

HBM TABLE TYPE Series

CNC Horizontal Boring & Milling Center



National Award
of Outstanding



ISO 9001:2015
FM 538421



ISO 14001:2015
EMS 546518



ISO 50001:2011
ENMS 642457

Table Type Horizontal Boring & Milling Center



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



- 1 degree indexing of 1250x1500mm table: index accuracy +/- 5 arcsec (std) 0.001 degree 1250x1500mm table with Heidenhain angle encoder, +/- 5 arcsec (opt)
- 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.

Main Features

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



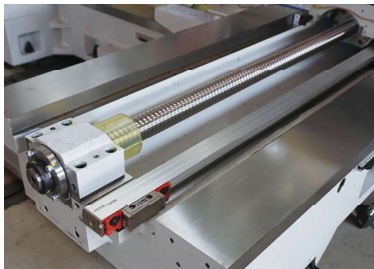
One piece bed design ensures high rigidity and vibration resistance.

HBM-4

Bed with additional X support guideways



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.



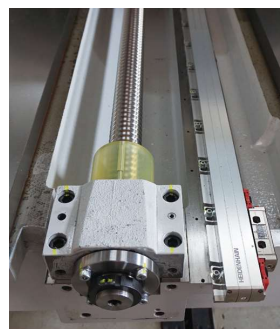
Lubrication System

- 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.

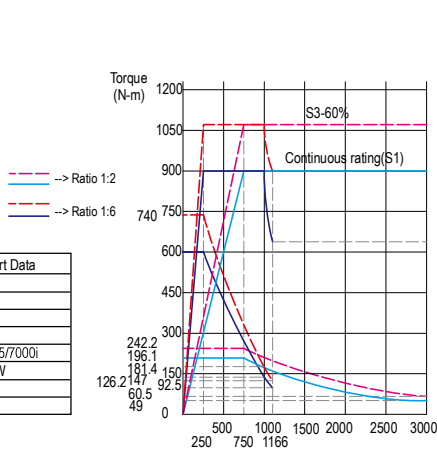
Rotary table -

The rotary table is integrated with rotary encoder, providing accuracy of 0.001mm.

Power & Torque Chart

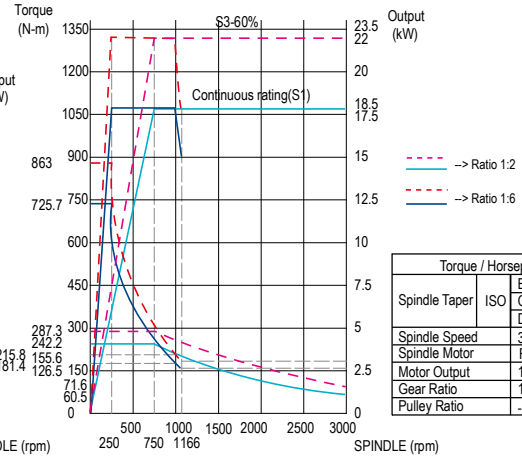
FANUC control

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



| Torque / Horsepower Chart Data | |
|--------------------------------|-----------------|
| Spindle Taper | ISO BT50 |
| | CAT50 |
| | DIN 69871 |
| Spindle Speed | 3000 RPM |
| Spindle Motor | FANUC α15/7000i |
| Motor Output | 15 / 18.5 kW |
| Gear Ratio | 1:2 / 1:6 |
| Pulley Ratio | - |

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

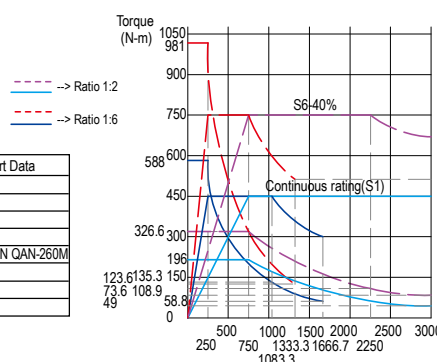


| Torque / Horsepower Chart Data | |
|--------------------------------|-----------------|
| Spindle Taper | ISO BT50 |
| | CAT50 |
| | DIN 69871 |
| Spindle Speed | 3000 RPM |
| Spindle Motor | FANUC E18/7000i |
| Motor Output | 18.5 / 22 kW |
| Gear Ratio | 1:2 / 1:6 |
| Pulley Ratio | - |

Heidenhain & Siemens control

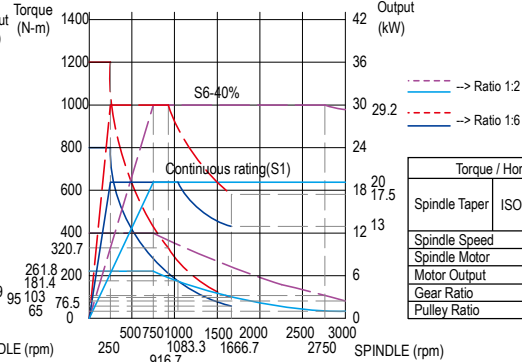
HBM-3 / HBM-4 --Heidenhain

std.-15/25 kW



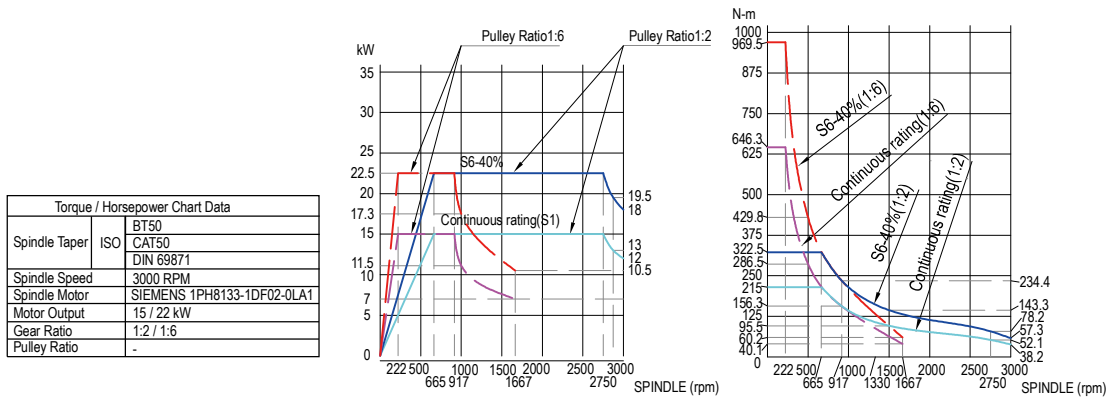
| Torque / Horsepower Chart Data | |
|--------------------------------|---------------------|
| Spindle Taper | ISO BT50 |
| | CAT50 |
| | DIN 69871 |
| Spindle Speed | 3000 RPM |
| Spindle Motor | HEIDENHAIN QAN-260M |
| Motor Output | 15 / 25 kW |
| Gear Ratio | 1:2 / 1:6 |
| Pulley Ratio | - |

opt.-20/30 kW



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

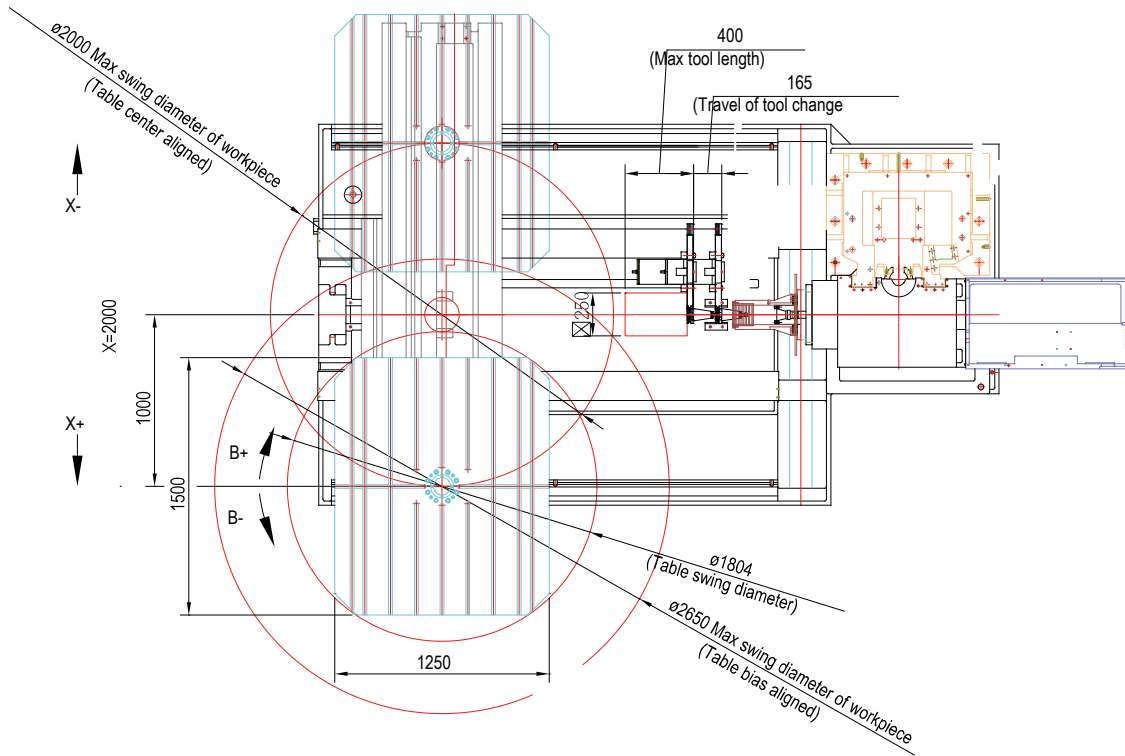
HBM-3 / HBM-4 --Siemens 15/22.5 kW



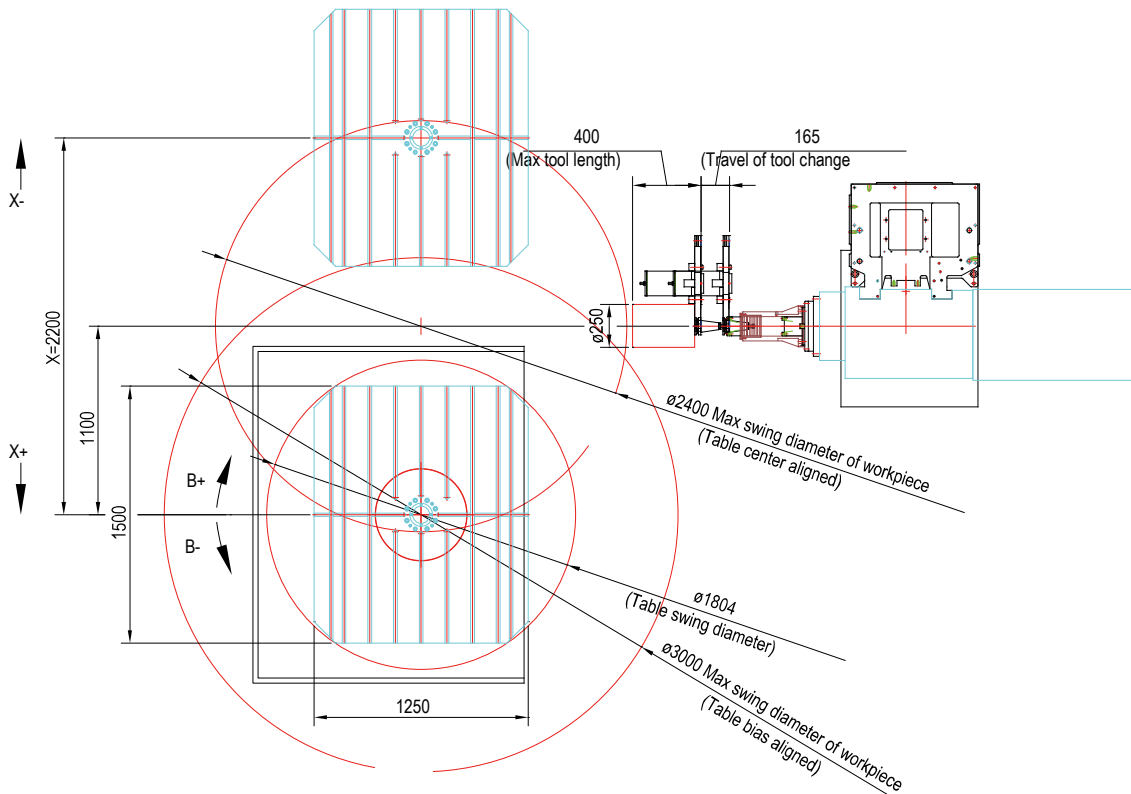
| Torque / Horsepower Chart Data | |
|--------------------------------|----------------------------|
| Spindle Taper | ISO BT50 |
| | CAT50 |
| | DIN 69871 |
| Spindle Speed | 3000 RPM |
| Spindle Motor | SIEMENS 1PH8133-1DF02-0LA1 |
| Motor Output | 15 / 22 kW |
| Gear Ratio | 1:2 / 1:6 |
| Pulley Ratio | - |

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 | - | ○ |

Optional



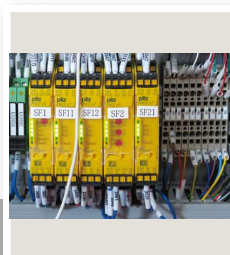
Angular block



Table guard with folding door



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



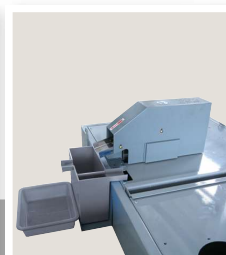
Safety module



Air conditioner



CTS unit



Oil skimmer

Technical Data

| Item | HBM-3 | HBM-4 |
|-------------------------------------|-------------------------------------|-------------------------|
| Table | | |
| Table size | 1250mm x 1500mm | 1250mm x 1500mm |
| Table height | 1290mm | 1120mm |
| T-slot(w/pitch/no) | 22mm/150mm/7 | 22mm/150mm/7 |
| Max. table load | 5000kg | 5000kg |
| Table index | 1° / 0.001° | 1° / 0.001° |
| Rotary table positioning accuracy | 15 seconds(0.001°) / ±4 seconds(1°) | |
| Rotary table repeatability accuracy | 4 seconds(0.001°) / 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 | 5.5(1°) / 2(0.001°)rpm | 5.5(1°) / 2(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.

Selection of CNC Controller



Heidenhain iTNC530 HSCI



Siemens 840D sl

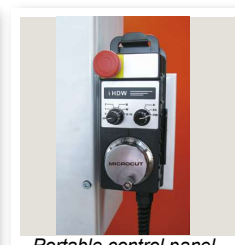


Fanuc 31i/32i

Portable MPG



Portable control panel
Heidenhain



Portable control panel
Fanuc/Siemens

All systems provide full control of 5 axes, especially Heidenhain 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



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