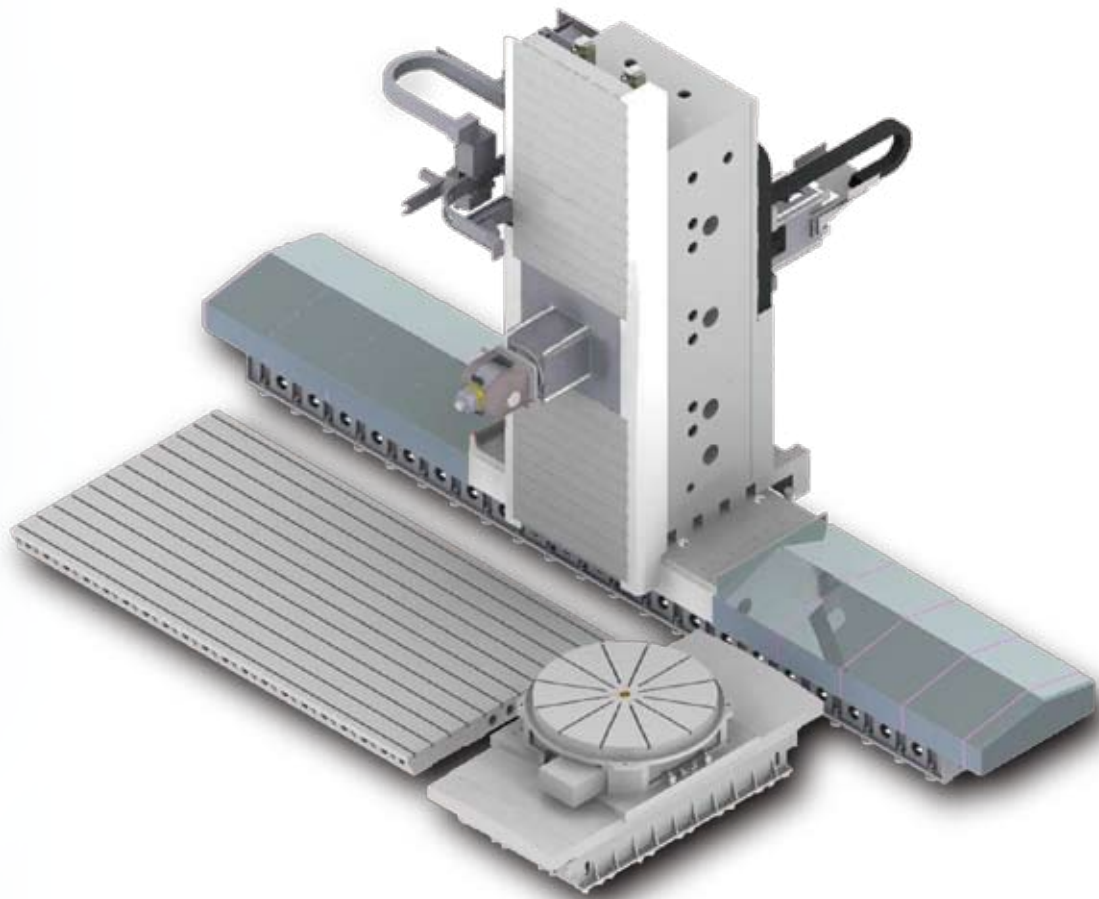


Eumach

Always Step Ahead



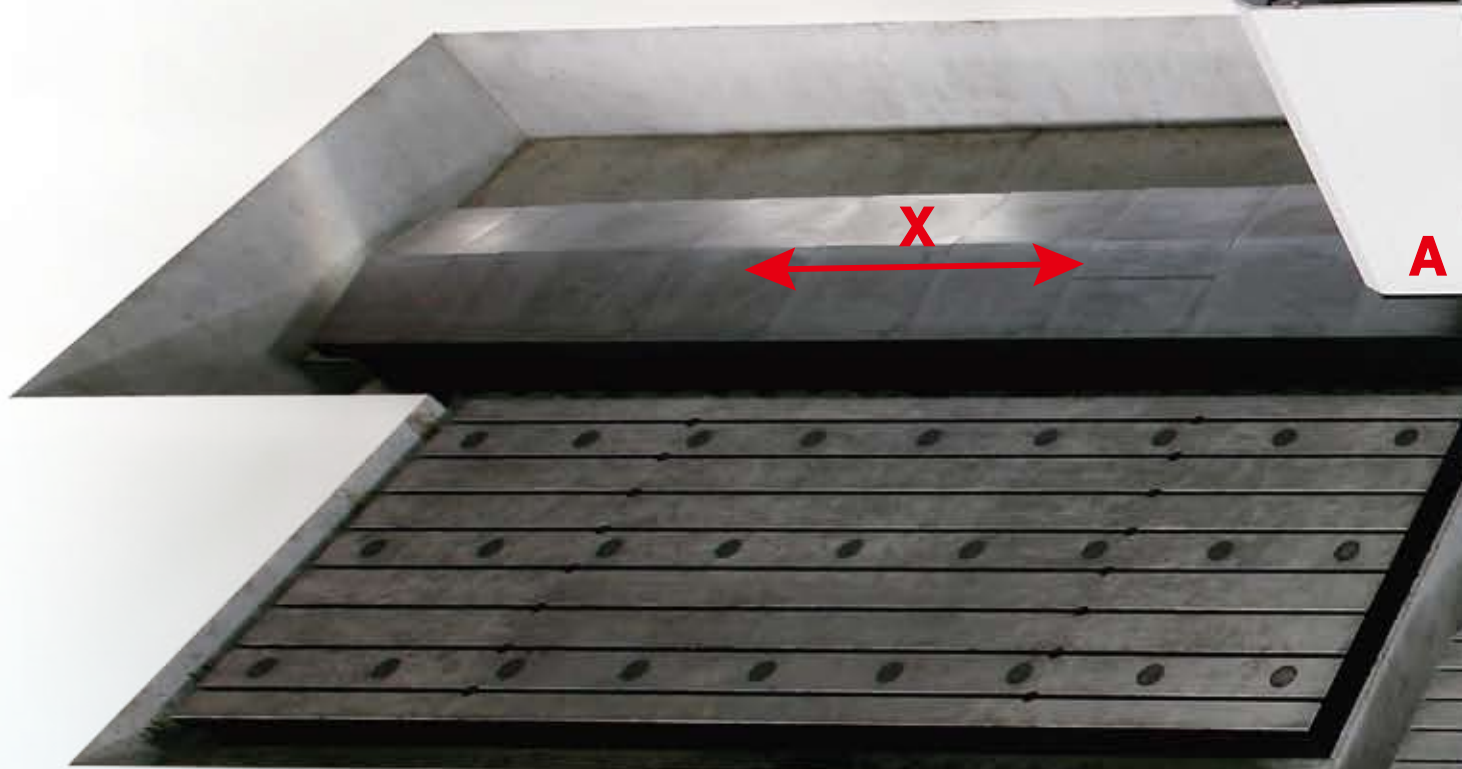
FBM Series

**Box in box in box designed
Floor type boring milling center**

A PROFESSIONAL CNC MACHINES MANUFACTURER

FBM SERIES FLOOR TYPE HIGH PERFORMANCE, MULTI-PURPOSE BORING MILLING CENTERS

- Machine shown in picture is
10M(X) x 4M(Y) x 1.3M(Z) x $\pm 180^\circ$ (A) x $\pm 360^\circ$ (B) x $\pm 360^\circ$ (C) x 3M (V)
HSK-A100 / 12000RPM spindle, 60 ATC, 7M x 2.5M floor plate,
 \varnothing 2.5M rotary table with 30 tons load, lifting operator cabinet.



- High versatile due to wide range of machine configuration, besides standard $\varnothing 160$ mm boring spindle such as various milling heads, floor plates, angle plates, rotary / rotary traveling / rotary traveling with tilting function tables, this is the most flexible machining center in the market, which is able to satisfy for the next decade various industries such as aerospace, energy (wind power, gas, nuclear), ship building, oil, rail way, mining and subcontractor machining sector etc. !

***Triple Boxes Theory –
“ Box in Box in Box ”
With Maximum
Symmetric Concept***

Range:

- X – 4M ~ 20M, every 2M modular
- Y – 2M ~ 4M, every 0.5M modular
- Z – 1.2M
- A – $\pm 180^\circ$
- B – up to 3M rotary table
- C – $\pm 360^\circ$
- V – 1.5M ~ 3M, every 0.5M modular
- W – 0.7M or 1M

4 Views of FBM-10040 machine :



1. 10M (X) x 4M (Y) x 1.3M (Z) travel, 60 ATC, automatic lifting operating cabinet



2. 7M x 2.5M x 350mm floor plate & 2.5M x 2.5M B axis CNC rotary table with 30 tons load, 5 RPM and a 1500mm V axis travel. Fully CNC 2 axes universal milling head with 34 & 42KW HSK-A100 12000RPM spindle.



3. 60 stations ATC, possibly change tools either vertical or horizontal or both.



4. operator and serviceman walking into machine directly from the back side of machine with easy access

FBM-4025

The twin ball screws & four roller guide ways on vertical sliding unit up & down in Y axis direction and then four roller guide ways for ram sliding forward & backward in Z axis direction, these maximum symmetric system ensures the very high rigidity and stiffness than any other competitors' similar machine in this field, especially those last century designed traditional column side mounted & only two sides folded ram.



4 meter X axis travel bed

2.5 meter Y axis travel column

- FBM-4025 with 4 meter travel in longitudinal X axis, transmission by a rotating nut $\phi 80\text{mm}$ high precision ball screw.



Rigid frame

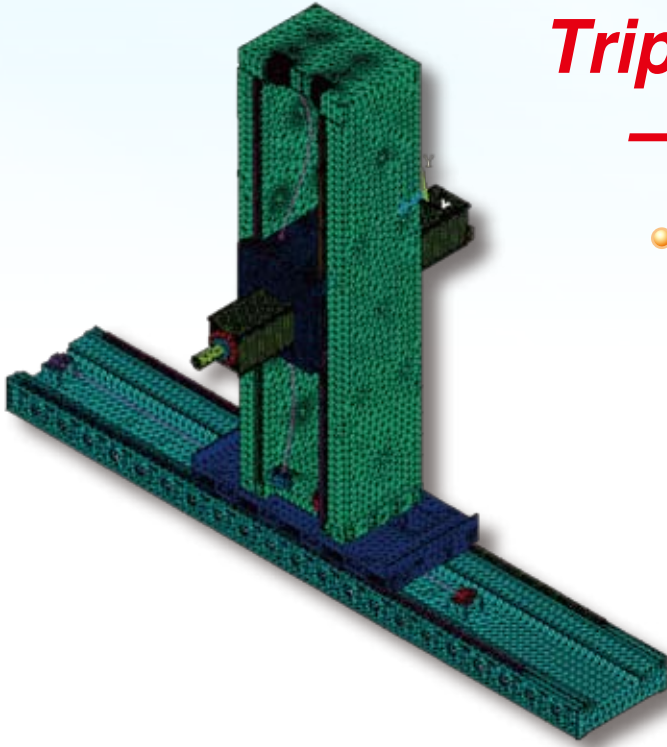
**Maximum
symmetric
triple boxes**

4 meter Y axis travel column

10 meter X axis travel bed

FBM-10040

Triple boxes designed – Box in Box in Box

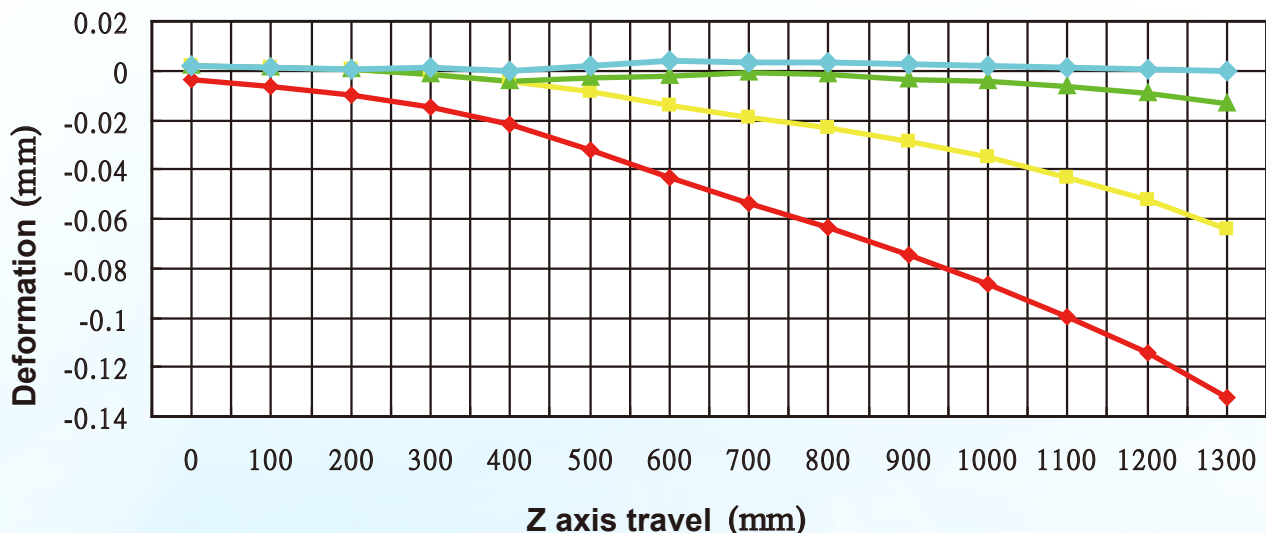
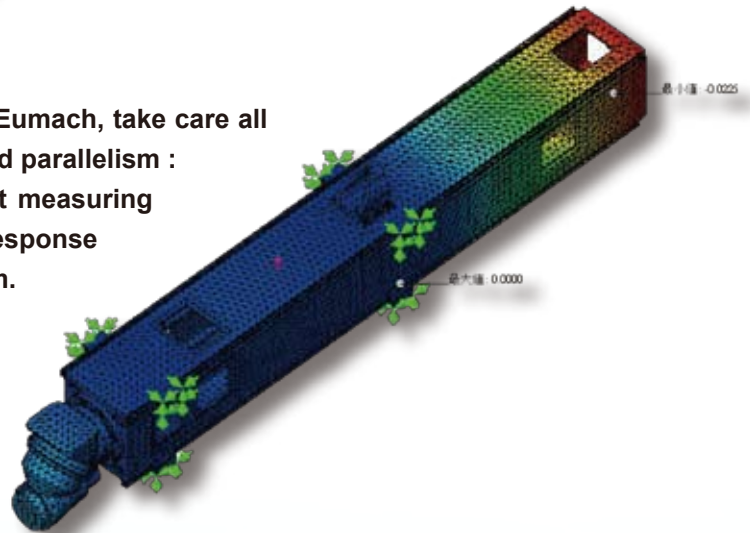


- Triple boxes designed – Box in Box in Box, in addition, machine has been well FEA by using scientific development & technological research computer aided calculation of finite elements, machine has been well simulated & analysis with high accurate data, the stiffness, behavior and answers of the finished machine subjected to the highest stress and strains during the various machining phases.

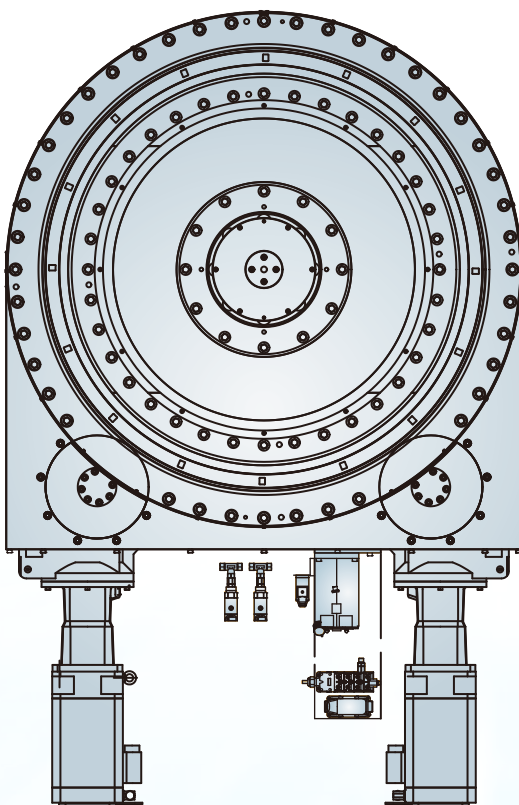
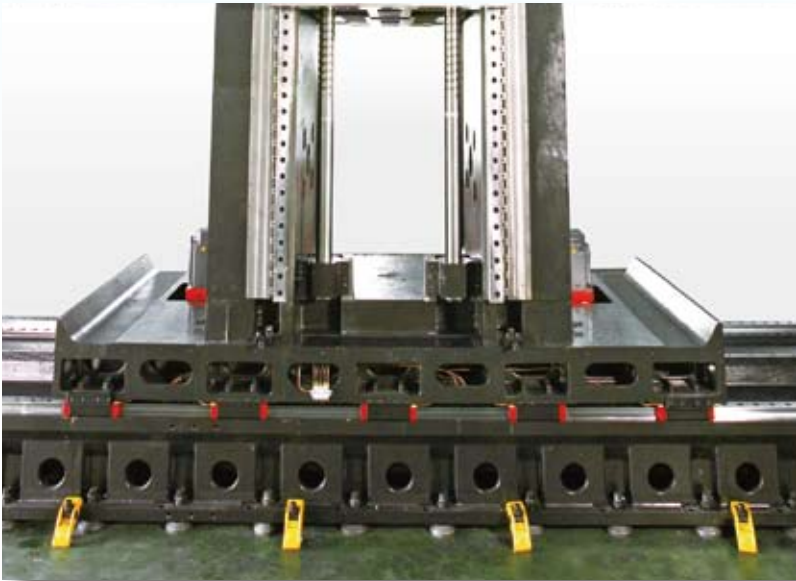
Ram balance system :

The dynamic ram balance system, patented by Eumach, take care all the ram's geometrical accuracy, straightness and parallelism :

- CNC control – by using servo motor and direct measuring linear scale, which check ram's actual system response and make compensation of natural dropping ram.
- Balance system – this works in both positive & negative directions, it means that optimum compensation can be achieved for a wide variety of different head weights.

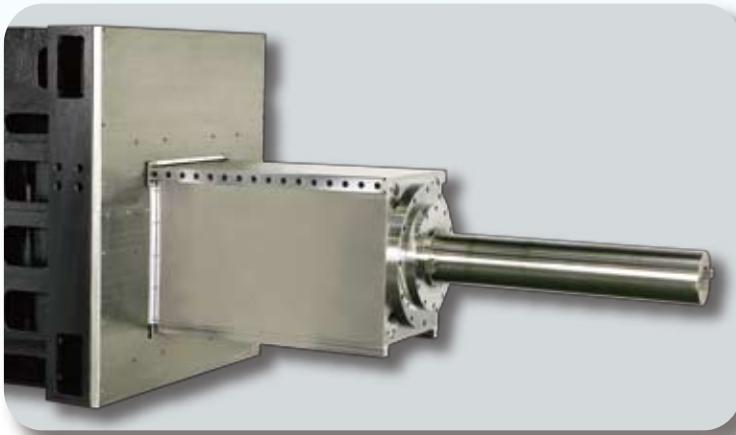


Dual servo motors on X, Y and B axis :



- X axis starts from 6 meter travel, all the Y axis travel and B axis rotary tables starts from 20 tons load machines are driven by two servo motors, two gearboxes and a double rack & pinion for X & B axis and two ball screws for Y axis. Such dual drives system with master slave control concept and nearly zero backlash advanced management allows a remarkable improvement of the stiffness and accuracy performance.

Various milling heads available :



Standard W axis boring spindle :

diameter $\phi 160\text{mm}$
travel 700mm
speed 3000 RPM
power 37&45KW (Fanuc $\alpha 40$) or
37&51KW (Siemens1PH7167-2NF)
torque See page 11

Optional milling heads :



EXT



EXT90



HF50



VAR3



VH2.5



ORT



M21U

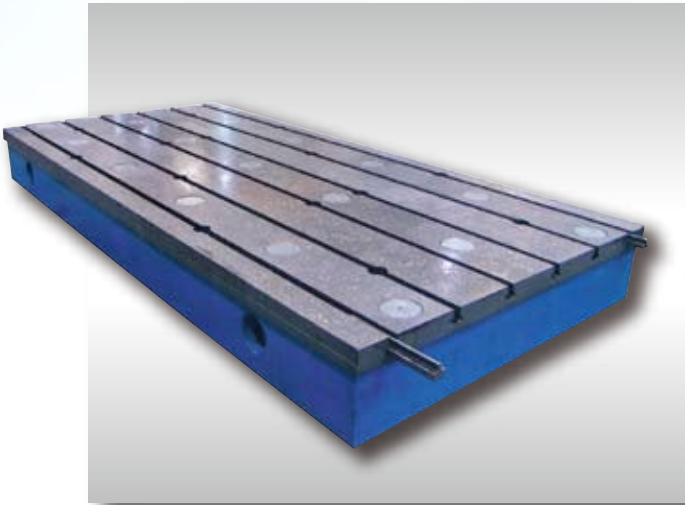


M21F

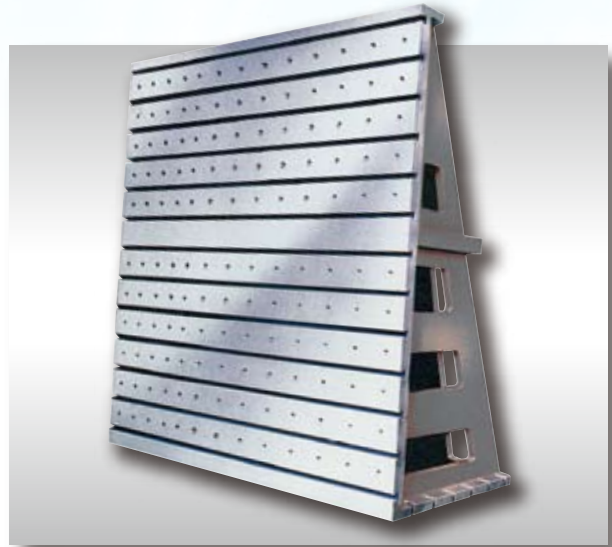


M21F with automatic head change

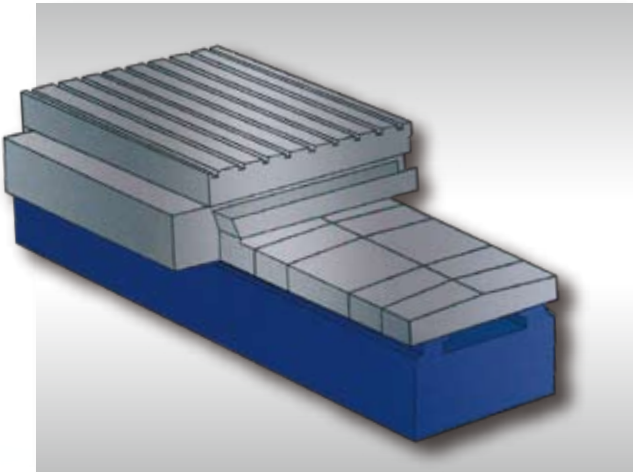
Various optional tables available :



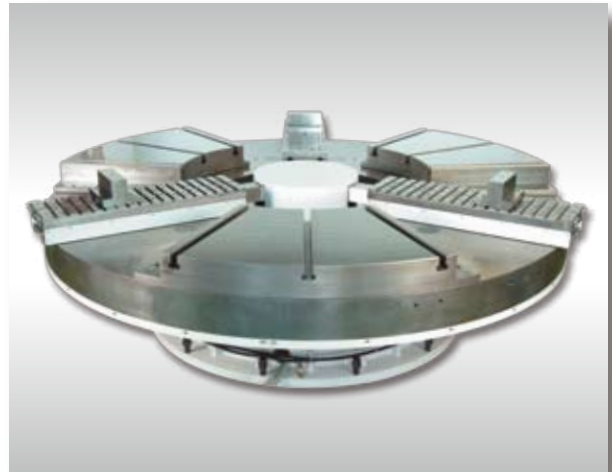
Floor plate



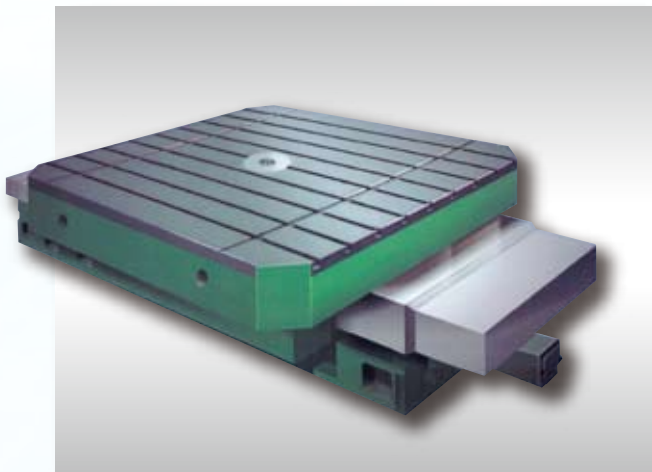
Angle plate



Sliding table



Rotary table

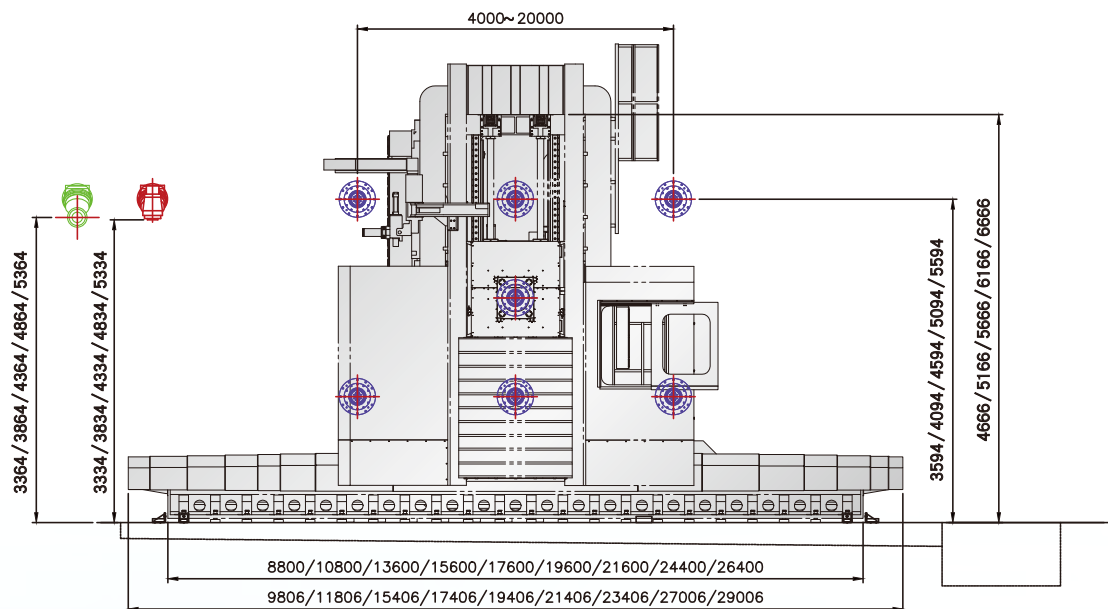
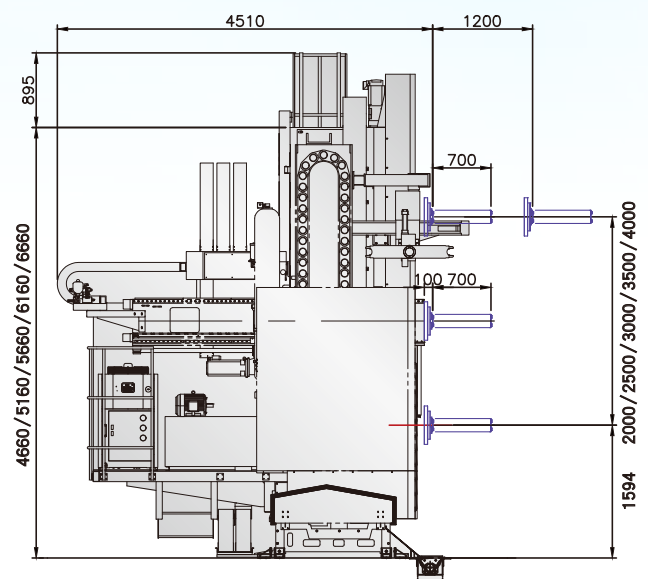
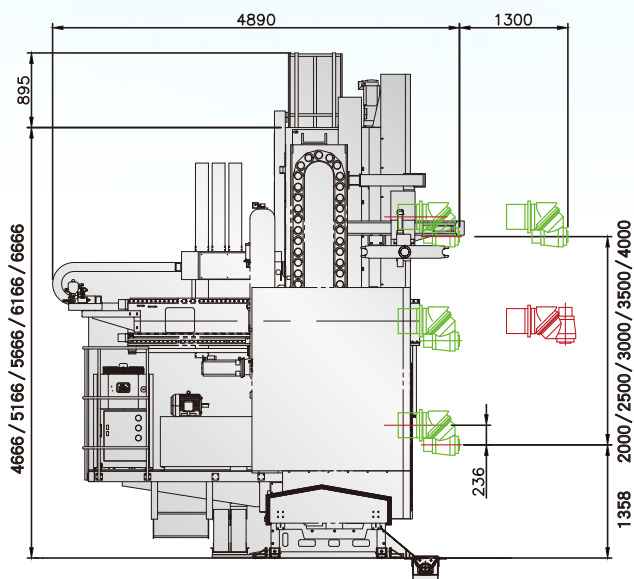


Rotary & sliding table



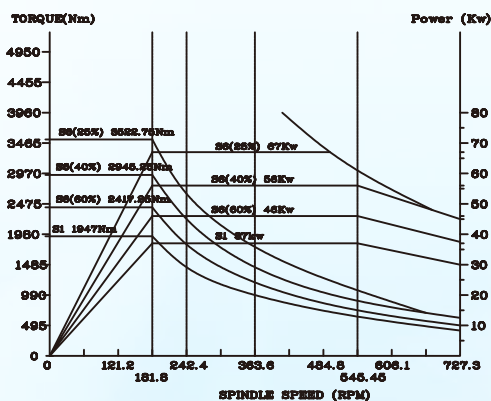
Rotary & sliding & tilting table

Dimensions:

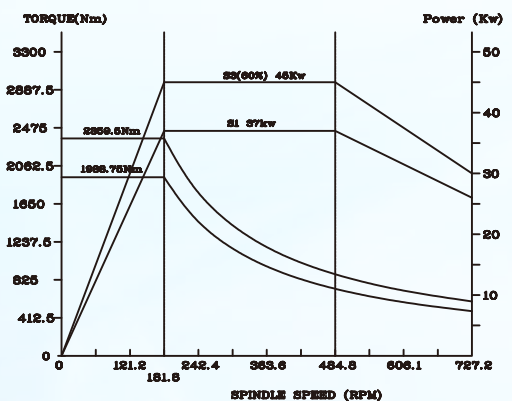


Spindle power & torque:

With Heidenhain or Siemens Control



With Fanuc Control



Specifications :

Floor type boring milling centers :			FBM-4020 ~FBM-20040
Axis Travel	X – column right & left		4M,6M,8M,10M,12M,14M,16M,18M,20M
	Y – spindle head up & down		2M, 2.5M, 3M, 3.5M, 4M
	Z – ram forward & backward		1.2M
	W- quill forward & backward		0.7M
Guide ways Dimension	X – column right & left		2 x 65mm rails, total 10 runner blocks
	Y – spindle head up & down		2x65mm+2x45mm rails, total 8 runner blocks
	Z – ram forward & backward		4 x 45mm rails, total 8 runner blocks
	W- quill forward & backward		2 x 20mm rails, total 4 runner blocks
Axis Transmission	X axis	Ball screw	\varnothing 100mm rotating nut up to 6M travel
		Rack pinion	Starting from 8M travel, with twin drives
	Y axis	Ball screw	\varnothing 70mm x 2 pieces
	Z axis	Ball screw	\varnothing 50mm x 1 piece
	W axis	Ball screw	\varnothing 40mm x 1 piece
Feed rate	Rapid X / Y / Z / W axis		20M / 20M / 10M / 5M per minute
	Cutting X / Y / Z / W feed		10M / 10M / 8M / 5M per minute
	Minimum setting		0.001MM
Castings Dimension L / W / H	X axis machine bed		X axis travel + 5300mm / 1373mm / 420mm
	Y axis machine column		1200mm / 1710mm / Y axis travel + 3355mm
	Z axis sliding ram		3500mm / 460mm / 520mm
Boring Spindle (W axis)	Diameter		160mm dia.
	Taper & speed		BT#50 & 3000 RPM
	Power		37 & 45KW (Fanuc) / 37 & 51KW (Siemens)
	Torque (2 gearboxes)		3300 Nm maximum at 180RPM
Automatic tool changer (optional)	Tools number		40, 60, 90, 120 stations
	Max. tool dia. / length / weight		\varnothing 150 mm / 300mm / 25kg
	Location		fixed on traveling column
CNC	Brands		Fanuc, Heidenhain, Siemens

CNC CONTROLS AVAILABLE



FANUC
31i - MB



SIEMENS
840D



HEIDENHAIN
iTNC-530



EUMACH FAMILIES



VMC-2150
Vertical machine center
400MM ~ 3200MM X axis travel



HSM-5X
5 Axis machine center
1020MM x 610MM x 810MM travel



LBM-1500
High speed bridge type machine center
1100MM ~ 2200MM X axis travel



MH-500
Horizontal machine center
720MM x 650MM x 650MM travel



EBM-2150
5 Face machine center
1400MM ~ 3200MM X axis travel



MB-1500
Moving column horizontal machine center
1100MM ~ 2200MM X axis travel



FBM-10040
Floor type milling center
4M~20M X axis travel



FBE-1500
Universal milling machine
1500MM ~ 4000MM X axis travel



UMC-1000
5 Axis machine center
1000MM x 800MM x 700MM travel