

MICROCUT
THE CHALLENGER

CNC HORIZONTAL BORING & MILLING CENTER



National Award
of Outstanding



ISO 14001:2004
EMS 546518



ISO 9001:2008
FM 538421

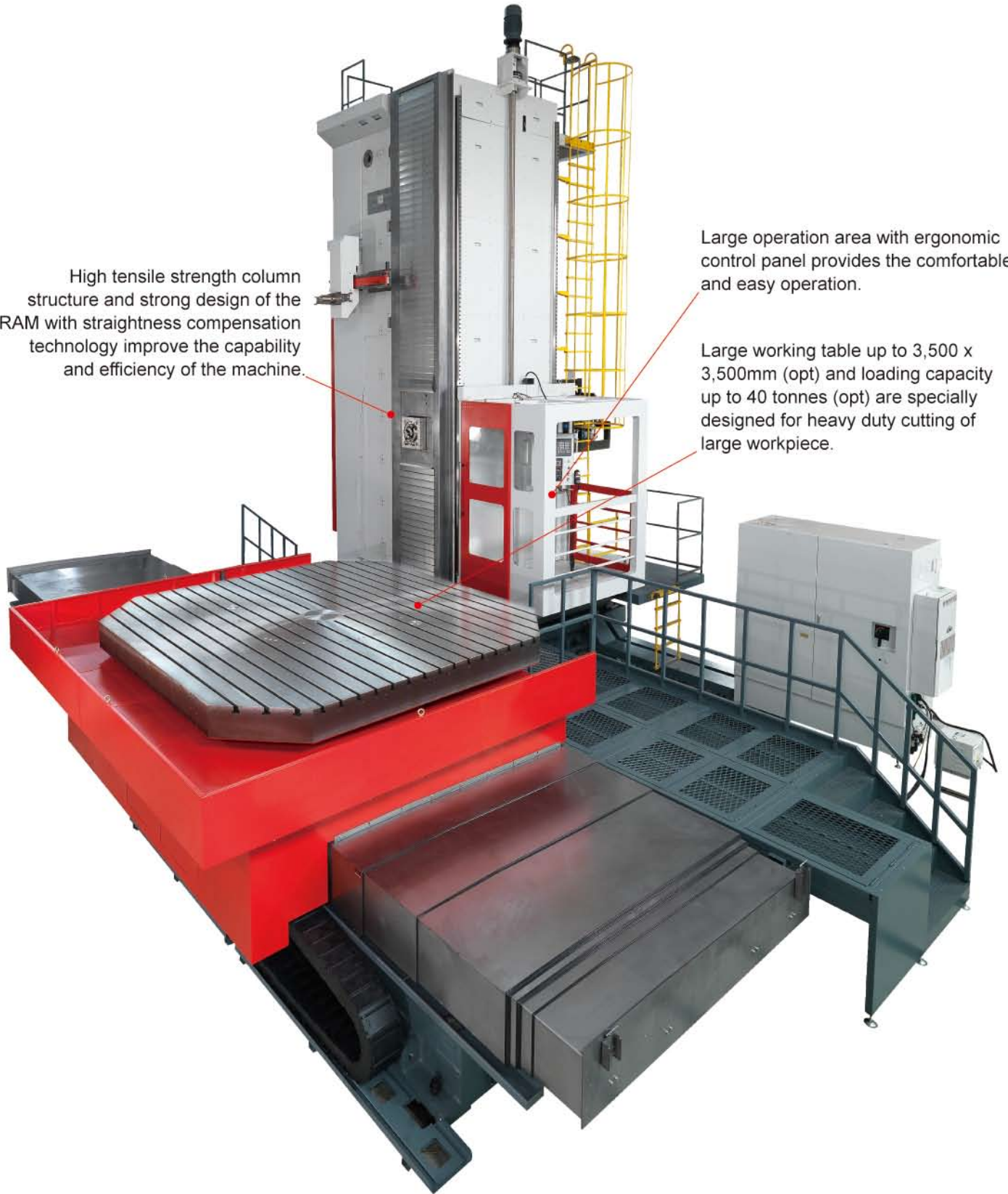
RAM-Type Horizontal Boring & Milling Center HBM-140RT

High tensile strength column structure and strong design of the RAM with straightness compensation technology improve the capability and efficiency of the machine.

Large operation area with ergonomic control panel provides the comfortable and easy operation.

Large working table up to 3,500 x 3,500mm (opt) and loading capacity up to 40 tonnes (opt) are specially designed for heavy duty cutting of large workpiece.

HBM-140RT



Rotary Table

- Table size and loading capacity:
Table size: 3200 x 3200mm (std); 3500 x 3500mm (opt)
Table loading capacity: 20 tonnes (std); 30 / 40 tonnes (opt)
- Dual planetary gear reducer ensures backlash free.
- 0.001 degree variable positioning in any angular position and available for rotary milling.
- Three rings of bearing surface coated and hand-scraping treatment for stability and longevity.
- The rotary table reinforced with integrated hydraulic clamping force and four points lock pins provides heavy loading capacity and large clamping force.
- Both table slide and clamping plates are made of a robust cross-ribbed casting which is treated by thermal stabilization.
- Centrally integrated rotary encoder guarantees precision positioning and easy maintenance.



Spur Gear & Planetary Gear Reducer

Specification

Item	Model	HBM-140RT
Table		
Table size		3200mmx3200mm (std); 3500mmx3500mm (opt)
Table height		1985mm
T-slot (Dim/pitch/No.)		28mmH8x160mmx19 (std); 28mmH8x160mmx21 (opt)
Max. table load		20 (std); 30/40 tonnes (opt)
Table index		0.001 °
Rotary table positioning accuracy		15 seconds
Rotary table repeatability accuracy		4 seconds
Rotary table encoder accuracy		±5 seconds
Travel		
X axis (std)		4500mm
X axis (opt)		5500/6500mm
Y axis (std)		3200/4500mm
Z axis (std)		2000mm
W1 axis (Quill)		700mm
W2 axis (RAM)		800mm
Spindle nose to table center (standard Z travel & table size)		150mm~3500mm (incl. W2 axis)
Spindle		
Spindle taper		ISO 50
Transmission		Gear
Spindle speed		35~3000rpm
Spindle output		37kW/45kW (std)
Spindle torque		1942Nm/2362Nm (std)
Spindle step		2 step
Quill diameter (W axis)		140mm
Spindle bearing I/D		180mm
Axes Transmission		
X axis ballscrew		Ø80mmxP20xC3 for 4500; Ø80mmxP20xC3 for 5500; Ø100mmxP20xC3 for 6500
Y axis ballscrew		Ø100mmxP20xC3
Z axis ballscrew		Ø80mmxP20xC3
W axis ballscrew		W1_Ø 50mmxP20xC3 W2_Ø63mmxP25xC3

Item	Model	HBM-140RT
Motor Output		
Axes motor (X/Y/Z/B/W)		60/60/60/22*2/30/40 Nm
Hydraulic motor		7.5 kW
Coolant motor		1.5 kW(50/60Hz)
Lubrication pump motor		25W
Guide Way		
X axis guide way type		4 Linear way
X axis guide distance		2150mm
Y axis guide way type		Box way
Y axis guide distance		1050mm
Z axis guide way type		4 Linear way
Z axis guide distance		2600mm
Axes Feed Rate		
X/Y/Z/W rapid feed		10/10/10/15 m/min for linear head; 10/10/10/20 m/min for hydrostatic head
X/Y/Z/W cutting feed		10/10/10/5 m/min
B axis cutting feed		1.5 rpm
ATC System (Opt)		
ATC type		Arm
No. of tool		60
Tool shank type		BT/CAT/DIN #50
Tool changing time (T-T)		16 seconds
Max. tool diameter		125mm
Max. tool dia. w/ next tool empty		245/450mm
Max. tool length		300mm/500mm
Max. tool weight		25kg
Max. loading weight		900kg
Dimension		
Length		10200mm
Width		8520/10520/12520mm
Height		9000mm
Weight		111500/116000/124500kg

*Specifications are subject to change without notice.

HBM-140RT

Spindle

- Extremely large working capacity with RAM head is provided; linear guideway and hydrostatic systems are available for selection.
- Equipped with RAM movement on the spindle, with RAM travel 800mm and quill travel 700mm, quill diameter 140 mm are available for selection.
- Two roller bearings fit in front of the spindle and ball/angular contact bearings at rear, providing oil mist and oil spray device, with suction system in returning oil.
- Head clamping while machining is applied.
- Spindle is supported by cylindrical roller bearings for heavy duty machining.
- ISO50 spindle taper with 3000rpm spindle speed.
- Two-step speed changer for high torque throughout speed range by automatic control.
- Spindle surface is hardness of HRC52-55.
- Grade GGG iron casting.

Linear Guideway RAM



RAM Structure

- Hydrostatic structure
- Four linear guideway structure
- High rigidity housing structure
- Spindle driven mechanism
- New motor rear shift design
- Slide way gluing and guidway brake design
- Equipped with H.H. ERM280 rotation encoder



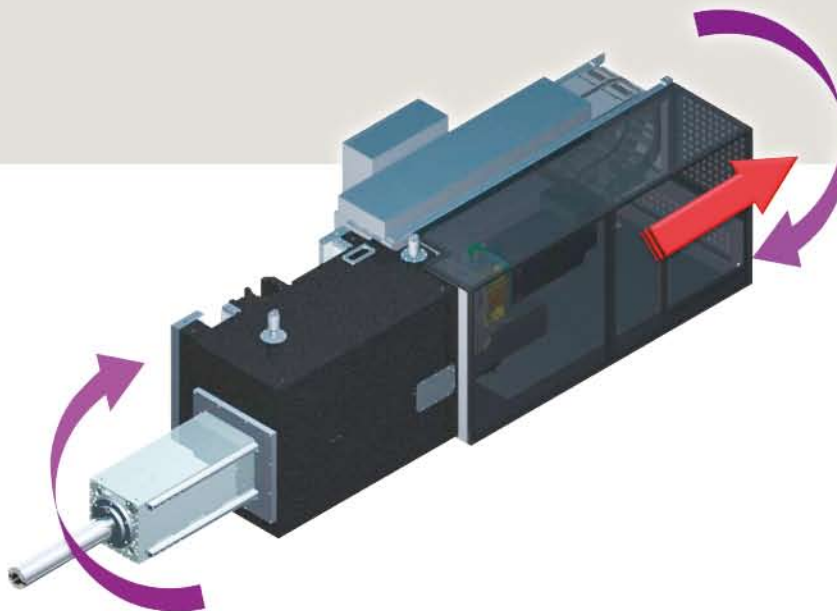
Hydrostatic RAM



Straightness Compensation Technology

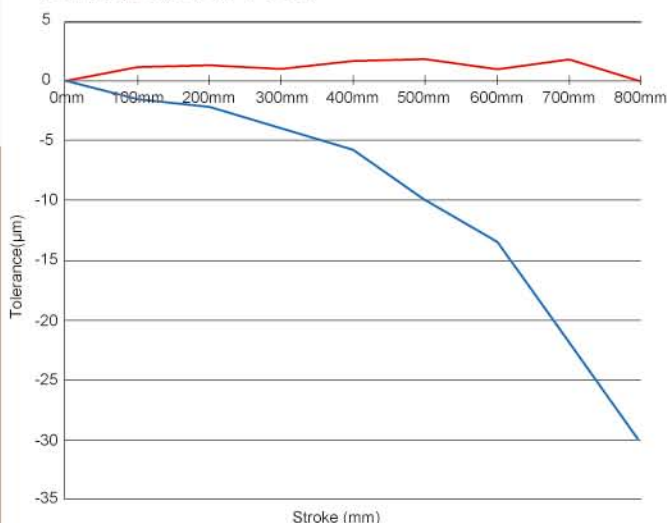
A hydraulic compensation mechanism is provided to ensure the linearity of the RAM's spindle and the accuracy of the machine.

RAM compensation uses the hydraulic sector to pull the RAM in time. When the RAM extends, the effect of gravity will cause the RAM drooping and deformation which will affect the tolerance and machining precision. The HBM series uses the hydraulic sector to compensate the tolerance of the RAM, and the hydraulic cylinder will exert and create an opposing pulling force to pull back the RAM by using a lever. When hydraulic pressure is being transferred to the hydraulic cylinder to resist the effect of gravity, the installed pressure feedback device can conserve the transferred pressure. The hydraulic pressure value is used by the pressure feedback device to reach the value of compensation required.



HBM-140RT

Test Report, HBM-140RT



— With Compensation
— Without Compensation

The blue curve is RAM deviation without the RAM straightness compensation technology; the max. deformation of RAM is 31µm. The red curve shows RAM deviation with the RAM straightness compensation technology, where the tolerance is within +/- 3µm. The tolerance is improved by 80%.

HBM-140RT

- The main frames are made of high grade Meehanite licenced steel to ensure the rigidity of the structure.
- For absolute positioning accuracy, linear scales are the only way to ensure exact axis positioning under fluctuating temperatures. For X-, Y-, and Z-axis, linear scales are fitted (resolution accuracy: 0.001mm). For B axis, the rotary table is fitted with angle encoder which can significantly increase the accuracy of feed axes.

X Axis & Rotary Table

X & Z axes provide four-roller type linear guideways with 12 pieces blocks for X axis and 16 pieces blocks for Z axis for heavy duty loading requirement and fast movement.

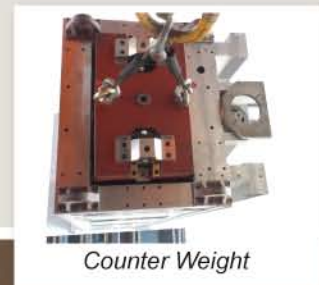


Four-roller type linear guideways for X & Z Axes

Y Axis Column Structure



- The Y axis column guide utilizes box way design.
- The guide surface has been processed with induction hardened and ground procedure.
- The box ways are convenient for manufacturing tall work pieces.
- The high tensile strength design can prevent any vibration at the end of column during the manufacturing process.
- The precise C3 class ballscrews can guarantee the axial and radial cutting strength.
- Mechanical counter weight with holding device ensures a smooth Y-movement and multi axes simultaneous movement.



Counter Weight

T-Type Horizontal Boring & Milling Center

HBM-4T/5T/5TL

The model HBM-4T/5T/5TL Moving Column Horizontal Boring & Milling Center provides 130mm quill dia., ISO50 spindle taper with 3000rpm spindle speed, and auto two-step speed changer for high torque throughout speed range by automatic control. An extendable X axis by every meter and multiple table applications offer high productivity and efficiency. The high rigidity and stability of its construction offers customers maximum productivity and best profit.

HBM-5T



HBM-4T



Rotary Table

- Both table slide and clamping plates are made of robust cross-ribbed casting treated by thermal stabilization.
- Centrally integrated rotary encoder guarantees precision positioning and easy maintenance.
- 0.001 degree variable positioning in any angular position is available for rotary milling.
- Dual planetary gear reducer ensures backlash free.
- Three-ring bearing surface coated and hand-scraping treatment for stability and longevity.
- With integrated hydraulic clamping force and four points lock pins, the rotary table provides heavy loading capacity and large clamping force.

Specification

Item	Model	Unit	HBM-4T	HBM-5T	HBM-5TL
Table					
Table size	mm		1400x1600 (std); 1600x1800 (opt)	1800x2200 (std)	2500x2500 (std)
Table height	mm		1280	1365	1415
T-slot (Dim/pitch/No.)	mm		24H8x160x9	24H8x160x11	28H8x160x15
Max. table load	tonne		8 (std); 10 (opt)	15 (std); 20 (opt)	20 (std)
Table index	degree		0.001°	0.001°	0.001°
Rotary table positioning accuracy	sec		15	15	15
Rotary table repeatability accuracy	sec		4	4	4
Rotary table encoder accuracy	sec		±5	±5	±5
Travel					
X axis (std)	mm		2000	3500	4500
X axis (opt)	mm		3000	4500/5500	5500
Y axis (std)	mm		2000	2600	3200
Z axis (std)	mm		1400	1400	2000
Z axis (opt)	mm		2000	2000	-
W1 axis (Quill)	mm		700	700	700
Spindle nose to table center (standard Z travel & table size)	mm		70~2170	-100~2000	250~2950
Spindle					
Spindle taper			ISO 50	ISO 50	ISO 50
Transmission			Belt	Belt	Belt
Spindle speed	rpm		35~3000	35~3000	35~3000
Spindle output	kW		22/30 (std)	37/45 (std)	37/45 (std)
Spindle torque	Nm		3002/4093 (std)	1942/2362 (std)	1942/2362 (std)
Spindle step			2 step	2 step	2 step
Quill diameter (W axis)	mm		130	130	130
Spindle bearing I/D	mm		170	170	170
Axes Transmission					
X axis ballscrew	mm		Ø80xP10xC3	Ø80xP10xC3	Ø80xP10xC3
Y axis ballscrew	mm		Ø63xP10xC3	Ø63xP10xC3	Ø63xP10xC3
Z axis ballscrew	mm		Ø80xP10xC3	Ø80xP10xC3	Ø80xP10xC3
W axis ballscrew	mm		Ø40xP5xC3	Ø40xP5xC3	Ø40xP5xC3
Motor Output					
Axes motor (X/Y/Z/B/W)	Nm		75/38/38/38/22	75/38/38/38/22	75/38/38/38/22
Hydraulic motor	kW		7.5	7.5	7.5
Coolant motor	kW		0.85/1.29(50/60Hz)	0.85/1.29(50/60Hz)	0.85/1.29(50/60Hz)
Lubrication pump motor	W		25	25	25
Guide Way					
X axis guide way type			2 Linear way	3 Linear way	3 Linear way
X axis guide distance	mm		1010	1250	1250
Y axis guide way type			Box way	Box way	Box way
Y axis guide distance	mm		1120	1120	1120
Z axis guide way type			2 Linear way	3 Linear way	3 Linear way
Z axis guide distance	mm		954	1374	1374
Axes Feed Rate					
X/Y/Z/W rapid feed	m/min		10/10/10/8	10/10/10/8	10/10/10/8
X/Y/Z/W cutting feed	m/min		10/10/10/5	10/10/10/5	10/10/10/5
B axis cutting feed	rpm		1.5	1.5	1.5
ATC System (Opt)					
ATC type			Arm	Arm	Arm
No. of tool			60	60	60
Tool shank type			BT/CAT/DIN #50	BT/CAT/DIN #50	BT/CAT/DIN #50
Tool changing time (T-T)	sec		16	16	16
Max. tool diameter	mm		125	125	125
Max. tool dia. w/ next tool empty	mm		245/450	245/450	245/450
Max. tool length	mm		300/500	300/500	300/500
Max. tool weight	kg		25	25	25
Max. loading weight	kg		900	900	900

Item	Model	Unit	HBM-4T	HBM-5T	HBM-5TL
Dimension					
Length		mm	7800	8450(Z.1400)/ 9050(Z.2000)	9055(Z.2000)
Width		mm	7050/7800	6980 (X.3500)/ 8500(X.4500)/ 9720(X.5500)	8500(X.4500)/ 9720(X.5500)
Height		mm	4600	5400	6100
Weight		kg	40000	49000	55000
Automatic Pallet Change (Opt)					
Workpiece weight max.		kg	6000, 8000	6000, 8000	N/A
Pallet clamping surface		mm	1400x1800, 1600x1800	1400x1800, 1600x1800	N/A
No. of pallets in system		set	2	2	N/A

*Specifications are subject to change without notice.

Spindle

- 130mm quill diameter with travel 700mm is provided for deep hole machining. Head structure is prism shaped 400x400x2330mm.
- Spindle construction with 2pcs NN bearings at front and rear, and 3pcs angular contact bearings in the middle.

HBM-4T

- The interface for main headstock supporting part is made of grade GGG iron casting. The slide coating on the bearing surface is hand scrapped finish to ensure high precision assembly.
- The spindle and quill are driven by the servo unit. Sintered bronze made front ring ensures easy maintenance, and provides reliability and longevity.
- A two-speed planet gear box, featuring two large ratios (1:5.5 for rough operation; 1:1 for normal work). Speed step shifts automatically according to the spindle speed setting.

HBM-5T/5TL

- Spindle and sleeve provide high precision accuracy. The spindle surface hardness is around HRC52-55.
- The spindle is equipped with automatic OTT Jakob tool chuck of which collecting is by using disc springs with chucking power booster; the hydraulic cylinder is provided for releasing.



Hand-Scraping Treatment



Spindle & Gear Box

HBM-5T/5TL



Heavy Duty Cutting

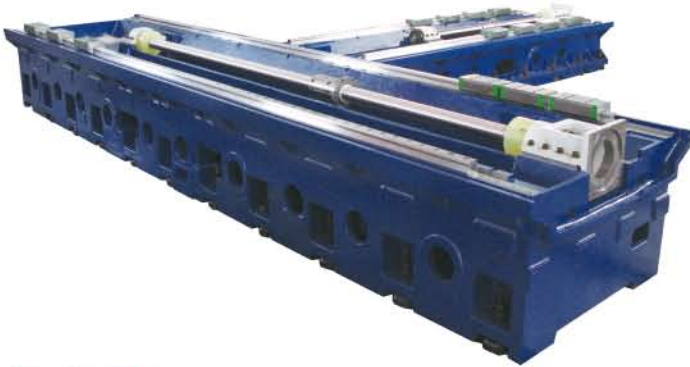
HBM-4T/5T/5TL

X & Z Axes

- All major structural components are made of Meehanite licensed casting iron with stress released, ensuring maximum stability and rigidity.
- Linear scales ensure precise positioning for three axes.

X & Z Axes for HBM-4T

Two-roller type linear guideways with six pieces blocks for X axis and eight pieces blocks for Z axis offer both X & Z axes with heavy loading capacity and high accuracy.



X & Z Axes for HBM-5T/5TL

Three-roller type linear guideways with nine pieces blocks for X axis and 12 pieces blocks for Z axis offer both X & Z axes with heavy loading capacity and high accuracy.



Y Axis

- Fabricated from robust cast, the machine column and slide are jointed in one unit which provides maximum rigidity and strength of the slide/column structure.
- Y axis is driven by a braking motor and a N.C electromagnetic braking system is adopted at the end of ballscrew as security mechanism.



Advantages of Roller-Type Linear Guideway

- Load capacity and rigidity are defined and known.
- Linear roller guidance takes loads and movements in all directions.
- High performance in small design space (high load capacities and high rigidity)--only a few bearings are required.
- Systems ready to fit, preload already being adjusted, and easy alignment with the help of locating faces, which are great advantages of repairing, replacement and rebuilding.
- Lubricant is supplied by cost-effective central lubrication system.
- Roller guided guidance doesn't show a stick slip effect; roller guided guidance achieves a max. velocity of 4m/s (sufficient for machining centers); and variation resp. pulsation of the friction is reduced to a minimum by optimized raceway geometry.
- Due to the rolling contact (steel-steel), vibrations are transferred without damping.
- Friction of the preloaded rolling contact leads to heat development of the guidance. Heat development depends on load and duration of the movement. In applications, the heat development of a linear roller guideway can be disregarded.

T-Type Horizontal Boring & Milling Center with APC (Opt.)

Automatic Pallet Change System Increases the Manufacturing Productivity

The optional automatic pallet change system is designed to increase the productivity of T-Type HBM series. Automatic pallet change allows operator to setup a part while another part is being machined which significantly reduces downtime for both the machine and operator. By saving set-up time, the spindle idle time is greatly reduced and productivity is remarkably increased.



Automatic Pallet Changer

T-Type HBM series equipped with APC enables the operator to keep uploading the part and setting up new jobs while the machine is running. Reliable pallet changing units ensure a high productivity performance.

Table-Type Horizontal Boring & Milling Center

HBM-4

HBM-4 Table-Type Horizontal Boring & Milling Center

is equipped with rotary table with large bearing surface for heavy loading capacity and hydraulic clamping system enables heavy duty cutting.



The table guard has been updated to folding-door type guard for easy access and space saving.

Specification

Item	Model	HBM-4
Table		
Table size		1250mmx1500mm (std)
Table height		1120mm
T-slot (Dim/pitch/No.)		22mmH8x150mmx7
Max. table load		5 tonnes
Table index		1°(std)/0.001°(opt)
Rotary table positioning accuracy		15 seconds
Rotary table repeatability accuracy		4 seconds
Rotary table encoder accuracy		±5 seconds
Travel		
X axis (std)		2200mm
Y axis (std)		1600mm
Z axis (std)		1600mm
W1 axis (Quill)		550mm
Spindle nose to table center (standard Z travel & table size)		120mm~1720mm
Spindle		
Spindle taper		ISO 50
Transmission		Gear
Spindle speed		35~3000rpm
Spindle output		15kW/18.5kW (std)
Spindle torque		740Nm/863Nm (std)
Spindle step		2 step
Quill diameter (W axis)		110mm
Spindle bearing I/D		150mm
Axes Transmission		
X axis ballscrew		Ø55mmxP12xC3
Y axis ballscrew		Ø55mmxP12xC3
Z axis ballscrew		Ø55mmxP12xC3
W axis ballscrew		Ø40mmxP5xC3

Item	Model	HBM-4
Motor Output		
Axes motor (X/Y/Z/B/W)		22/38/22/22/12 Nm
Hydraulic motor		3.75 kW
Coolant motor		0.85kW/1.29kW(50/60Hz)
Lubrication pump motor		25W
Guide Way		
X axis guide way type		Box way
X axis guide distance		700mm
Y axis guide way type		Box way
Y axis guide distance		540mm
Z axis guide way type		Box way
Z axis guide distance		1000mm
Axes Feed Rate		
X/Y/Z/W rapid feed		12/12/12/6 m/min
X/Y/Z/W cutting feed		10/10/10/6 m/min
B axis cutting feed		5.5(1°)/2(0.001°)rpm
ATC System (Opt)		
ATC type		Arm
No. of tool		28/60
Tool shank type		BT/CAT/DIN #50
Tool changing time (T-T)		9 seconds
Max. tool diameter		125mm
Max. tool dia. w/ next tool empty		250mm
Max. tool length		300mm/500mm
Max. tool weight		25kg
Max. loading weight		420kg/900kg
Dimension		
Length		7750mm
Width		4715mm
Height		3700mm
Weight		22500kg

*Specifications are subject to change without notice.



Spindle & Gear Box

- 110mm quill diameter with travel 550mm for deep-hole boring and milling.
- Spindle construction with 2pcs NN bearings at front and rear, and 3pcs angular contact bearings in the middle.
- The main headstock supporting part is made of grade GGG iron casting. Spindle and sleeve are made of chrome alloyed steel which performs a great reliability.
- The spindle and quill are driven by the servo unit and lubricated by sintered bronze to ensure durability and longevity.
- A two-speed gear box, featuring two big ratios (1:6 for rough operation; 1:2 for normal work). Speed step shifts automatically according to the spindle speed setting.



Rotary Table

- Large diameter supporting bearing surface and high indexing accuracy rotary table are provided for heavy loading capacity.
- Three-piece Hirth couplings transmission and clamping for precise positioning every 1 degree standard table and multi-pitch worm gear for transmission system offers 0.001 degree variable positioning (option).
- Generous dimension of the hydraulic clamping system enables the capability for heavy cutting.
- Integrated chip auger located below the cutting areas for easy chip removal.



Bed & Axes

- All major structural components are made of Meehanite licensed casting iron with stress released to ensure maximum stability and rigidity.
- Two additional X support ways of the bed structure ensure accuracy and rigid support for the large longitudinal travel.
- All bearing surfaces with Turcite B.
- The box way design on X, Y, and Z axes--harden and ground box ways offer great heavy loading capacity and high reliability.
- For absolute positioning accuracy, the linear scale is provided for three axes (option).

Smart Machining Technology



Leading Innovation Technology

Buffalo Machinery has been dedicated to research and develop new technology for many years, because providing better function and quality of machines is always the main goal of the company. SVS and SCT are the breakthrough technologies which provide constant monitor of machining quality at HBM series.

Spindle Vibration Supervision

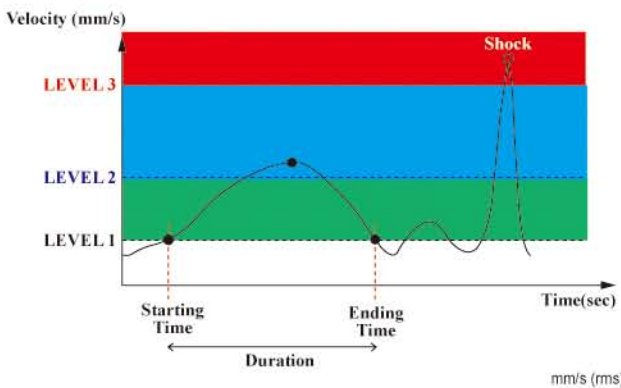
Providing spindle vibration suppression, wear reduction and abnormal vibration data record.



12,000 times vibration record!

Spindle vibration implies lots of important information such as unusual spindle conditions (e.g. lubrication shortage, worn bearings, out-of-balance or crash). Also, the vibration information can be used as the index of chatter-free control to eliminate the undesired chattering during machining. A motion sensor is integrated into the spindle to gather the vibration data. According to the recorded vibration data, the status of the spindle and machine can be identified.

If the vibration exceeds setting level, data of three levels will be recorded.

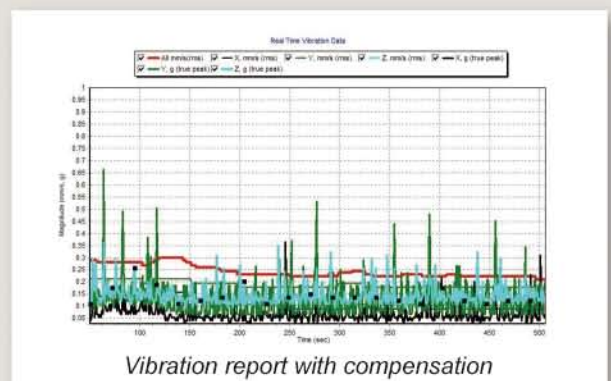
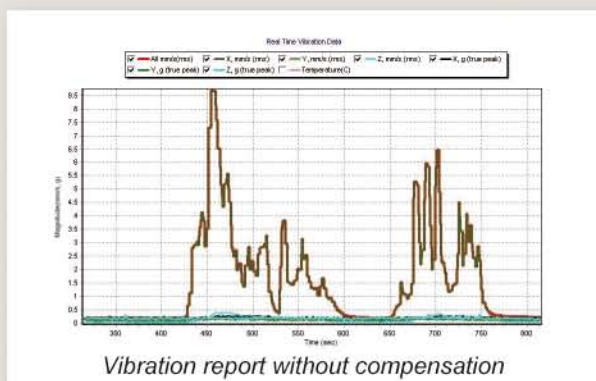


Three levels for spindle vibration monitoring:

- First level: shows the warning message when the vibration occurs and notifies the operator.
- Second level: shows the error message and reduces spindle speed and feed rate.
- Third level: when vibration reaches level 3 the machine will be shut down immediately to prevent crash.

34	Over V Begin	2008/01/05 14:10:32	V=6.221 mm/s (rms)
35	Over V End	2008/01/05 14:10:48	T=33.24° C
36	Over V Begin	2008/01/05 14:10:55	V=10.150 mm/s (rms)
37	Over V End	2008/01/05 14:11:02	T=33.64° C
38	Over V Begin	2008/01/05 14:11:22	V=35.409 mm/s (rms)
39	Over V End	2008/01/05 14:11:24	T=34.05° C
40	Shock	2008/01/05 14:11:26	17.414g (true-peak)
41	Over V Begin	2008/01/05 14:11:36	V=49.327 mm/s (rms)
42	Over V End	2008/01/05 14:11:39	T=34.20° C
43	Over V Begin	2008/01/05 14:11:46	V=45.719 mm/s (rms)
44	Shock	2008/01/05 14:11:50	19.535g (true-peak)
45	Over V End	2008/01/05 14:11:55	T=34.31° C
46	Shock	2008/01/05 14:11:56	17.781g (true-peak)
47	Over V Begin	2008/01/05 14:12:01	V=27.463 mm/s (rms)
48	Over V End	2008/01/05 14:12:09	T=34.42° C
49	Shock	2008/01/05 14:12:10	15.130g (true-peak)
50	Over V Begin	2008/01/05 14:12:18	V=50.358 mm/s (rms)
51	Shock	2008/01/05 14:12:21	10.291g (true-peak)
52	Over V End	2008/01/05 14:13:12	T=35.45° C
53	Shock	2008/01/05 14:13:14	10.386g (true-peak)
54	Over V Begin	2008/01/05 14:13:43	V=46.625 mm/s (rms)
55	Over V End	2008/01/05 14:13:49	T=35.75° C
56	Shock	2008/01/05 14:13:49	18.148g (true-peak)
57	Over V Begin	2008/01/05 14:13:54	V=43.425 mm/s (rms)
58	Over V End	2008/01/05 14:14:05	T=35.86° C
59	Over V Begin	2008/01/05 14:14:09	V=39.942 mm/s (rms)
60	Shock	2008/01/05 14:14:20	20.609g (true-peak)
61	Over V End	2008/01/05 14:14:20	T=36.00° C
62	Over V Begin	2008/01/05 15:07:59	V=34.467 mm/s (rms)

Vibration Record (12,000 latest record)





High Precision Ballscrews

- C3 class ballscrews with double nuts are applied on X/Y/Z/W axes which offer high axis accuracy and less deforming under axial force.
- All the ballscrew nuts are preloaded to ensure less tension deforming. Ballscrews are patented for thermal compensation.
- The ballscrew supporter is offered as standard when the axis travel is up to three meters (or above) to prevent the ballscrew deformation and ensure smooth axis travel.



Chip Arrangement

- Machine is equipped with chip auger for easy chip collection.
- Floor chip conveyor is available if required.

Pressured Lubrication System



- Automatic lubrication system uses pressure-released type lubricator; oil volume is controlled by distribution metered values.
- Oil is supplied according to the lubrication oil demand of the sliding surface and the ballscrew.
- Oil level detector unit is provided.
- Alarm will be shown on the screen when the oil shortage. Sealed type spindle bearings are lubricated by grease.



Measuring System

- The X, Y, and Z axes are equipped with absolute linear scale.
- W axis is measured by the axis servo motor.
- The rotary table is integrated with rotary encoder, providing resolution 0.001mm.

Wide Selection of CNC



Heidenhain iTNC530 HSCI



Siemens 840D sl



Fanuc 31i/32i

Portable MPG



*Portable control panel
Heidenhain*



*Portable control panel
Fanuc/Siemens*

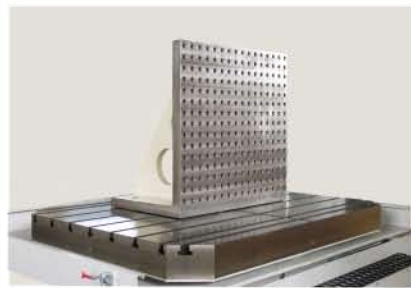
All systems provide full control of 5 axes, especially Heidenhain plus spindle rotation function. Control system in basic configuration consists of:

- Standard software functions
- 15" color display (Heidenhain) / 10.4" color display (Fanuc/Siemens)
- Operational panel with keyboard
- Auxiliary portable control with electronic hand wheel
- Tool management

In addition, control functions may equip with:

- Measuring touch probes
- Additional rotary table
- Automatic universal or angular head

Optional Accessories



Angular block



Table guard with folding door



Safety module



Air conditioner



Heat exchanger



CTS unit



Oil skimmer

Optional Head Available



Universal head



Facing head



Right angle milling head



Spindle extension sleeve



Facing head

Smart NC Facing Heads



Facing head



NC contour facing head



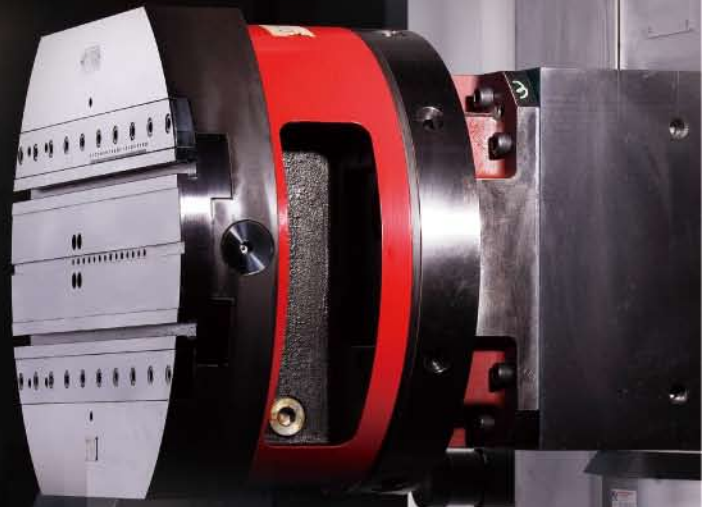
NC contour facing head
w/ W axis through



NC facing head

Camlock System

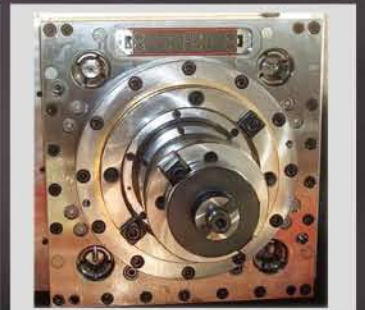
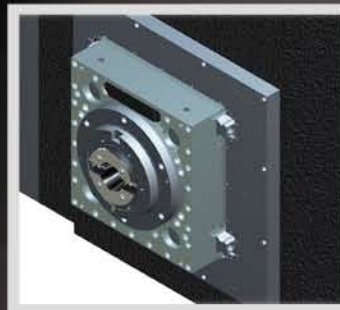
Camlock system for rapid head loading/unloading



Accessory Head Interface for RAM type HBM

Accessory pull force: 2,500 kg x 4 = 10,000 kg

- Adapting interface is prepared for accessory head as auto head change system.
- Four pull studs are designed for RAM type HBM, each with 2500 kg pull force, which make the total 10,000 kg force for the integrated head.
- Second counter-weight balance compensation is provided if equipped with integrated head, to guarantee great cutting performance.



Automatic Tool Changer (Option)

A fast and reliable automatic tool changing system provides smoothness of tool changing.



Side-mounted ATC

28 tools ATC for HBM-4

Floor-type ATC

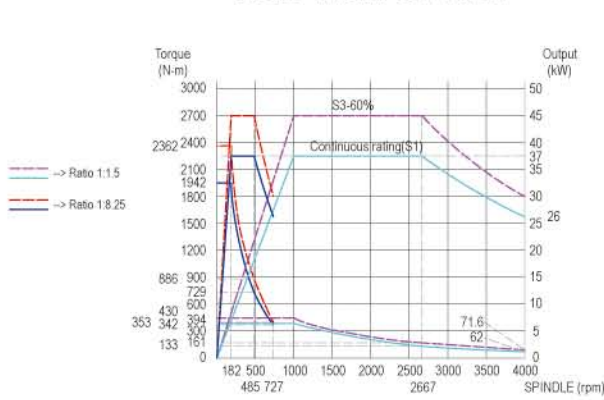


60 tools floor type ATC for HBM-4T/5T/5TL

Power & Torque Chart

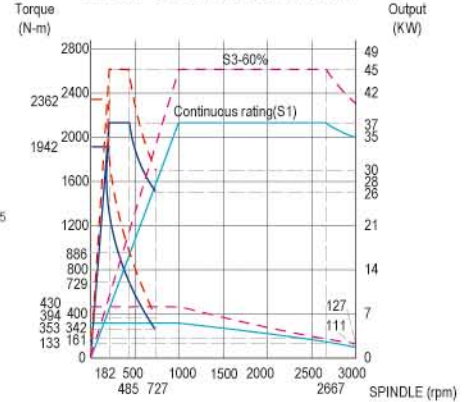
FANUC control

HBM-140RT 37/45Kw



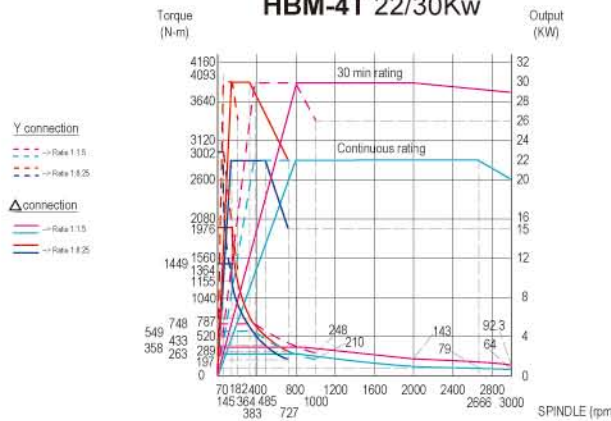
Torque / Horsepower Chart Data			
Spindle Taper	ISO BT50	Spindle Motor	FANUC a140/6000
	CAT50	Motor Output	37/45 kW
	DIN 69871	Gear Ratio	1:1 / 1:5.5
Spindle Speed	4000 RPM	Pulley Ratio	1:1.5

HBM-5T/5TL 37/45Kw



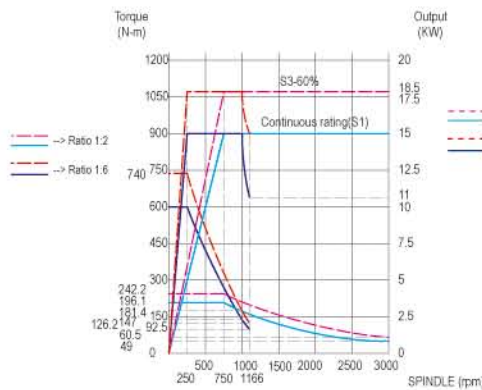
Torque / Horsepower Chart Data			
Spindle Taper	ISO BT50	Spindle Motor	FANUC a40/6000i
	CAT50	Motor Output	37/45 kW
	DIN 69871	Gear Ratio	1:1 / 1:5.5
Spindle Speed	3000 RPM	Pulley Ratio	1:1.5

HBM-4T 22/30Kw



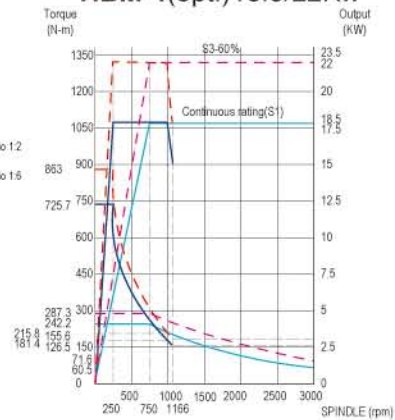
Torque / Horsepower Chart Data			
Spindle Taper	ISO BT50	Spindle Motor	FANUC aP50/6000i
	CAT50	Motor Output	22/30 kW
	DIN 69871	Gear Ratio	1:1 / 1:5.5
Spindle Speed	3000 RPM	Pulley Ratio	1:1.5

HBM-4(std.)15/18.5Kw



Torque / Horsepower Chart Data			
Spindle Taper	ISO BT50	Spindle Motor	FANUC a15/7000i
	CAT50	Motor Output	15 / 18.5 kW
	DIN 69871	Gear Ratio	1:2 / 1:6
Spindle Speed	3000 RPM	Pulley Ratio	-

HBM-4(opt.)18.5/22Kw

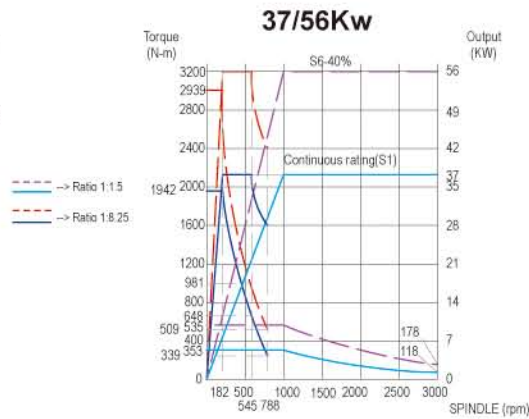


Torque / Horsepower Chart Data			
Spindle Taper	ISO BT50	Spindle Motor	FANUC E118/7000i
	CAT50	Motor Output	18.5 / 22 kW
	DIN 69871	Gear Ratio	1:2 / 1:6
Spindle Speed	3000 RPM	Pulley Ratio	-

Heidenhain & Siemens control

HBM-4T/5T

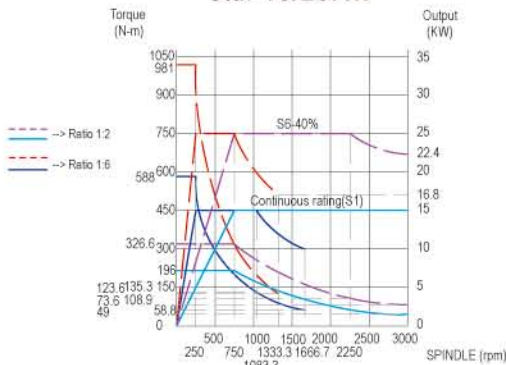
Siemens & Heidenhain
(Heidenhain CNC is
equipped with Siemens
motors)



Torque / Horsepower Chart Data				
Spindle Taper	ISO	BT50	Spindle Motor	SIEMENS 1PH7167-2NF
	CAT50		Motor Output	37 / 56 kw
	DIN	DIN 69871	Gear Ratio	1:1 / 1:5.5
Spindle Speed		3000 RPM	Pulley Ratio	1:1.5

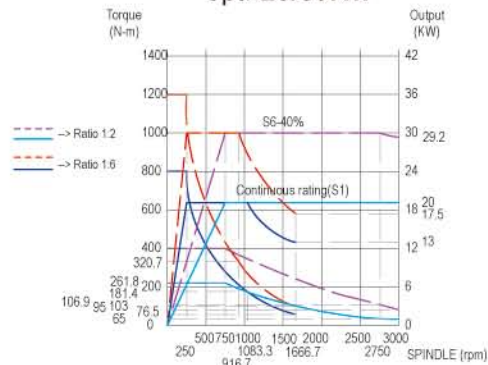
HBM-4 --Heidenhain

std.-15/25Kw



Torque / Horsepower Chart Data				
Spindle Taper	ISO	BT50	Spindle Motor	HEIDENHAIN QAN-260M
	CAT50		Motor Output	15/25 KW
	DIN	DIN 69871	Gear Ratio	1:2 / 1:6
Spindle Speed		3000 RPM	Pulley Ratio	-

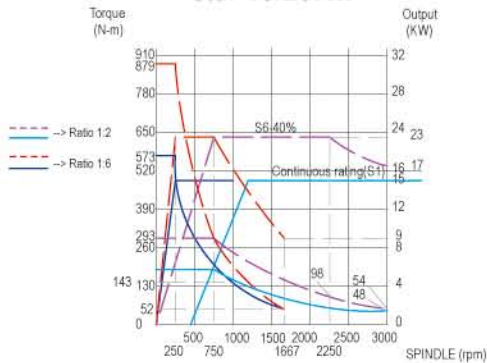
opt.-20/30Kw



Torque / Horsepower Chart Data				
Spindle Taper	ISO	BT50	Spindle Motor	HEIDENHAIN QAN-260L
	CAT50		Motor Output	20/30 KW
	DIN	DIN 69871	Gear Ratio	1:2 / 1:6
Spindle Speed		3000 RPM	Pulley Ratio	-

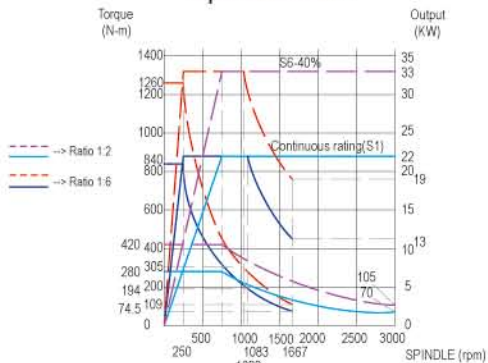
HBM-4 --Siemens

std.-15/23Kw



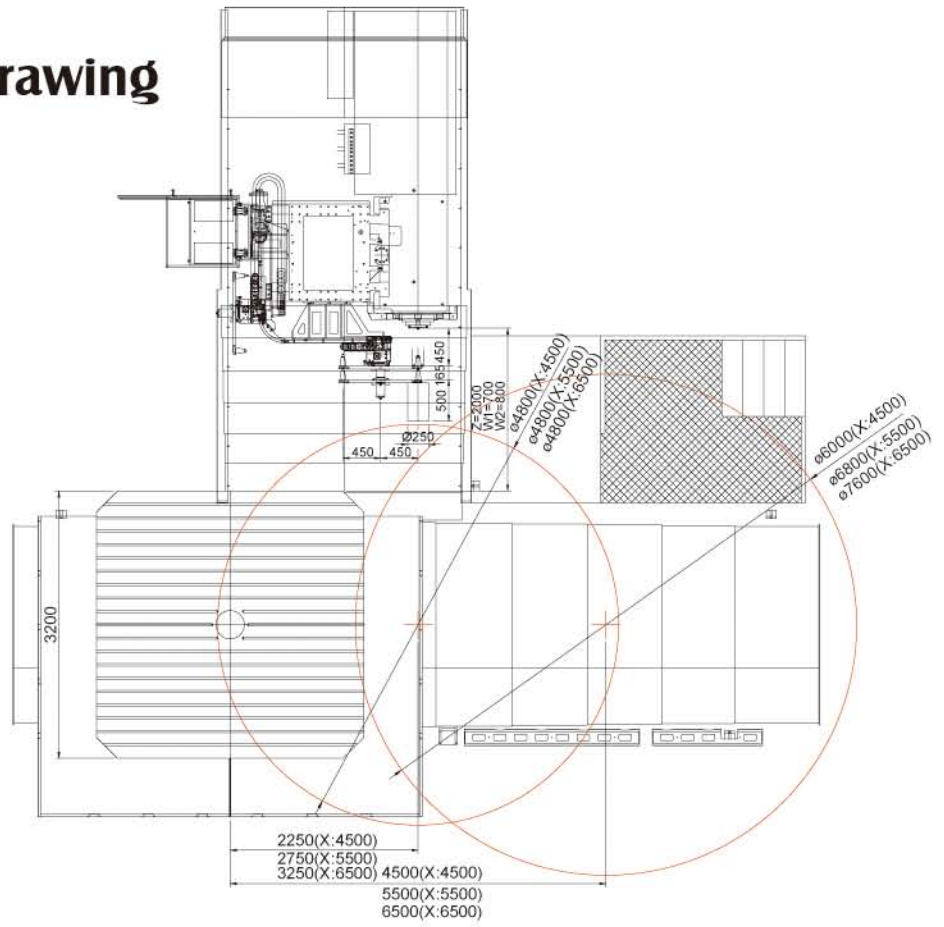
Torque / Horsepower Chart Data				
Spindle Taper	ISO	BT50	Spindle Motor	Siemens 1PH7133-2NF-OL
	CAT50		Motor Output	15/23 Kw
	DIN	DIN 69871	Gear Ratio	1:2 / 1:6
Spindle Speed		3000 RPM	Pulley Ratio	-

opt.-22/33Kw

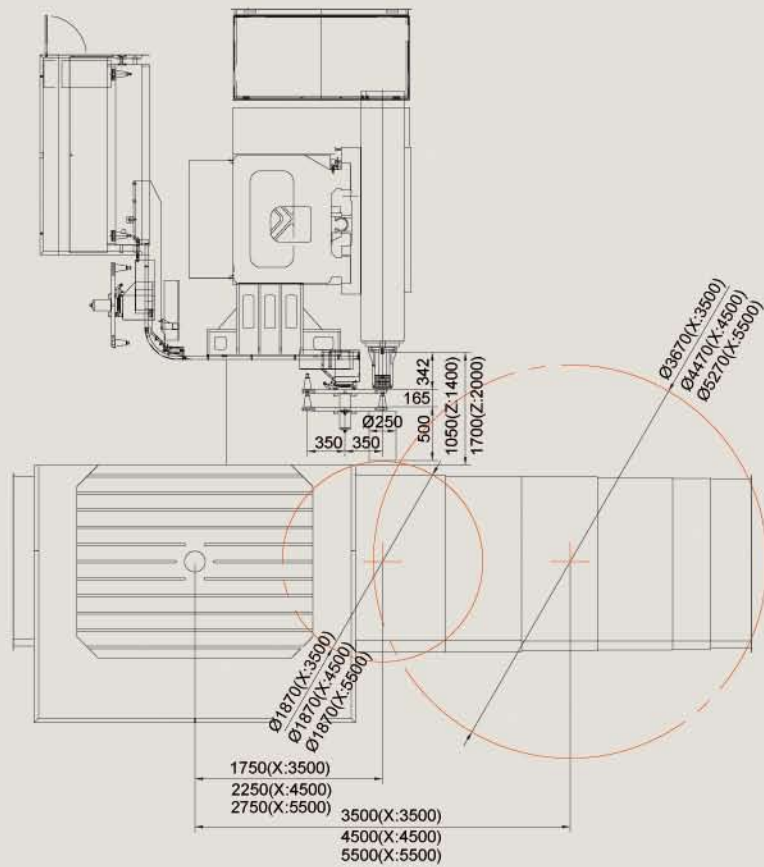


Torque / Horsepower Chart Data				
Spindle Taper	ISO	BT50	Spindle Motor	SIEMENS 1PH7137-2NF-OL
	CAT50		Motor Output	22/33 KW
	DIN	DIN 69871	Gear Ratio	1:2 / 1:6
Spindle Speed		3000 RPM	Pulley Ratio	-

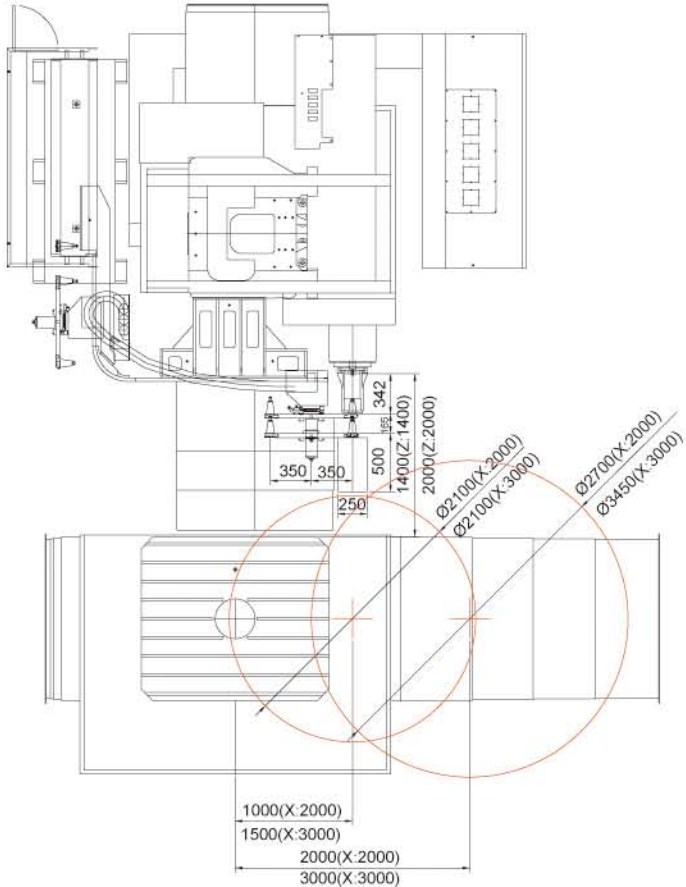
Interference drawing



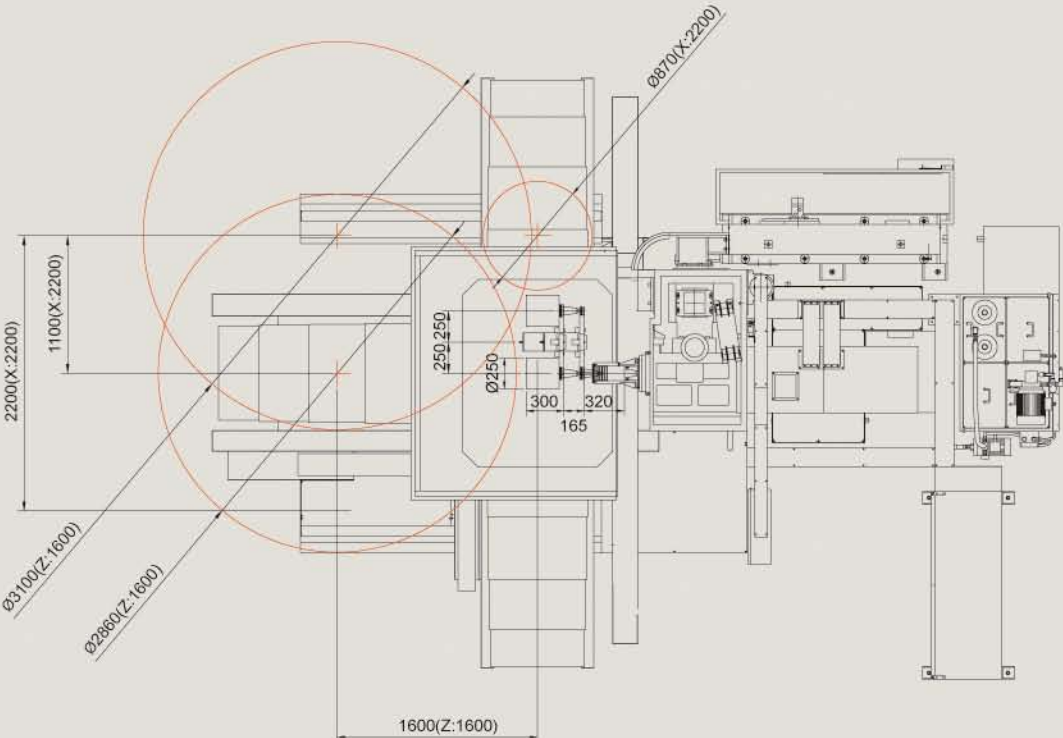
HBM-140RT



HBM-5T/5TL



HBM-4T



HBM-4

HBM Series



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