

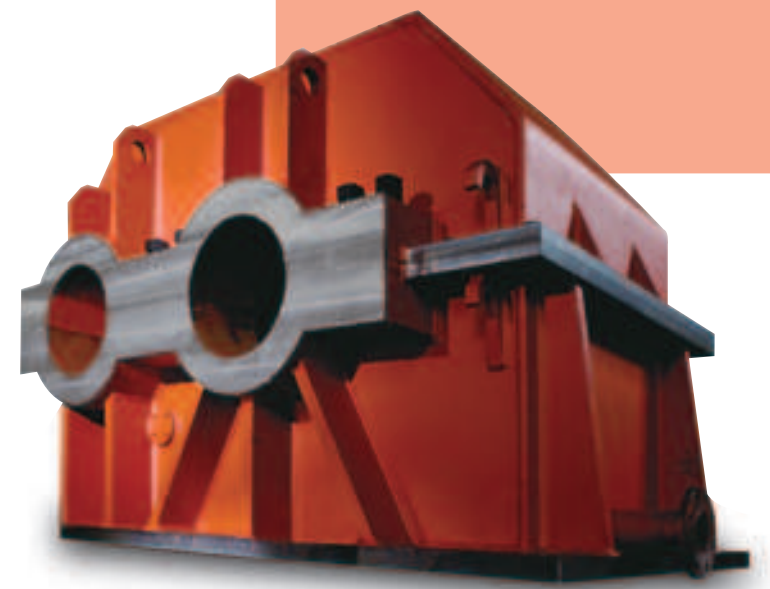
FEELER CNC Horizontal Boring & Milling Machine - Boost Your Machining Productivity and Accuracy

Whether you need to perform small or big parts boring, Feeler offers a broad range of CNC horizontal boring and milling machines to choose from. You'll find the one that is correctly suited for your machining requirements. Each machine is precisely and ruggedly constructed to deliver the efficiency, accuracy and versatility that you've come to expect. With Feeler CNC horizontal boring and milling machines, you get increased profits in precision boring, milling and drilling. In addition, Feeler FBM series machines are tested and retested to ensure their top performance.

FBM

Features:

- ▶ Structural parts are manufactured from high quality cast iron for toughness and excellent vibration absorption.
- ▶ Chain type magazine with 40, 60, 90, 120 tools to choose from.
- ▶ Choice of various types of rotary tables.
- ▶ Various CNC controls to choose from.
- ▶ Positioning accuracy $\pm 0.005/300$ mm.
- ▶ Repeatability $0.02/300$ mm.
- ▶ Roundness accuracy $0.02/300$ mm.



The Ultimate Machining Accuracy and Efficiency

FBM-630

CNC Horizontal Boring & Milling Machine

- X, Y, Z-axis travel 1,200 x 950 x 800 mm.
- Indexing Table size 630 x 630 mm. Indexing degree 5°/72D.
- 40 tools chain type magazine.
- MITSUBISHI M64 control as shown.

The machine has been modified, therefore this cover is no longer required.
Please see page 5 for the current design.



The machine has been modified, therefore this cover is no longer required.
Please see page 6 for the current design.



FBM-630L (Linear)

CNC Horizontal Boring & Milling Machine

- X, Y, Z-axis travel 1,200 x 950 x 800 mm.
- Indexing table sizes 630 x 630 mm. Indexing degree 5°/72D (1°/360D optional).
- 40 tools chain type magazine.
- SIEMENS 840D control as shown.

4 Linear Ways on Base - A Boring & Milling Machine

Integrating Speed and Stability!

FBM-800

CNC Horizontal Boring & Milling Machine

- X, Y, Z-axis travel 2,000 x 1,100 x 1,200 mm.
- Table sizes 800 x 800 mm. Indexing angle 1°.
- 40 tools chain type magazine.
- Splash guard is optional.
- X, Y, Z-axis are available to equip with HEIDENHAIN linear scale (standard).
- The base has auxiliary ways for increasing stability of support.

FBM-800



FBM-800L (Linear)



FBM-800L (Linear)

CNC Horizontal Boring & Milling Machine

- X, Y, Z-axis travel 1,600 x 1,180 x 1,000 mm.
- Table sizes 800 x 800 mm. Indexing angle 1°.
- 40 tools chain type magazine.
- X, Y, Z-axis are equipped with HEIDENHAIN linear scale for feedback.

A New Generation of Boring & Milling Machine - Rugged Construction, High Efficiency



M-1200

CNC Horizontal Boring & Milling Machine

- X, Y, Z-axis travel 1,200 x 1,100 x 800 mm.
- Table sizes 1,100 x 800 mm.
- Manual or servo indexing table.
- Linear scale for 3 axes (standard).
- 40 tools chain type magazine.
- FANUC 21iMB control (standard).



FBM-1800X

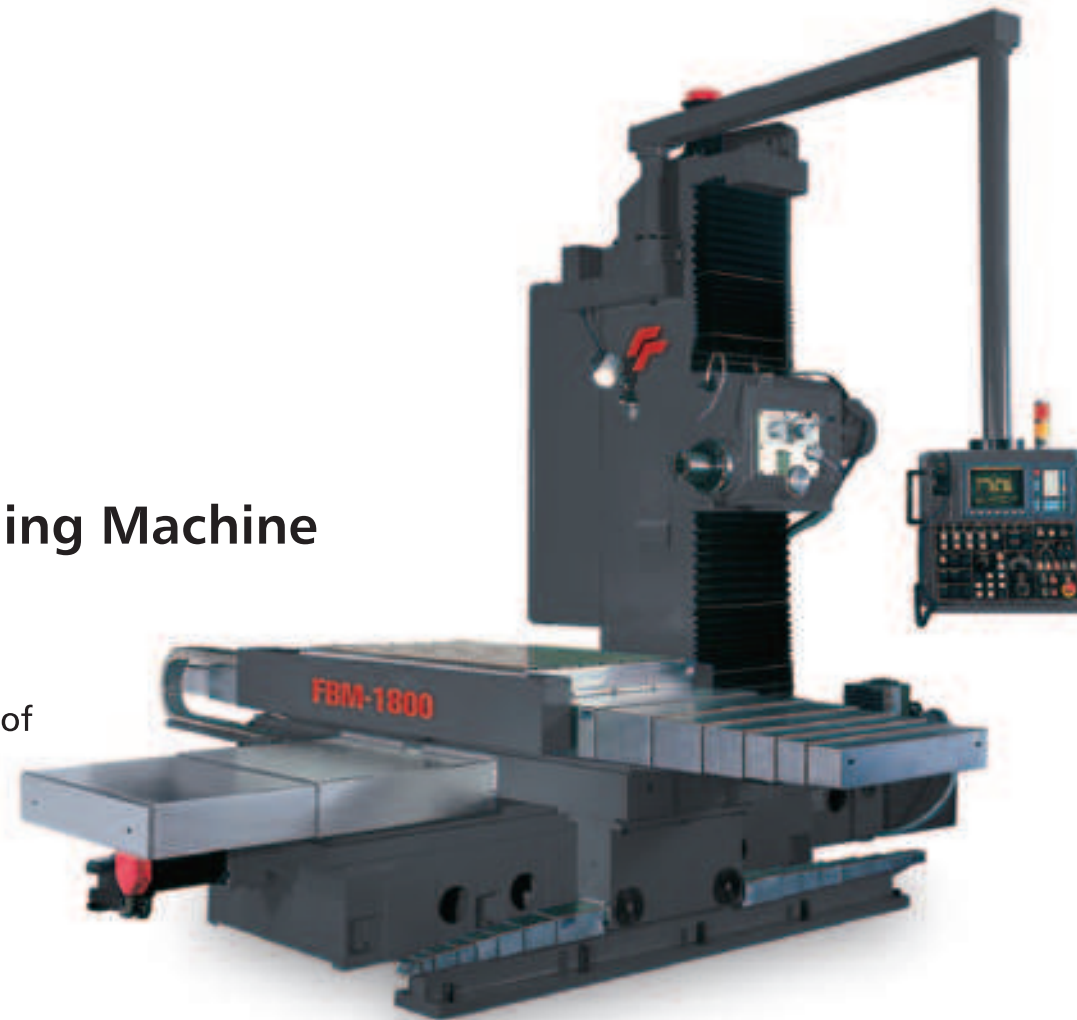
CNC Horizontal Boring & Milling Machine

- X, Y, Z-axis travel 1,800 x 1,200 x 1,200 mm.
- Table sizes 1,500 x 800 mm.
- 40 tools chain type magazine.
- Heavy duty spindle head is driven by a 11 / 15kw.
- Available to equip with a gearbox, providing a choice of spindle speed 2,500, 4,000 or 6,000 rpm (optional).
- FANUC 21iMB control.

FBM-1800

CNC Horizontal Boring & Milling Machine

- X, Y, Z-axis travel 1,800 x 1,300 x 1,200 mm.
- Table sizes 1,500 x 800 mm.
- Equip with a ZF gear box, providing a choice of spindle speed 4,000 or 6,000 rpm (optional).
- FANUC 21iMC control is standard.
- Conventional head (optional).



Recognized Quality! Superior Performance!

FBM-630 / FBM-630L



PENDANT AUXILIARY CONTROL PANEL

The pendant control panel can be moved to any position, providing added convenience in workpiece setup and running test.

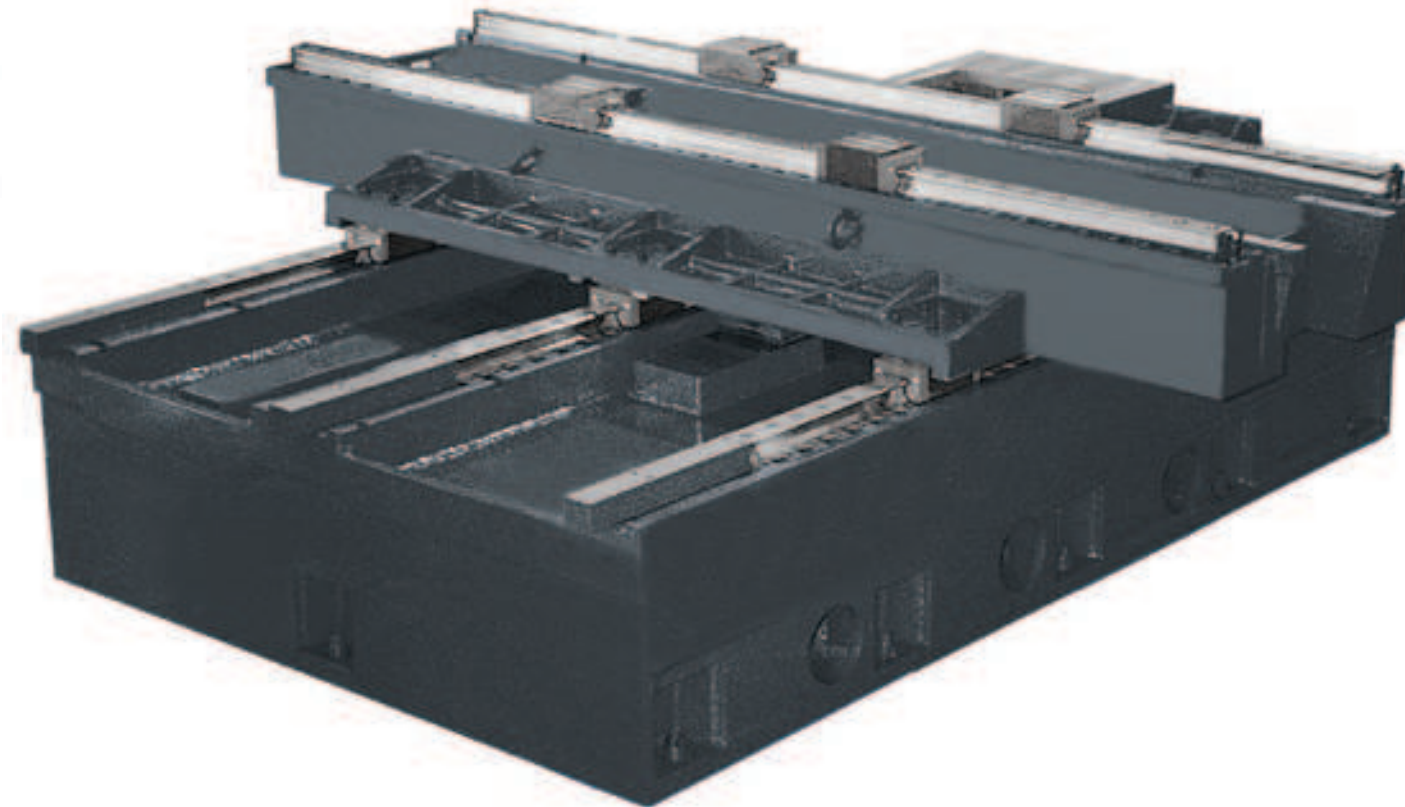


EFFICIENT CHIP REMOVING

The outstanding design of chip removing system not only avoids chip depositing, but also saves manual chip removing time.

MASSIVE BASE CONTRUCTION (FBM-630L) Three Linear Ways on Z-axis

- The extra large, massive base is manufactured from high quality cast iron, tempered for stress relief, assuring that it is lifetime deformation-free.
- Two linear ways on X-axis. Three linear ways on Z-axis. Great span between linear ways provides solid support.
- The use of Swiss Schneeberger high precision, high rigidity roller type linear ways (on X / Z axis) guarantees outstanding stability especially when performing heavy duty cutting.



EXTRA WIDE INTERNAL SPACE

It provides convenient loading and unloading for big workpieces.



HIGH PRECISION TABLE

- Oversized table measures 630 x 630 mm, providing maximum loading capacity up to 1500 kgs.
- High precision indexing table provides axial angle indexing in 5°/72 positions. 1°/360 positions is optional.
- T-slot size on table is 20 x 5 slots. Each slot is 100 mm.



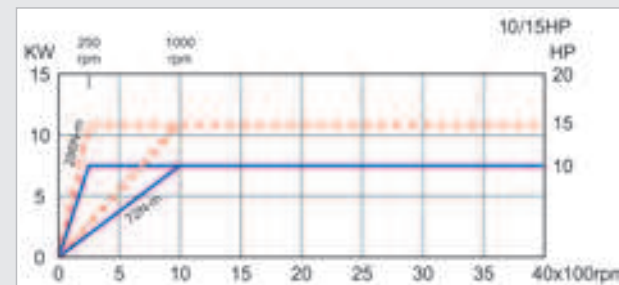
40 TOOLS CHAIN TYPE MAGAZINE (STANDARD)

60 TOOLS CHAIN TYPE MAGAZINE (OPTIONAL)

- The independently mounted chain type magazine features bi-directional, random tool selection. Tool change time is about 14 seconds (tool to tool).
- The magazine accommodates BT-50 or ISO tool shank.

SPINDLE HORSEPOWER/SPEED DIAGRAM

- 15 HP motor drive.
- Employs German ZF gearbox with two speeds range. It provides big torque output at low speed and high speed range.



Massive Base Combined with Auxiliary Ways for Extraordinary Stability

FBM-800 / FBM-800L



- Only 260 mm between spindle nose and table, slight interference on boring by such spindle head.
- Mounted "ZF" gear box to enhance torque in heavy boring.

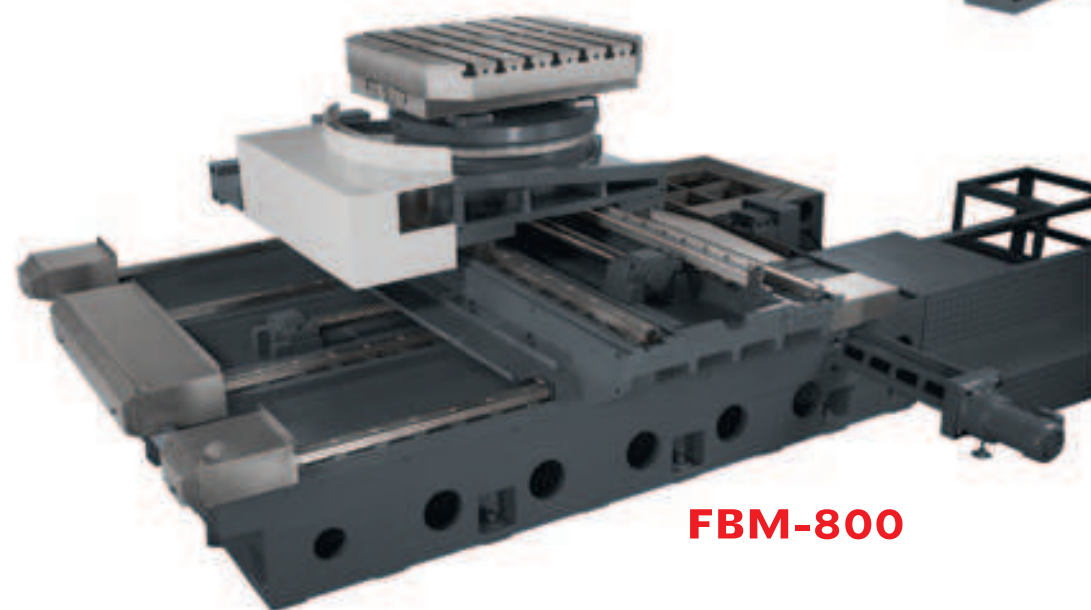


HIGH PRECISION, HIGH RIGIDITY SPINDLE

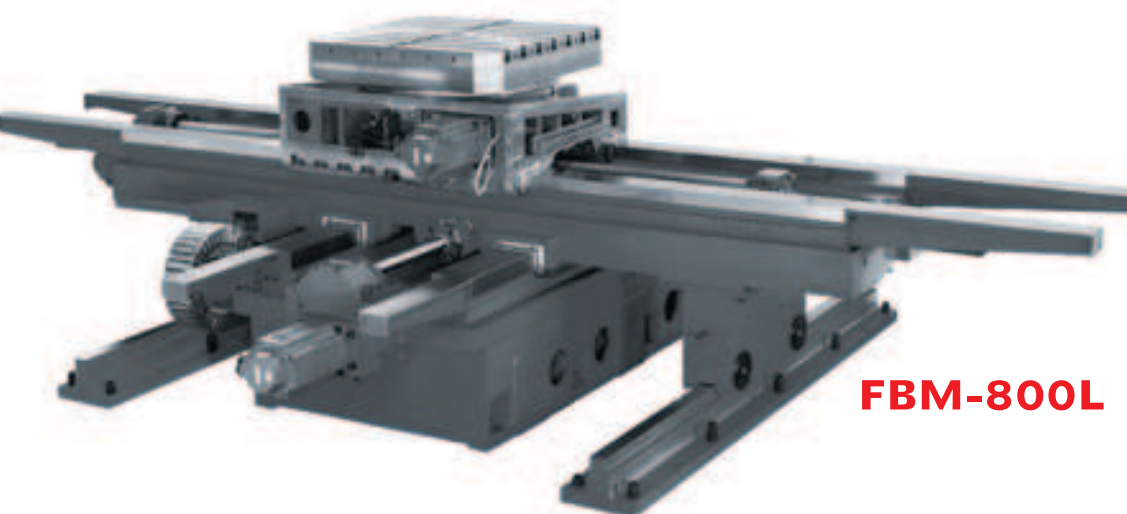
- The spindle is carefully assembled and runs on high precision bearings, making it excellent for long time machining.
- Equipped with spindle oil cooler to ensure spindle running at constant temperature.
- Choice of various spindle speeds - 2,500, 4,000 or 6,000 RPM.

STABLE, RIGID MACHINE STRUCTURE 4 Linear Ways on Z-axis

- The structural parts of the machine are manufactured from high quality cast iron, tempered to relieve stress. This is combined with scientific rib reinforcement to assure maximum rigidity and stability without deformation.
- 4 linear ways on Z-axis of base greatly upgrade supporting stability of the base.
- X, Z-axis are equipped with Japan THK-NRS type rigid linear ways, featuring outstanding stability of machining and lifetime accuracy.
- Oil fluid separation design on the machine structure effectively avoids oil deterioration.
- Three axes travels are fully supported to eliminate overhang problem.



FBM-800

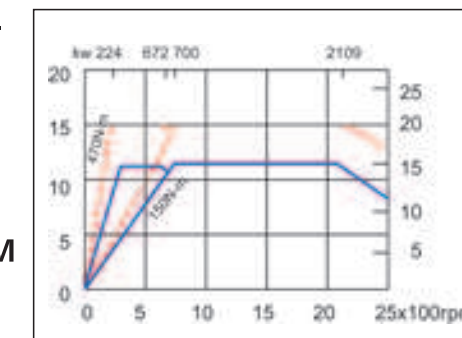


FBM-800L

- Chain's magazine as 40, 60, 90 tools.
- High stable, hard wear on 3 axes with "Turcite-B" surface.
- Various spindle head to selected from.
- Shown as spindle 7.5/11kw, 4000 rpm.

SPINDLE SPEED / TORQUE DIAGRAM

- 15 / 20 HP servo motor drive.
- 2,500 rpm spindle speed.



FLOATING TYPE TOOL RELEASING

Specially designed tool releasing on spindle prevents spindle bearings from damaging during tool releasing while ensuring spindle accuracy and its service life.



SHORTEND DISTANCE FROM SPINDLE TO TABLE

The spindle head features a flange design, allowing for a shorter distance from spindle to table. The shortest distance from spindle nose to table center is only 225mm. This feature makes the machine ideal for various boring and milling operations with maximum stability.



Exceptional Performance from High Quality Parts and Effective Design

FBM-1200 / FBM-1800 / FBM-1800X



SPINDLE OIL COOLER

- The spindle oil cooler allows for temperature setting, ensuring spindle running at constant temperature and high accuracy.

ELECTRIC CABINET MEET INTERNATIONAL STANDARDS

- The electric cabinet employs a fully enclosed heat exchanger to keep constant temperature in the cabinet.
- Electric wiring meets international standards. Control circuit consists of high quality electronic components, assuring steady control performance, safety and long service life.
- Air conditioner is also available as option.

AUTOMATIC LUBRICATION SYSTEM

- 15 kg/cm² high pressure automatic lubrication system.
- Volumetric oil distributor features simultaneous oil shooting, which assures uniform lubrication for all points.
- Detecting sensor is provided in the circuit to detect if piping is broken or choked.



GERMANY ZF GEAR BOX

- 2-speed planetary gear box allows smooth running and optimum torque output in both low and high speed ranges.
- The spindle drive system employs high horsepower motor combined with ZF gear box for best possible machining performance.
- Gear ratio 1:4 with minimum backlash assures extremely smooth running at high speed.



60 TOOLS CHAIN TYPE MAGAZINE

- The independently mounted chain type magazine features bi-direction, random tool selection. Tool change time is about 14 seconds (tool to tool).
- The magazine accommodates BT-50 or ISO 50 tool shanks.



- Highly rigid spindle construction, attached oil chiller.

Optional Rotary Tables:



Manually Rotary Table

- 600 mm x 600 mm x 5°(1°)
- 700 mm x 700 mm x 5°(1°)
- 800 mm x 800 mm x 5°(1°)



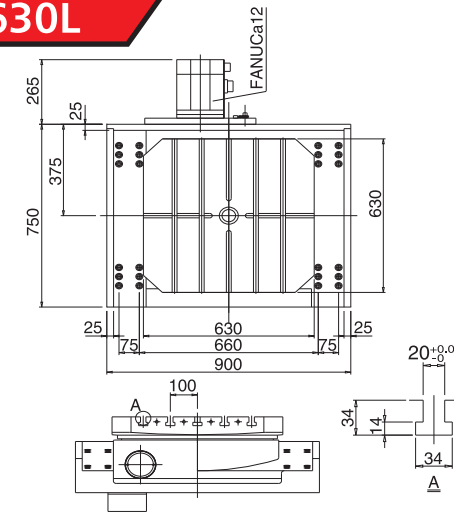
CNC Rotary Table

- 630 mm x 630 mm x 5°(1°)
- 700 mm x 700 mm x 5°(1°)
- 800 mm x 800 mm x 5°(1°)

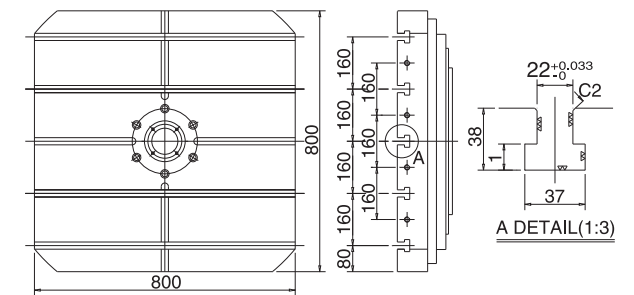
Table Size

Unit: mm

FBM-630L

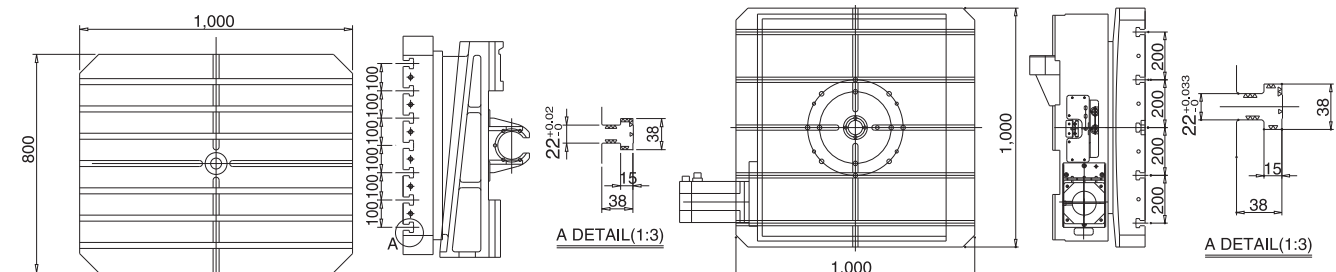


FBM-800L

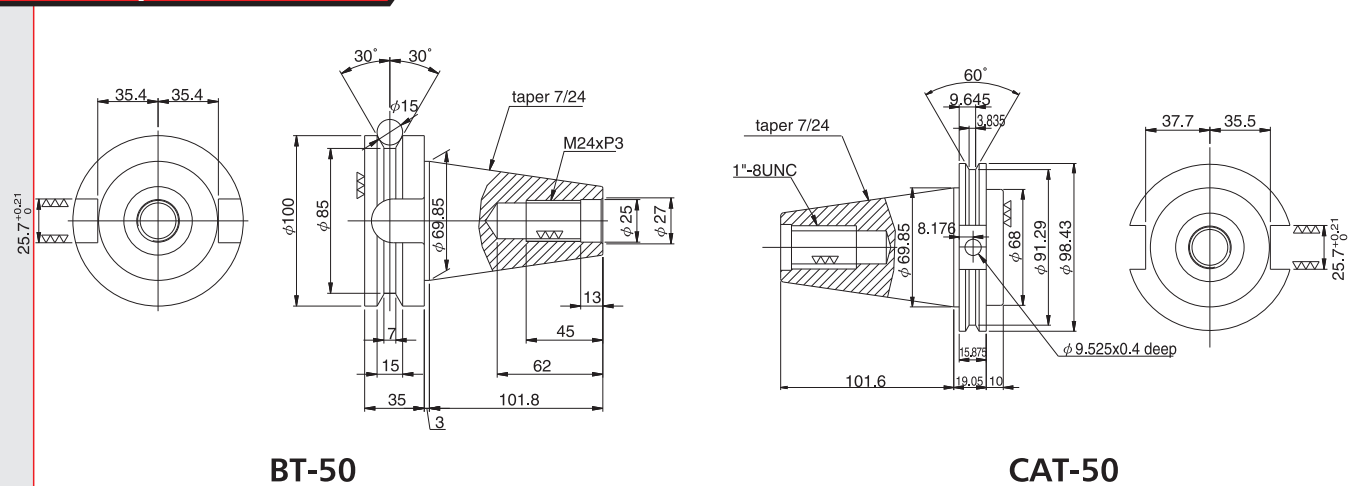


FBM-800L

OPTIONAL



Tool Specifications



BT-50

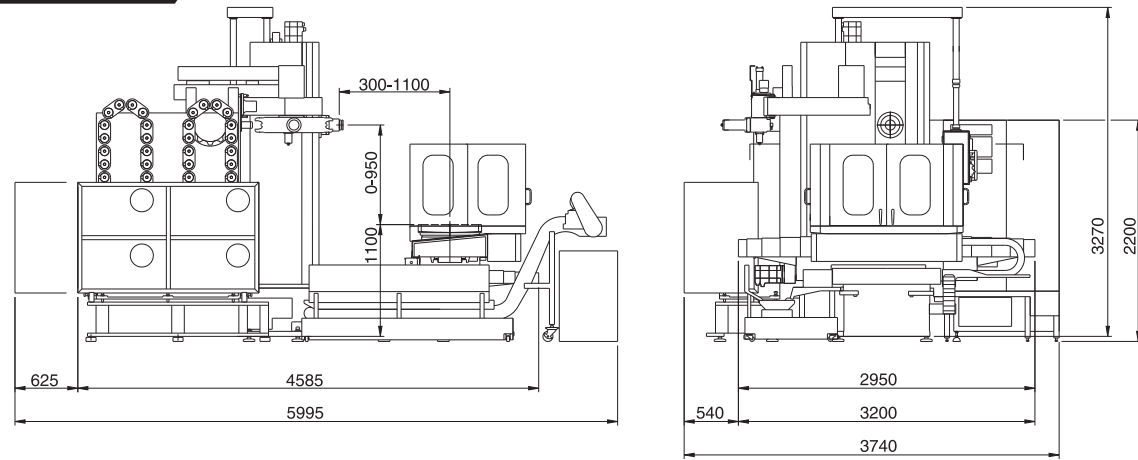
CAT-50

Stable Operation, Reliable Results.

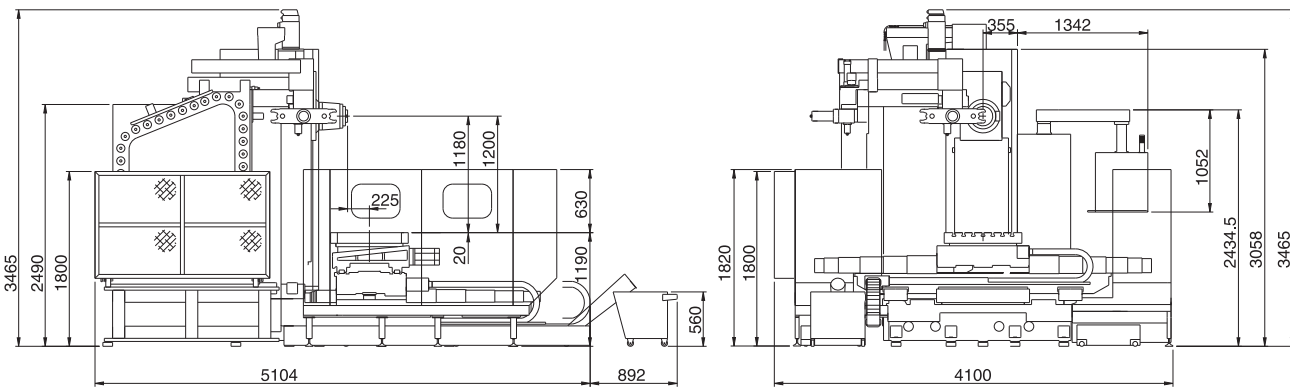
Machine Dimensions

Unit: mm

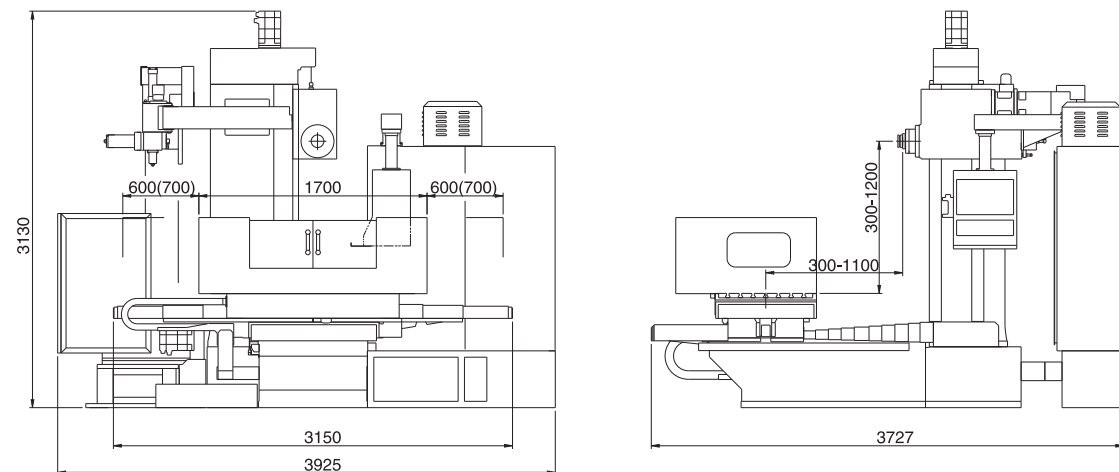
FBM-630L



FBM-800L



FBM-1200

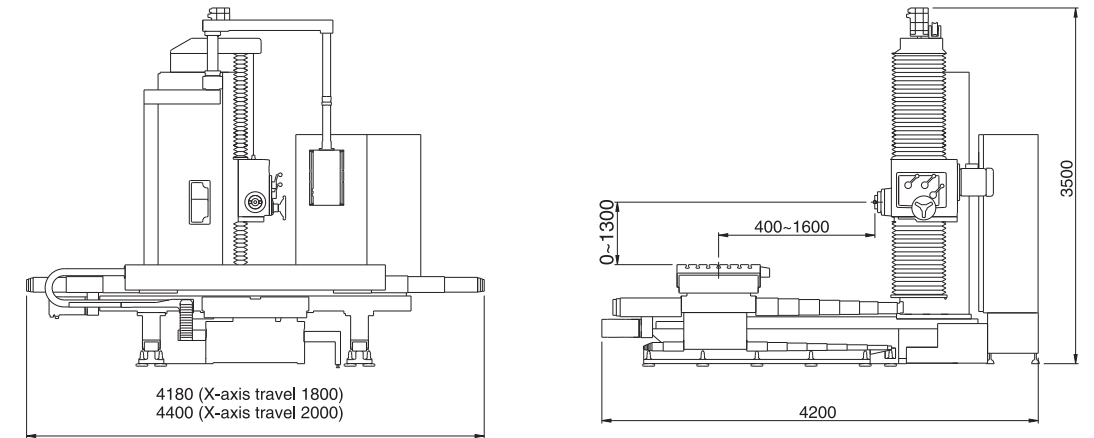


Machine Dimensions

Unit: mm

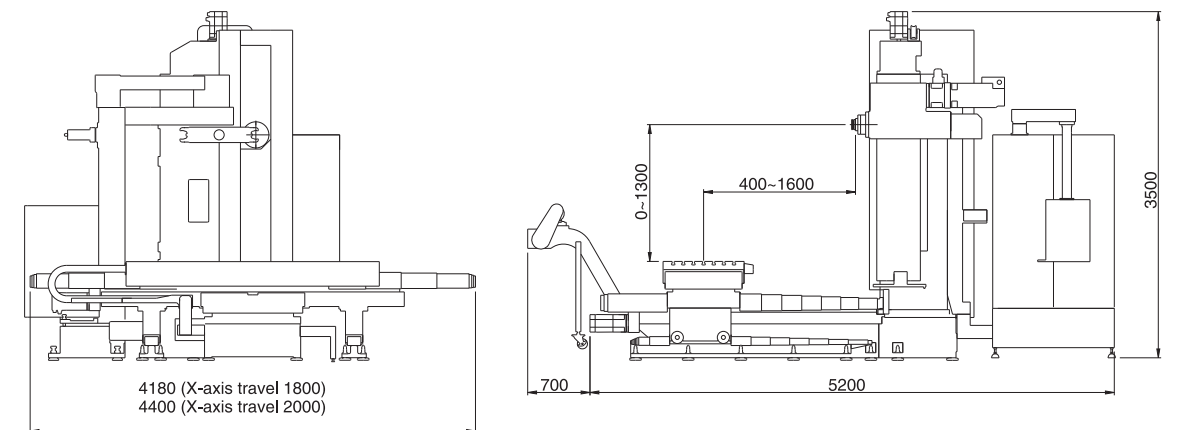
FBM-1800

With Conventional Head and Standard Table



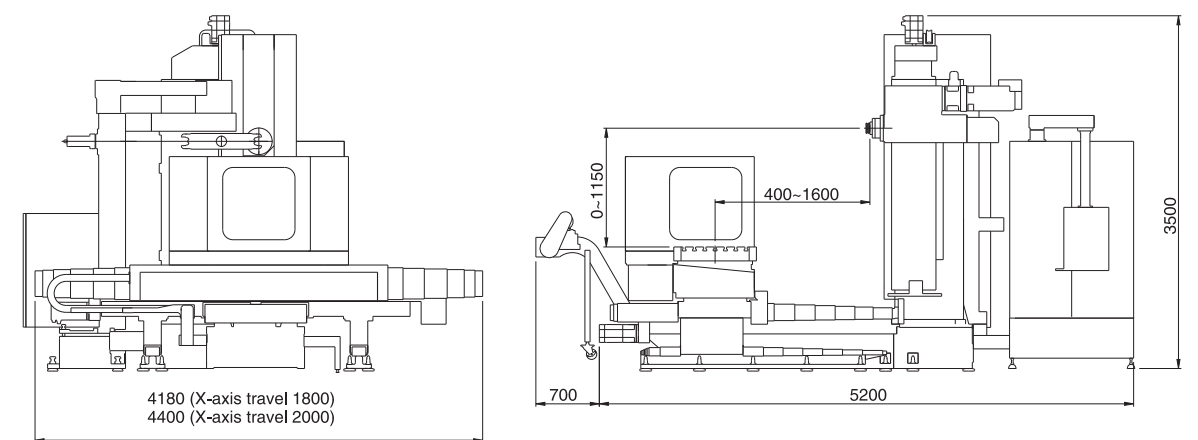
FBM-1800X

With Standard Table and Spindle



FBM-800

With Index Table and Standard Spindle



FBM-630 / FBM-630L / FBM-800 / FBM-800L Specifications

MODEL	UNIT	FBM-630	FBM-630L	FBM-800	FBM-800L
TABLE					
Size	mm	630 x 630 (700 x 700, 700 x 900)		800 x 800 (1,000 x 800, 1,000 x 1,000)	
T-Slots	mm	20 x 5		22 x 7	
Max. Loading	kg	1,500		2,500 (3,500)	
Height from Ground	mm	1,110		1,200	1,170
Indexing Degree	sec	5°/72 (1°/360)		1°/360	
Clamping Force	kg	4,000		6,000	
TRAVELER					
X Axis Travel	mm	1,200	1,200 (1,400)	2,000	1,600
Y Axis Travel	mm	950 (1,150)		1,100 (1,500)	1,180 (1,600)
Z Axis Travel	mm	800	800 (1,000)	1,200 (1,400)	1,000 (1,200)
DISTANCE					
Spindle Nose to Table Center	mm	250~1,050 (160~960) (250~1,250)		260~1,460	225~1,225 (225~1,425)
Spindle Center to Table	mm	0~950 (0~1,150)		0~1,100 (0~1,500)	0~1,180 (0~1,600)
SPINDLE					
Spindle Taper	mm	ISO-50 / BT-50		ISO-50, BT-50	
Spindle Speed 2 Steps	rpm	4,000 (6,000)		10~2,500 (4,000~6,000)	
FEED RATE					
X/Y/Z Rapid Traverse	m/min	10/10/10	12/10/12	10/10/10	15/12/15
Cutting Feed rate	mm/min	1~5,000		1~5,000	
Least Input	mm	0.001		0.001	
ATC					
No. of Tools	tool	40 (60 / 90)		40 (60 / 90 / 120)	
Tool Specification		BT-50 / P50T-1		BT-50 / P50T-1	
Max. Tool Length	mm	350		350	
Max. Tool Weight	kg	18		18	
Max. Tool Diameter	mm	Ø125-Ø250 (With Adjacent Tool)		Ø125-Ø250 (With Adjacent Tool)	
Tool Selection		Random		Random	
Tool Changed Time	sec	14		14	
MOTORS					
Spindle Servo Motor	kW	7.5/11 (11/15)		11 / 15 (15 / 18.5)	
X/Y/Z/B Servo Motors	kW	3 / 3 / 4 / 3		4 / 4 / 4 / 4	
Lubricator Motor	kW	0.025		0.025	
Hydraulic Pump	kW	2.25		2.25	
Indexing Table	kW	2		3	
Chip Conveyor	kW	0.2		0.2	
Coolant Pump	kW	0.9		0.9	
MISCELLANEOUS					
Air Consumption	kg/cm ²	6		6	
Power Required	KVA	30		45	
Hydraulic Tank Volume	l	120		180	
Spindle Oil Cooler	l	8		25	
Coolant Tank Volume	l	300		400	
ACCURACY					
Positioning X / Y / Z (ISO230-2)	mm	0.022 / 0.02 / 0.022		0.022 / 0.022 / 0.022	
Repeatability X / Y / Z (ISO230-2)	mm	0.011 / 0.01 / 0.011		0.011 / 0.011 / 0.011	
Roundness	mm	0.02/300		0.02 / 300	
MACHINE DIMENSION					
Machine Outline	mm	5,995 x 3,740 x 3,270		6,450 x 5,600 x 3,450	6,300 x 4,150 x 3,500
Machine Weight	kg	11,000	12,000	13,000	14,000

★ Y-axis without Hydraulic's Balancer Instead of Motor Brake ★ ()As Optional ★ Specifications are subject to change without prior notice.

STANDARD ACCESSORIES:

- Controller: Fanuc 21iMB
- Spindle oil chiller
- Auto power off
- Coolant system
- Centralized lubrication system
- Alarm light
- Handle remote box
- RS232c interface
- Foundation bolts and tool box
- Operation manual
- Accuracy inspection lists
- Chip screw
- Chip conveyor w/ bucket
- Removable covers (for FBM-630(L), FBM-800L)
- ZF gearbox
- Heat exchanger
- X / Y / Z Linear scale (800L)

OPTIONAL ACCESSORIES:

- Multi-controller (Meldas, Siemens)
- Oil mist unit
- Deep hole adapter
- Auto workpiece measurement (OMP-60)
- Splash guard (FBM-630L, FBM-800L)
- Coolant through spindle w/15 bar filter system (20um)

FBM-1200 / FBM-1800/ FBM-1800X Specifications

MODEL	UNIT	FBM-1200	FBM-1800	FBM-1800X
TABLE				
Size	mm	1,100 x 800	1,500 x 800	
Max. Loading	kg	1,500	2,000	
Height from Ground	mm	850	975	
TRAVELER				
X Axis Travel	mm	1,200 (1,400)	1,800	
Y Axis Travel	mm	1,100 (1,300)	1,300 (1,600)	1,200 (1,600)
Z Axis Travel	mm	800 (1,000)	1,200 (1,400)	
DISTANCE				
Spindle Nose to Table Center	mm	250~1,050 (1,250)	400~1,600 (1,800)	260~1,460 (1,660)
Spindle Center to Table	mm	100~1,200 (1,400)	100~1,400 (1,700)	160~1,360 (1,760)
SPINDLE				
Spindle Taper	mm	ISO-50 / BT-50		
Spindle Speed 2 Steps	rpm	20~4,000 (30~6,000)	20~4,000 (30~6,000)	10~2,500 (4,000~6,000)
FEED RATE				
X/Y/Z Rapid Traverse	m/min	10 / 10 / 10		
Cutting Feed rate	mm/min	1~5,000		
Minimum Input	mm	0.001		
ATC				
No. of Tools	tool	40 (60)		
Tool Specification		BT-50 / ISO50		
Max. Tool Length	mm	350		
Max. Tool Weight	kg	18		
Max. Tool Diameter	mm	Ø125-Ø250 (With Adjacent Tool)	Ø125-Ø250 (With Adjacent Tool)	Ø125-Ø250 (With Adjacent Tool)
Tool Selection		Random		
Tool Changed Time	sec	14		
MOTORS				
Spindle Servo Motor	kW	7.5 / 11 (11 / 15)	7.5 / 11 (11 / 15)	11 / 15 (15 / 18.5)
X/Y/Z/B Servo Motors	kW	3 / 3 / 4	3 / 3 / 4	4 / 4 / 4
Lubricator Motor	kW	0.025		
Hydraulic Pump	kW	0.75		
Coolant Pump	kW	0.9		
MISCELLANEOUS				
Air Consumption	kg/cm ²	6		
Power Required	KVA	30	40	45
Hydraulic Tank Volume	l	120	180	180
Coolant Tank Volume	l	300	400	400
ACCURACY				
Positioning X / Y / Z (ISO230-2)	mm	0.022 / 0.022 / 0.022		
Repeatability X / Y / Z (ISO230-2)	mm	0.011 / 0.011 / 0.011		
Roundness	mm	0.02/300		
MACHINE DIMENSION				
Machine Outline	mm	3,900 x 3,150 x 3,130	4,300 x 5,600 x 3,450	4,300 x 5,600 x 3,500
Machine Weight	kg	8,000	12,000	13,000

★ ()As Optional ★ Specifications are subject to change without prior notice.

STANDARD ACCESSORIES:

- Controller: Fanuc 21iMB
- Spindle oil chiller
- Auto power off
- Coolant system
- Centralized lubrication system
- Alarm light
- Handle remote box
- RS232c interface
- Foundation bolts and toolbox
- Operation manual
- Accuracy inspection lists
- Hydraulic pump
- Work light

OPTIONAL ACCESSORIES:

- Linear scale on X/Y/Z axes
- Oil mist unit
- Deep hole adapter
- Coolant through spindle w/15 bar filter system (20um)
- Chip screw
- Chip conveyor w/ bucket
- Indexing table (Manually / CNC)



FAIR FRIEND ENT. GROUP
FAIR FRIEND ENTERPRISE CO., LTD.

HEADQUARTERS
No. 186, Yong Chi Road, Taipei, Taiwan.
Tel: +886-2-2763-9696 Fax: +886-2-2768-0636/37/39
<http://www.fairfriend.com.tw>
E-mail: chairom@fairfriend.com.tw

MACHINE TOOLS DIVISION
No. 133, Gong 1st. Road, Taichung Industrial Park, Taichung City, Taiwan.
Tel: +886-4-2359-4075 (MAIN), 2359-4845 (SALES DEP.)
Fax: +886-4-2359-0318 (MAIN), 2359-4873 (SALES DEP.)
<http://www.feeler.com>
E-mail: sales@feeler.com

ISO 9001
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FBM SERIES

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