



HBM TABLE TYPE Series

CNC Horizontal Boring & Milling Center

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Table Type Horizontal Boring & Milling Center

Main Features

HBM-3



HBM-4



Spindle

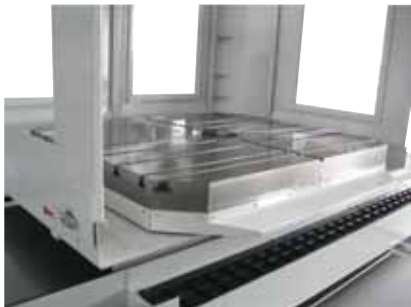
HBM-3 / HBM-4



- Ø110mm quill diameter with travel 550 mm for deep-hole boring and milling Spindle construction with 2pcs NN bearings at front and rear, and 3 pcs 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 great reliability.
- The spindle and quill are driven by the servo unit and lubricated by sintered bronze to ensure durability and longevity.
- A two-step 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

HBM-3 / HBM-4



- Table positioning accuracy: 15 arcsec (360°); Repeatability accuracy: 4 arcsec Max. load capacity reaches 5000 kg.
- The rotary working table is supported with large-diameter bearings with high indexing accuracy 0.001mm.
- Three-piece coupling Hirth coupling 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 is 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.
- All bearing surfaces are coated with low-friction pad.
- X Y Z axes with box ways design, perfect for heavy duty, high accuracy machining and high reliability
- Linear scales on three axes ensure exact axial positioning under fluctuation(option)

HBM-3



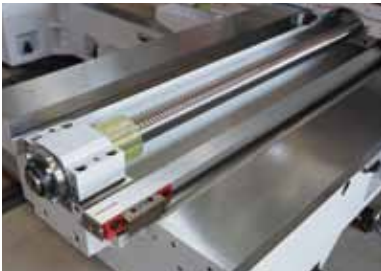
One piece bed design ensures high rigidity and vibration resistance.

HBM-4



Two additional X support guideways of the bed structure ensure accuracy and rigid support for the large longitudinal travel.

High Precision Ballscrews

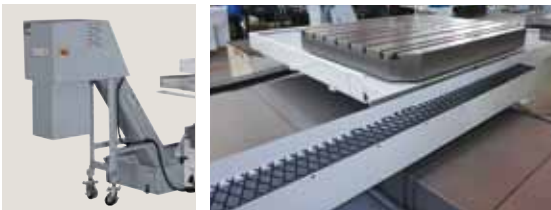


- C3 class ballscrews with double nuts are applied on X/Y/Z/W axes which offer high axis accuracy and less deforming under axial force.
- All the ballscrew nuts are preloaded to ensure less tension deforming, and the ballscrews are with thermal compensation.
- When the axis travel is three meters and above, the ballscrew supporter comes along as standard component to prevent the ballscrew deformation and ensure smooth axis travel.

Lubrication System

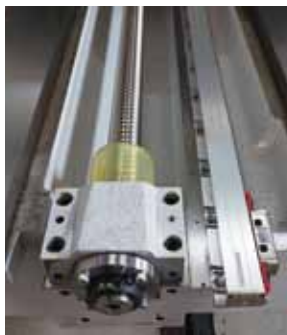


- Automatic lubrication system uses pressure-released type lubricator; oil volume is controlled according to distribution values metered.
- Oil is supplied according to the lubrication oil demand of the sliding surface and the ballscrew.
- Oil level detector unit is provided.
- Alarm will be shown on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



Chip Arrangement

Machine is equipped with chip auger for easy chip collection.
Floor chip conveyor is available for request.



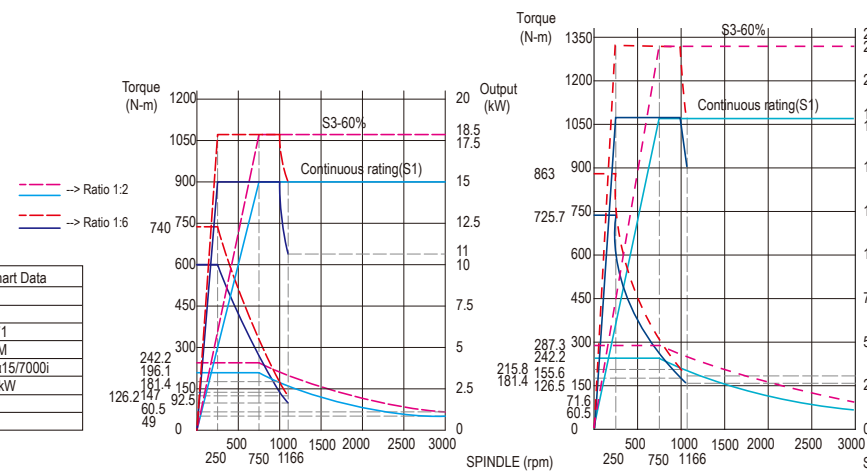
Measuring System

- X/Y/Z axes -**
All three axes are equipped with absolute linear scale.
- W axis -**
The W axis is measured by the axis servo motor.
- Rotary table -**
The rotary table is integrated with rotary encoder, providing accuracy of 0.001mm.

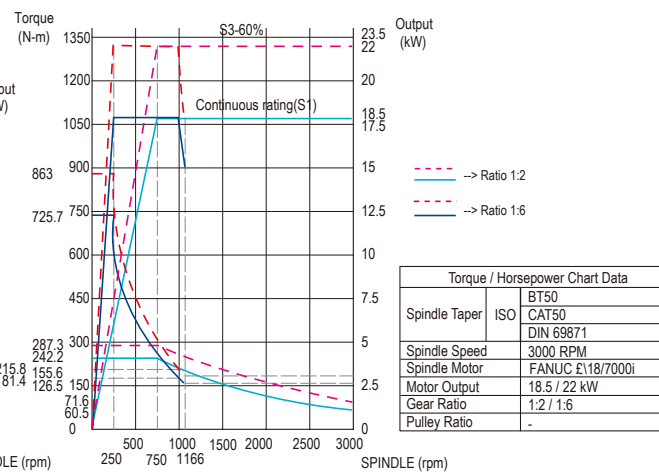
Power & Torque Chart

FANUC control

HBM-3/HBM-4 (std.)15/18.5 kW



HBM-3/HBM-4 (opt.)18.5/22 kW



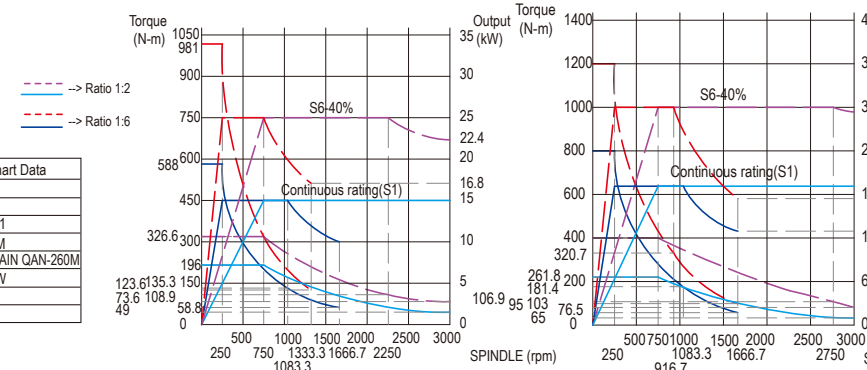
Torque / Horsepower Chart Data	
Spindle Taper	ISO BT50
Spindle Speed	3000 RPM
Spindle Motor	FANUC α15/7000i
Motor Output	15 / 18.5 kW
Gear Ratio	1:2 / 1:6
Pulley Ratio	-

Torque / Horsepower Chart Data	
Spindle Taper	ISO BT50
Spindle Speed	3000 RPM
Spindle Motor	FANUC α18/7000i
Motor Output	18.5 / 22 kW
Gear Ratio	1:2 / 1:6
Pulley Ratio	-

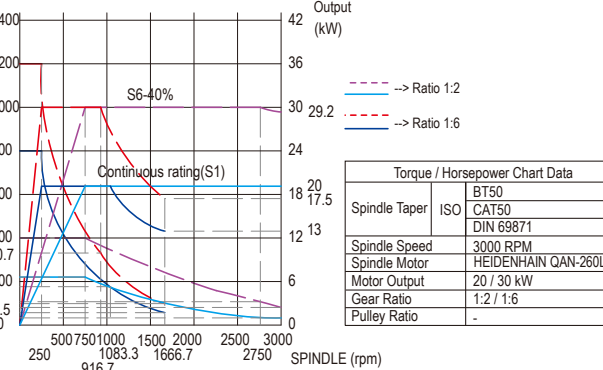
Heidenhain & Siemens control

HBM-3 / HBM-4 --Heidenhain

std.-15/25 kW



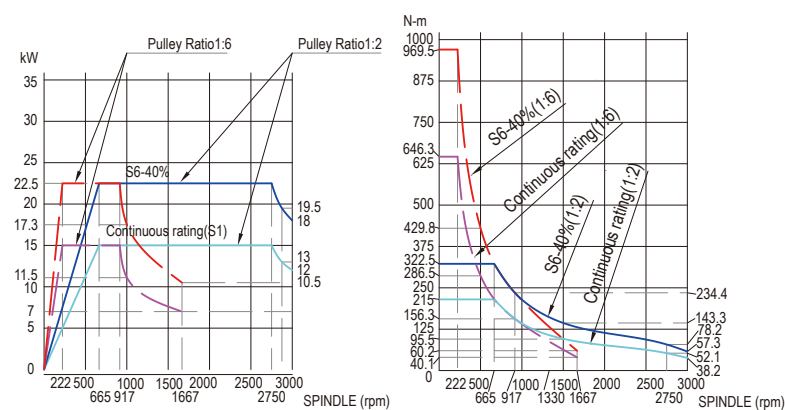
opt.-20/30 kW



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

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

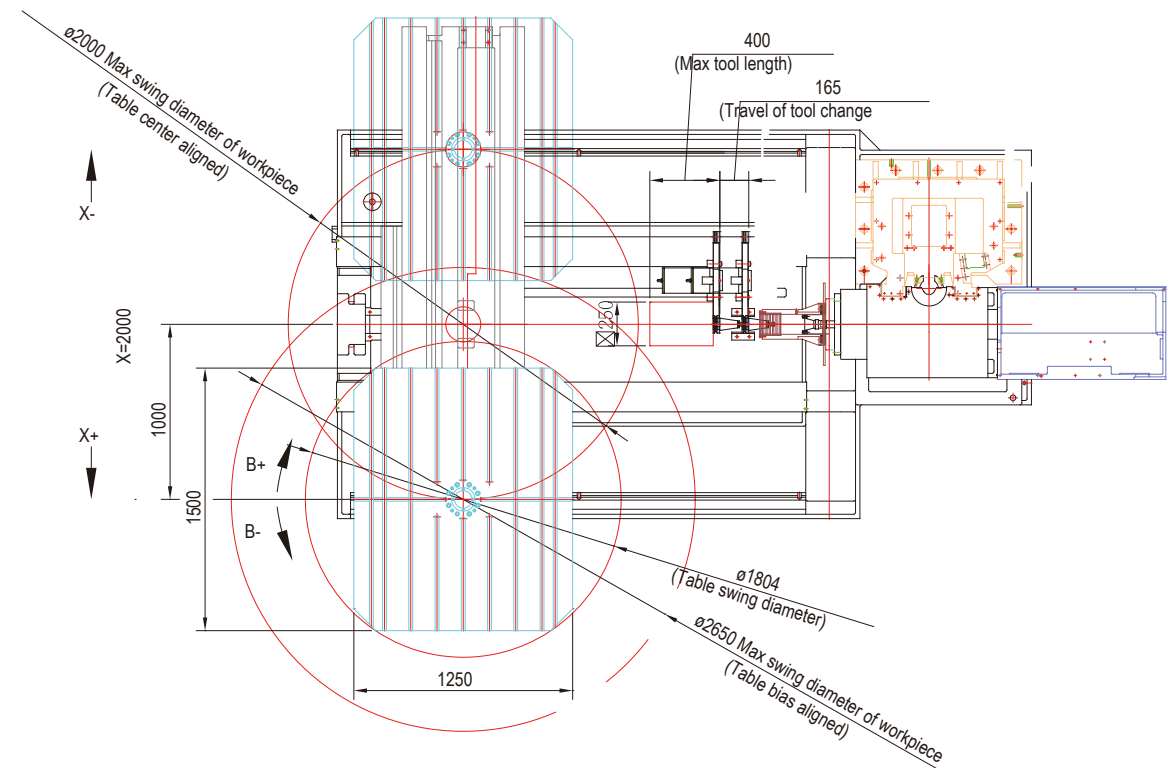
HBM-3 / HBM-4 --Siemens 15/22.5 kW



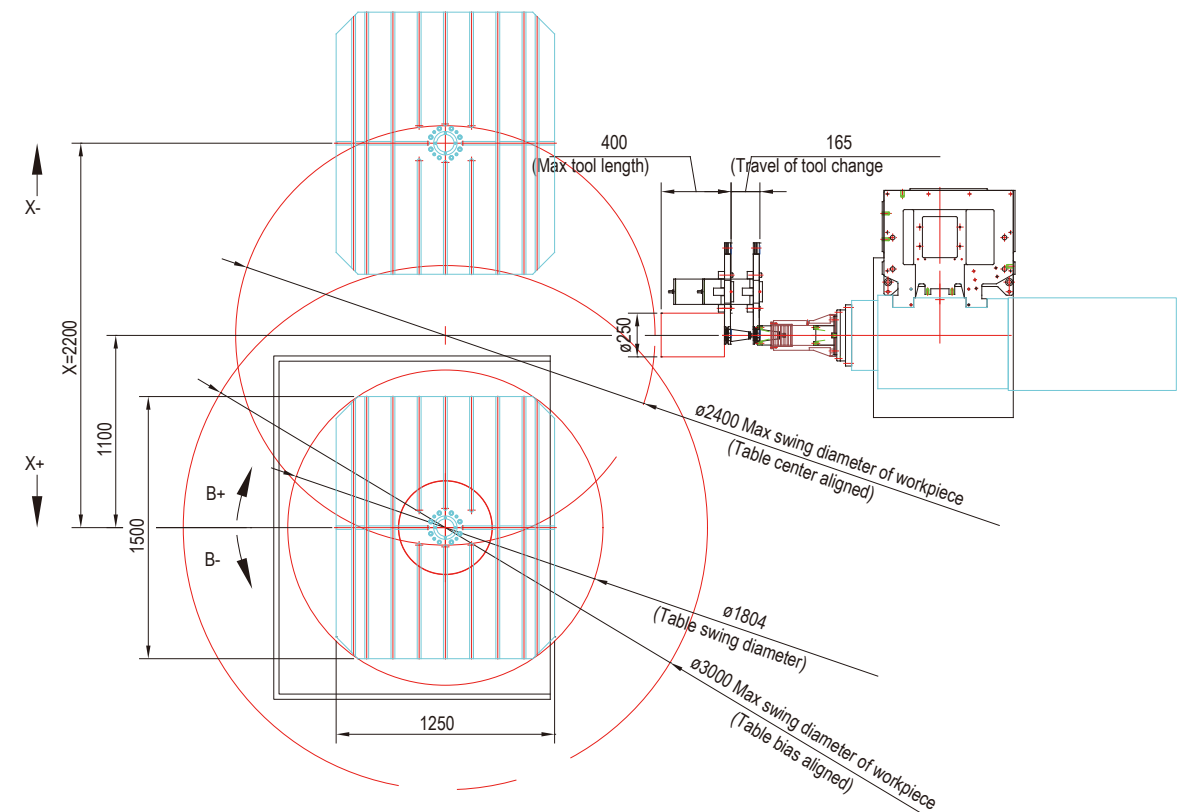
Torque / Horsepower Chart Data	
Spindle Taper	ISO BT50
Spindle Speed	3000 RPM
Spindle Motor	SIEMENS 1PH8133-1DF02-0LA1
Motor Output	15 / 22 kW
Gear Ratio	1:2 / 1:6
Pulley Ratio	-

Interference drawing

HBM-3



HBM-4



Accessory

Automatic Tool Changer

A fast and reliable automatic tool changing system



Side-mounted 28 tools ATC for HBM-4

● Standard ○ Optional

Accessories	HBM-3	HBM-4
Spindle Vibration Supervision device	●	●
Steel belt chip conveyor	●	●
Chip auger	●	●
Spindle oil cooling system	●	●
Eye bolt set	●	●
Spindle with CTS function	○	○
Arm type ATC (40/60T)	○	○
Facing head	○	○
Servo type facing head	○	○
Universal head	○	○
Angle head	○	○
Spindle extension sleeve	○	○
Table guarding cover (Incl. cover with upper part and without upper part) (for spindle with CTS function)	○	○
CTS coolant tank (20/70bar)	○	○
Safety guard for operator	○	○
Safety guard	○	○
Chip flushing gun	○	○
Oil skimmer	○	○
Air conditioner	○	○
Heat exchanger	●	●
Tool setter	○	○
Workpiece touch probe	-	○
Accessory head support stand & arm	○	○
Linear scale for three axes	-	○
Coolant thru tool holder device	-	○
Guarding cover for support ways	-	○

Technical Data

Item	HBM-3	HBM-4
Table		
Table size	1250mm x 1500mm	1250mm x 1500mm
Table height	1455mm	1280mm
T-slot(w/pitch/no)	22mm/150mm/7	22mm/150mm/7
Max. table load	5000kg	5000kg
Table index	0.001°	0.001°
Rotary table positioning accuracy	±4 seconds(1°)	
Rotary table repeatability accuracy	1 second(1°)	
Rotary table encoder accuracy	±5 seconds(0.001°)	
Travel		
X axis	2000mm	2200mm
Y axis	1700mm	1600mm
Z axis (RAM)	1400mm	1600mm
W axis (Quill)	550mm	550mm
Spindle center to table surface	0-1700mm	-20~1580mm
Spindle nose to table center	0-1400mm	-30~1570mm
Spindle		
Spindle taper	ISO 50	ISO 50
Transmission	Gear	Gear
Spindle speed	35-3000rpm	35-3000rpm
Spindle output	15-18.5kW	15-18.5kW
Spindle torque	740Nm	740Nm
Spindle step	2 steps(auto.)	2 steps(auto.)
Quill diameter(W axis)	Ø110mm	Ø110mm
Spindle bearing I/D	Ø150mm	Ø150mm
Axes Transmission		
X axis ballscrew	Ø55 x P12 x C3	Ø55 x P12 x C3
Y axis ballscrew	Ø55 x P12 x C3	Ø55 x P12 x C3
Z axis ballscrew	Ø55 x P12 x C3	Ø55 x P12 x C3
W axis ballscrew	Ø40 x P5 x C3	Ø40 x P5 x C3
Motor Output		
Axes motor (X/Y/Z/W)	22/38/22/22/12 Nm	22/38/22/22/12 Nm
Hydraulic motor	3.75kW	3.75kW
Coolant pump motor	0.85(50Hz) / 1.29(60Hz)	0.85(50Hz) / 1.29(60Hz)
Lubrication pump motor	25W	25W

Item	HBM-3	HBM-4
Guideway		
X axis guideway type	Box way	Box way
X axis guideway distance	700mm	700mm
Y axis guideway type	Box way	Box way
Y axis guideway distance	540mm	540mm
Z axis guideway type	Box way	Box way
Z axis guideway distance	1000mm	1000mm
Axes Feed Rate		
X axis rapid feed	15m/min	12m/min
Y axis rapid feed	15m/min	12m/min
Z axis rapid feed	12m/min	12m/min
W axis rapid feed	6m/min	6m/min
B axis rapid speed	2(0.001°)rpm	1.5(0.001°)rpm
ATC System		
ATC type	Arm	Arm
No. of tools	28T/40T/60T	28T/40T/60T
Tool shank type	BT/CAT/DIN 50	BT/CAT/DIN 50
Tool Changing Time (T-T)	9 seconds	9 seconds
Max. tool diameter	Ø125mm	Ø125mm
Max. tool dia. w/ next tool empty	Ø250mm	Ø250mm
Max. tool length	400mm	400mm
Max. tool weight	25kg	25kg
Max. loading weight	420kg/600kg/900kg	420kg/ 600kg/900kg
Dimension		
Length	6950mm	7750mm
Width	4600mm	4715mm
Height	3900mm	3700mm
Weight	25500kg	22500kg

*Specifications are subject to change without notice.

Optional



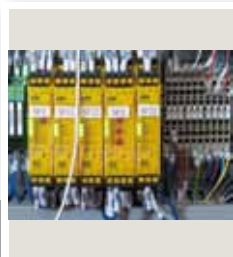
Angular block



Table guard with folding door



Support stand and rotary arm
(Only available on HBM-4)



Safety module



Air conditioner



CTS unit



Oil skimmer

Selection of CNC Controller



Heidenhain iTNC530 HSCI



Siemens 840D sl



Fanuc 31i/32i



Portable control panel
Heidenhain



Portable control panel
Fanuc/Siemens

All systems provide full control of 5 axes, especially Heidenhain controller comes with 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