
	Repeatability B (full-closed)	″	4					
Weight	Machine weight	t	35	38	45	60 (75)	62	90 (110)

* Values shown apply to the standard configuration. Options are available on request. Travel of each axis and rotary table parameters can be customized. The parameters are subject to the technical agreement.

Thanks to our direct contact with the factory, additional options and custom-made solutions are possible.
Please ask about the possibilities.

CONFIGURATIONS | HBP

Standard configuration

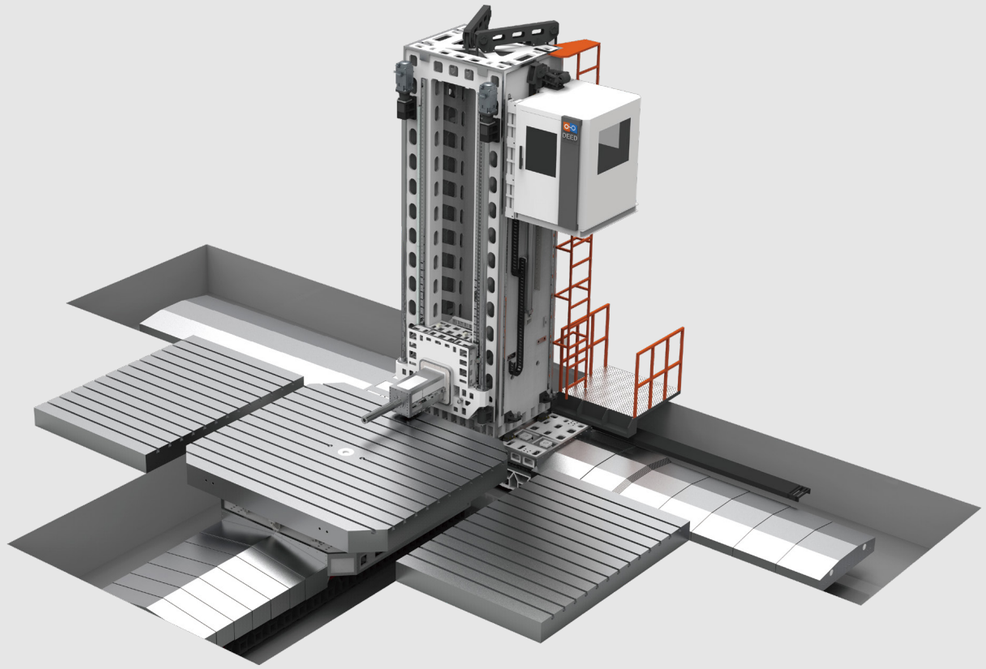
No.	Standard Configuration	No.	Standard Configuration
1	CNC control system	11	Front lighting
2	Roller linear guideways	12	Simple splash guard
3	Ball screws	13	Workpiece water cooling
4	Spindle taper air blow	14	Workpiece air cooling
5	Spindle circulating cooling	15	Full-closed loop rotary table
6	Spindle encoder	16	Electric cabinet air conditioner
7	Guideway protective covers	17	Ball screw pre-stretching
8	Tri-color signal light	18	Leveling pads and adjusting bolts
9	Automatic lubrication system	19	Handheld pulse generator
10	Electric cabinet lighting	20	Operation and maintenance manual

Options

No.	Options	No.	Options
1	Spindle support sleeve	10	Spindle CTS (coolant through spindle)
2	CE conformity	11	Water gun
3	Tool setter	12	Tool magazine
4	Tool break detection	13	Manual right-angle milling head
5	Workpiece measurement	14	Manual extended right-angle milling head
6	X/Y/Z axis linear scales	15	Manual universal milling head
7	B axis circular encoder	16	Manual extended universal milling head
8	Table protective sheet metal	17	CNC facing head
9	Fully enclosed sheet metal guarding	18	Foundation subsidence

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DEED BENELUX



HBF SERIES

FLOOR TYPE MILLING & BORING MACHINING CENTER

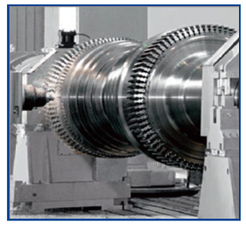
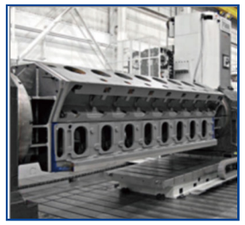
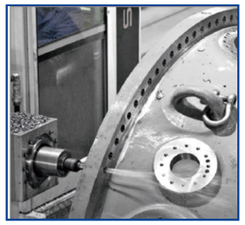
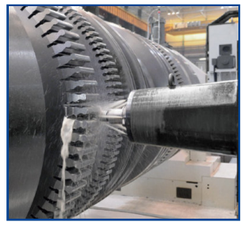
Moving column, sliding ram

For very large and heavy workpieces

PRODUCT OVERVIEW

The HBF series has a moving column with the spindle box mounted centrally (side-mounted from spindle diameter Ø200) and a sliding ram, and is equipped with a CNC rotary table or floor plates. The X axis is driven synchronously by two servo motors through precision reducers and high-precision gear and rack; all other axes are driven by servo motors, precision reducers and high-precision ball screws.

PRODUCT ADVANTAGES

- Two-stage gearbox
  High output torque at low speed for heavy cutting; high speed in the upper range for high-speed cutting.
- Ductile iron ram
  The square ram is precision cast in high-quality ductile iron. The Z axis uses the latest rolling-sliding composite guideway technology with automatic extension compensation, for Z axis rigidity and dynamic response.
- Closed-frame column
  Closed frame structure with a double screw, four-guideway symmetric Y axis: the highest rigidity and thermal stability in its class.
- Heavy-duty rotary table
  Servo-driven crossed roller bearing with dual-motor anti-backlash control and angle encoder, for high load capacity and 8″ indexing accuracy at any angle.
- Automatic lifting operator platform
  Convenient, flexible and safe operation.
- Mineral casting and grey cast iron
  The bed is cast in one piece from mineral casting material, other large parts from high-quality grey cast iron: excellent vibration absorption, thermal stability and cutting performance.

TECHNICAL PARAMETERS

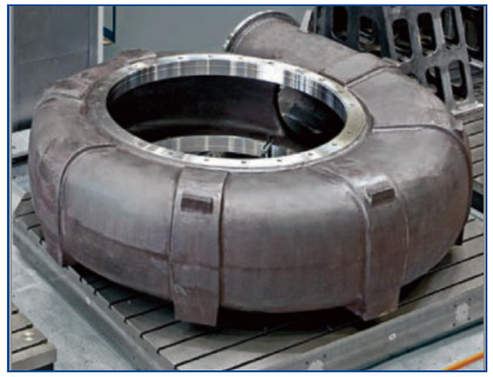
HBF Series floor type milling & boring center | standard configuration

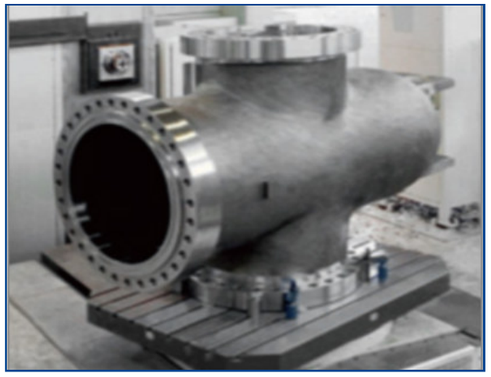
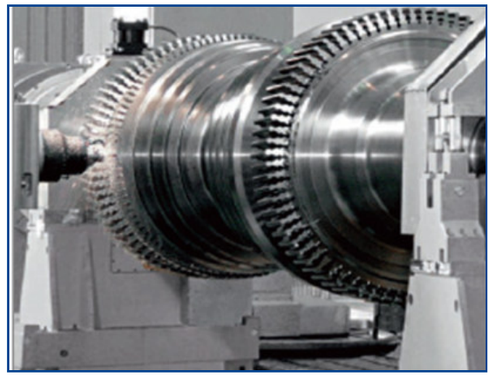
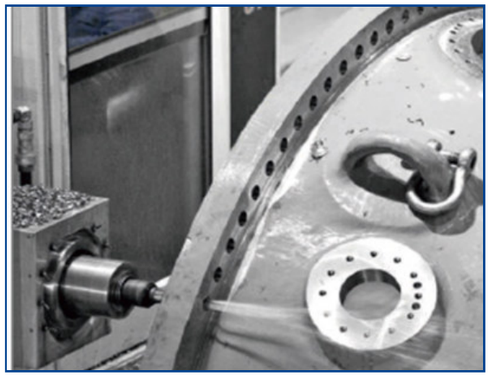
Configuration / Model		Unit	HBF130	HBF160	HBF200
Spindle	Spindle diameter	mm	Ø130	Ø160	Ø200
	Spindle speed	rpm	2500	2000	1800
	Spindle taper	/	BT50 (7:24)	BT50 (7:24)	BT60 (7:24)
	Power FANUC (S1/S6)	kW	37/45	60/75	75/90
	Power SIEMENS (S1/max.)	kW	37.7/116.2	58/148	81/212
	Torque FANUC (S1/S6)	Nm	2532/4793	3112/4672	5115/6142
	Torque SIEMENS (S1/max.)	Nm	2491/6105	3615/9225	5047/14520
Rotary table	Table size (W × L)	mm	2000×2500	2500×3000	3000×3500
	Table size, optional	mm	2500×3000 3000×3500	3000×3500 3000×4000	3500×4500 5000×5000
	Table load	kg	30000	40000	60000
	Table load, optional	kg	40000 / 60000	60000 / 80000	80000 / 100000
	Table rotation	°	Automatic, continuous 360°		
Travel	X axis	mm	6000 + n×1000	8000 + n×1000	10000 + n×1000
	Y axis	mm	3000 + n×1000	4000 + n×1000	5000 + n×1000
	Z axis	mm	800	1000	1200
	W axis	mm	700	1000	1200
	V axis (ram)	mm	2000	2500	3000
Speeds	Rapid traverse X/Y/Z/V/W	m/min	12/12/12/6/6		
	Rapid traverse B	rpm	2	1.5	1.5
	Feed rate X/Y/Z	m/min	8		
	Feed rate B	rpm	1.5	1	1
Accuracy	Positioning X/Y/Z/W	mm	0.01/1000		
	Positioning V	mm	0.01/1000		
	Positioning B (full-closed)	″	6		
	Repeatability X/Y/Z	mm	0.008/1000		
	Repeatability V (full-closed)	mm	0.008/1000		
	Repeatability B (full-closed)	″	4		
Weight	Machine weight	t	120	180	220

* Values shown apply to the standard configuration. Options are available on request. Travel of each axis and rotary table parameters can be customized. The parameters are subject to the technical agreement.

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APPLICATIONS



Turbine rotors, pump and valve housings, large frames and heavy structural parts.

NOTES

CNC-SUPPLY
The World of Manufacturing

