



# BED TYPE PRECISION MILLING MACHINE

*The best assistant for MOLD MAKING as well as versatile machining, tool room, development and maintenance.*

- ONE-PIECE HUGE and rigid bed casting, EXTREMELY WIDE slide ways (especially super wide Y axis slide way), FULLY LENGTH saddle supported & STRONG TYPE work head ensure EXCELLENT HEAVY CUTTING and accuracy maintaining.
- INVERTER operated vari-3 axes auto feed, strong type reduction gear motor drive ensure handy and powerful feeding; 2 AXES feed in SIMULTANEOUS.
- INVERTER OPERATED vari-spindle speed.
- DISENGAGABLE handwheels for handy & safe operation.
- C5 BALL SCREWS w/double nuts on 3 axes.
- Licensed MEEHANITE casting.
- HARDENED & GROUND on X, Y, Z, slide ways & top surface of table.
- TURCITE B coated on X, Y, Z slide ways and gibs.
- Telescopic steel way covers on X axis and Y front.



**FM-240 ▶**



# BED TYPE PRECISION MILLING MACHINE

## ▶▶▶ FM-180E / 185L / 240



**FM-180E ▲**

- ONE-PIECE HUGE and rigid bed casting, EXTREMELY WIDE slide ways, FULLY LENGTH saddle supported (FM-185L) & STRONG TYPE work head ensure EXCELLENT HEAVY CUTTING and accuracy maintaining.
- INVERTER operated vari-X, Y axes auto feed, strong type reduction gear motor drive ensure handy and powerful feeding. (Z axis is also available by option) (FM-185L) .
- X, Y axes auto feed by power feed. (FM-180E)
- MECHANICAL OPERATED vari-spindle speed. (or inverter operated, opt.)
- DISENGAGABLE handwheels for handy & safe operation.
- C5 BALL SCREWS w/double nuts on X, Y axes ( Z axis is also available by option) (FM-185L)
- Precision ACME lead screw on 3 axes. (FM-180E)
- Licensed MEEHANITE casting.
- HARDENED & GROUND on X, Y, Z slide ways & top surface of table.
- TURCITE B coated on X, Y, Z slide ways and gibs.
- Way covers to protect the slide ways & ball screws from dust. (Telescopic steel way cover on Y front) (FM-185L)



**FM-185L ▶**

- w/ optional inverter operated spindle motor, air power draw bar.

# HEAVY DUTY BED TYPE MILLING MACHINE

## ▶▶▶ FM-280 / 320



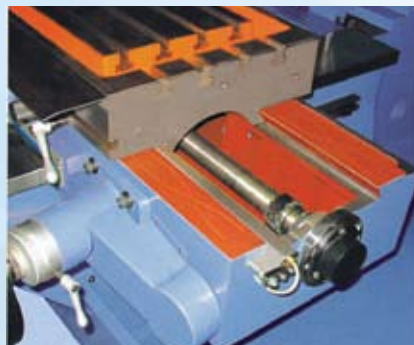
**FM-320 ▲**

- ONE-PIECE HUGE and rigid bed casting, EXTREMELY WIDE slide ways (especially super wide Y axis slide way), FULLY LENGTH saddle supported & STRONG TYPE work head ensure EXCELLENT HEAVY CUTTING and accuracy maintaining.
- DC SERVO driver operated vari-3 axes auto feed, strong DC servo motor drive ensure handy and powerful feeding.
- INVERTER OPERATED vari-spindle speed.
- DISENGAGABLE handwheels for handy & safe operation.
- Licensed MEEHANITE casting.
- HARDENED & GROUND on X, Y, Z slide ways & top surface of table.

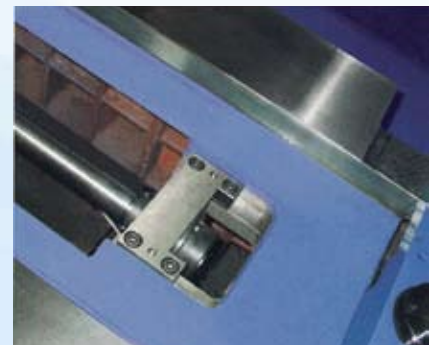
### Features for FM-280 / 320



- X, Y axes telescopic type full cover avoid chips into the slide ways and ball screws.
- Z axis telescopic cover (opt.)
- X, Y, Z axes micro adjustment handle permits of efficient adjustment without need of handwheel.



- The X, Y, Z axes are coated with Turcite-B providing low friction & vibration which ensures smooth movement & accuracy.



- The X, Y, Z axes are equipped with precision double nut pretensioned ball screws, achieve consistant accuracy & lasting. The Y, Z axes are adopted inner pin which can ensure cross & vertical smooth movement.



## SPECIFICATIONS

MODEL	FM-180E	FM-185L	FM-240	FM-280	FM-320
<b>TABLE</b>					
Working surface	1270x250mm (50"x10") or 1370x250mm (54"x10")(opt.)	1470x305mm (57-7/8"x12")	1470x380mm (57-7/8"x14-7/8")	1702x410mm (67"x16-1/8") (or 1702x510mm (67"x20-1/16"), opt.)	1900x410mm (74-13/16"x16-1/8") (or 1900x510mm (74-13/16"x20-1/16"), opt.)
T-slots(size x number x pitch)	16mmx3x70mm (0.630"x3x2.755")	16mmx3x63mm (0.630"x3x2.480")	16mmx3x75mm (0.630"x3x2.953")	18mmx4x70mm (0.708"x4x2.755")	
Max. table load	500kgs (1105 lbs)	600kgs (1326 lbs)	1000kgs (2210 lbs)	1200kgs (2652 lbs)	1500kgs (3315 lbs)
<b>TRAVEL</b>					
Longitudinal travel(X axis)	690mm(27-1/8"),w/p.f. or 900mm (35-3/8") w/p.f.(opt.)	1040mm (40-7/8")	1200mm (47")	1400mm (55")	1600mm (63")
Cross travel(Y axis)	540mm (21-1/4")	500mm (20")		600mm (23-5/8")	650mm (25-5/8")
Vertical travel(Z axis)	500mm (19-5/8") w/p.u./d.	560mm (22-1/16")	630mm (24-3/4")	700mm (27-5/8")	
Distance from spindle end to table	100-600mm (3-7/8"~ 23-5/8"),w/p.u./d.	45~605mm (1-3/4"~23-13/16")	140~770mm (5-1/2"~30-1/4")	100~800mm (3-7/8"~31-1/2")	
Distance from spindle center to column	565mm (22-1/4")		490mm (19-1/4")	650mm (25-5/8")	
<b>SPINDLE</b>					
Spindle nose taper	NT40			NT40	
Spindle speeds	Mechanical operated or inverter operated (opt.) vari 50~3600r.p.m. ; High/Low gear		Inverter operated vari 50~3600r.p.m. ; High/Low gear	Inverter operated vari 85~3600r.p.m. ; High/Low gear	
Quill travel	127mm (5")	120mm (4-3/4")	140mm (5-1/2")	140mm (5-1/2")	
Quill dia.	ø105mm (4-1/8")		ø110mm (4-5/16")	ø110mm (4-5/16")	
Quill feeds per revolution of spindle	0.04, 0.08, 0.14 mm/rev. (0.0015", 0.0030", 0.0055")		0.035, 0.07, 0.14 mm/rev.	0.035, 0.07, 0.14 mm/rev.	
Swiveling angle of head (R&L)	45°			45°	
<b>FEED</b>					
Cutting feed rate	Power feed, 20 ~800mm/min.(X, Y axes)	vari, 25~1200mm/min. (X, Y & Z(opt.) axes)	vari, 25~1200mm/min. (X, Y & Z axes)	vari, 10~3000mm/min. (X, Y & Z axes)	
Rapid traverse	Power feed, 1000mm/min.(X, Y axes)	2000mm/min. (X, Y & Z(opt.) axes)	2000mm/min. (X, Y & Z axes)	4800 mm/min. (X, Y & Z axes)	
<b>MOTOR</b>					
Spindle drive motor	5 HP	5 HP or 7-1/2 HP (opt.)	7-1/2 HP	7-1/2 HP	
X, Y axes motor	Power feed, 650in-lb	Inverter operated 1/2 HP reduction gear motor		DC servo 4.5 Nm	
Z axis motor	1/2HP (power up/down)	1/2 HP (power up/down) or inverter operated, 1/2 HP reduction gear motor (opt.)	Inverter operated 1/2HP reduction gear motor	DC servo 4.5 Nm	
Coolant pump	1/8 HP		1/6 HP	1/6 HP	
<b>DIMENSION</b>					
Machine size	1600x1800x2400 mm (63"x31-1/2"x94-7/16")	1750x2430x2520 mm (68-7/8"x95-5/8"x99-3/16")	2050x2250x2100 mm (80-11/16"x88-9/16"x82-5/8")	2280x2120x2520 mm (89-3/4"x83-7/16"x99-3/16")	2390x2240x2520 mm (94"x88-3/16"x99-3/16")
Machine weight	2000kgs (4420 lbs)	2350kgs (5170 lbs)	3100kgs (6944 lbs)	3800kgs (8398 lbs)	4000kgs (8840 lbs)

• The manufacturer reserves the right to modify the design, specifications, mechanisms...etc. to improve the performance of the machine without prior notice. All the specifications shown above are just for reference.

## STANDARD ACCESSORIES

- Automatic lubrication system
- Halogen lamp
- Coolant system
- Tools & tool box



**TOP PHOENIX  
INTERNATIONAL CORP.**  
Machinery Exporter & Importer

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