

PHOENIX

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 consistent 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
TABLE					
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)
TRAVEL					
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")	
SPINDLE					
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°	
FEED					
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)	
MOTOR					
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	
DIMENSION					
Machine size	1600x1800x2400 mm (63"x31-1/2"x94-7/16")	1750x2430x2520 mm (68-7/8"x95-5/8"x99-3/16")	2050x2250x2100 mm (60-11/16"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



**FRANK PHOENIX
INTERNATIONAL CORP.**
Machinery Mfg., Exporter & Importer

TOPFIT MACHINERY CO., LTD.

23, Ho-Li Street Sec. 1, Taiping 41144 Taichung Hsien, Taiwan
Mail Add: P.O. Box 484 Taichung 40099, Taiwan
E-Mail: fphoenix@ms13.hinet.net; sales@frankphoenix.com.tw
http://www.frankphoenix.com.tw
Tel:886-4-2277-1391(Rep.) Fax:886-4-2277-5822