

**emco** group

Designed for your profit



# EMCOMAT-Series FB-3L, FB-450, FB-600

Universal milling machines with toolmaker precision  
for industrial use

**MILLING**  
EMCO-WORLD.COM

# EMCOMAT FB-3 L

## [Vertical milling head]

- Swivels +/-90°
- Speedy changeover to horizontal milling
- Outstanding repeat accuracy
- Quiet operation
- Adjustable precision taper roller bearings

## [Guideways]

- Linear guides in all three axes
- Large
- Durable
- Low wear

## [Machine stand]

- Low vibration, stress-free cast iron
- Three-point support

## [Control panel]

- Control panel with ergonomically designed keypad

## [Handwheels]

- Safety handwheels for X and Y
- Ergonomic design
- Excellent feed precision
- Easily legible scale rings

## [Machine base]

- Rigid, welded sheet steel
- Integrated coolant system
- Removable coolant reservoir



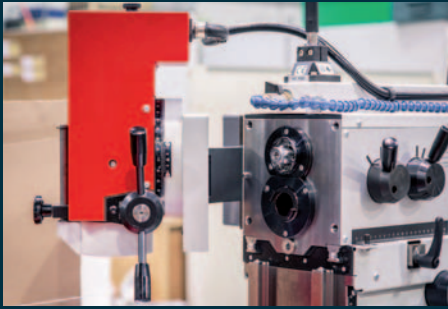
Machine with optional equipment

The EMCOMAT FB-3 L is ideal for tool and mold making, for equipment and prototype manufacturing and small-series production. It has also met with great success in schools and training workshops. As the smallest in EMCO's range of milling machines, the FB-3 L is built to meet the highest standards of precision and flexibility - and all at an unbeatable price.

# [Engineering]

## Highlights

- Compact, vibration-free gray cast iron machine stand
- Swiveling vertical milling head
- Vertical-head drive with palloid tooth system for quiet operation
- Mechanical safety handwheels with scale ring in X and Y axis
- Integrated safety clutch
- Adjustable, long-life precision taper roller bearings for vertical and horizontal milling spindles
- Automated stepless feed in X and Y
- Swivel-mounted digital display



**Horizontal milling head.** Horizontal milling spindle with DIN 2080 SK 30 tool chuck. Swivel-mounted vertical milling head. Vertical-head drive with palloid tooth system.



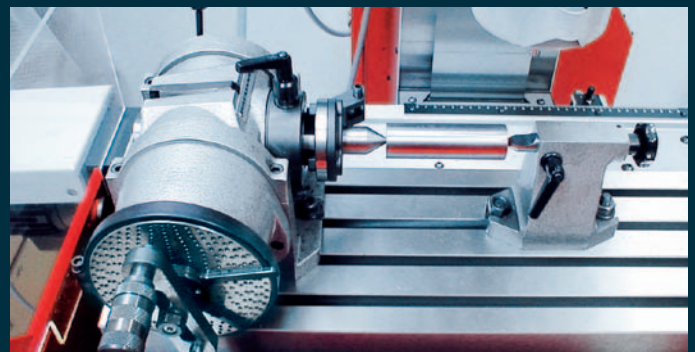
**Safety handwheels (X/Y).** Ergonomically placed handwheels ensure easy and safe handling in all three axes.



**Control panel.** Control panel with ergonomically designed keypad and a swivel mounted position display for easy operation.



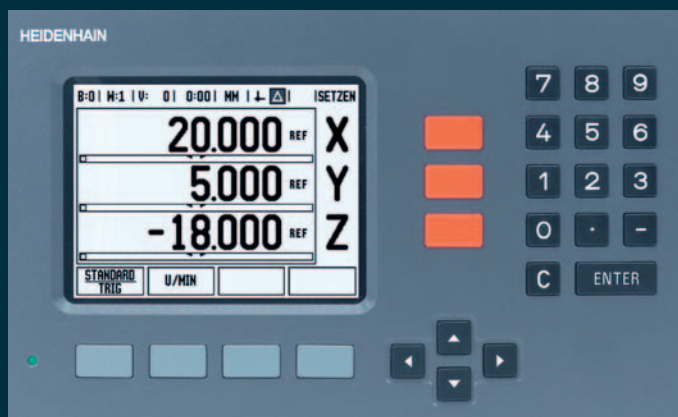
**Vertical milling head.** Vertical milling head with DIN 2080 SK 30 and clampable 45 mm quill travel. The vertical milling head swivels +/- 90°.



**Optional:** dividing head with tailstock.

## Position display units.

The EMCOMAT FB-3 L milling machine can be equipped with different position display units. To meet anyone's needs.



# EMCOMAT FB-450 and FB-600 with position display

With the EMCOMAT FB-450 / FB-600 including position display, EMCO mainly addresses production-oriented users. The machine is characterised by high cutting performance, high precision and universal application possibilities. The amply dimensioned work area facilitates the processing of large workpieces, while the comprehensive accessories help resolve even the most difficult processing problems in a straightforward manner. Equipped with zero-play ball screws and linear guides, the EMCOMAT FB-450 and FB-600 allows for exact axis positioning and increased rapid traverse speeds.

## [Vertical milling head]

- With hydraulic tool clamping for Y and Z milling spindles  
DIN 69871 SK 40

## [Control panel]

- Position display unit based on SINUMERIK 828D

## [Guideways]

- Linear guides in all three axes
- Large
- Durable
- Low wear

## [Coolant tank]

- External coolant tank with coolant pump

## [Machine stand]

- Massive cast construction
- For easy transport

## [Handwheels]

- Safety handwheels in all three axes
- Ergonomic design
- Excellent feed precision
- Easily legible scale rings



Dashboard  
(Steel)



Pneumatic distributor  
(Steel)



Milling flange  
(Steel)



# EMCOMAT FB-450 MC and FB-600 MC

The EMCOMAT FB-450 MC and FB-600 MC machines equipped with Sinumerik 828D control including „manual machine“ or Heidenhain TNC620 control complement the conventional and/or cycle-controlled milling machine series for the processing of large workpieces. Offering user guidance and graphically simulated processing steps, the machines' programming is both user-friendly and efficient.

## [Vertical milling head]

- With hydraulic tool clamping for Y and Z milling spindles
- DIN 69871 SK 40

## [Guideways]

- Linear guides in all three axes
- Large
- Durable
- Low wear

## [Control panel]

- Swivel-mounted
- With Sinumerik 828D or Heidenhain TNC620

## [Coolant tank]

- External coolant tank with coolant pump

## [Handwheels]

- Safety handwheels in all three axes
- Ergonomic design
- Excellent feed precision
- Easily legible scale rings

## [Workspace guard]

- Retractable with large chip shield
- Telescopic covers

## [Machine stand]

- Massive cast construction
- For easy transport



Machine EMCOMAT FB-600 MC with Heidenhain TNC620

EMCOMAT FB-600 MC with a travel in X of 600 mm and a travel in Y/Z of 400 mm and the EMCOMAT FB-450 MC with a X/Y/Z travel of 450 mm/ 350 mm/ 400 mm completes the conventional and/or cyclecontrolled milling machine series for the machining of larger workpieces. EMCOMAT FB-450 MC and FB-600 MC is available with Sinumerik 828D control including „manual machine“ or Heidenhain TNC620.

Programming is performed with user guidance and graphic simulation of the machining steps, thus enabling user-friendly and at the same time efficient programming. The highlights: larger travels and stronger main motor.

# [Control]



## Sinumerik 828D with „Manual Machine“

The Manual Machine operating area provides you with machining capabilities as for a cycle milling machine. All important machining actions can be performed without an associated part program needing to be created.

The following functions are available:

- Measure tool
- Traverse axes
- Set zero offset (ZO)
- Drill, such as centered drilling, centering, deep-hole drilling
- Mill, such as face milling, pocket milling, multi-edge stud milling
- Mill contour

User-friendly input screens with help screens and animated elements are available for parameterizing the cycles.

**Swiveling device.** Swivel-mounted vertical milling head. Controlled by end switch.



## Position display:

Thanks to the 3-axis position display based on SINUMERIK 828D, the positions of the X-, Y- and Z-axes are permanently displayed on the TFT screen. A linear measuring system is used to identify the positions, which are displayed with an accuracy of 0.001 mm.

Possibilities include: tools, speed, feed rate (T, S, F), setting of the zero point, tool list, tool chart, radius compensation

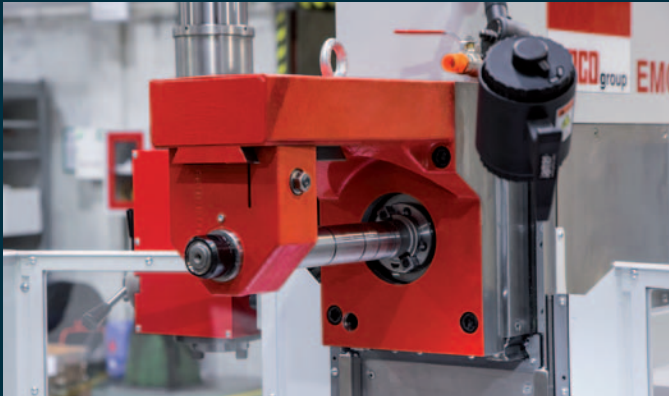
**Heidenhain's TNC 620** is a compact, versatile contouring control with three controlled axes and one controlled spindle.

- Programme input with HEIDENHAIN conversational programming and according to DIN/ISO
- Radius/length tool compensation in several tool charts
- Contour elements and free contour programming
- Drilling cycles: tapping, deep drilling, grating, lowering etc.
- Milling cycles: pockets, notches, contouring, multi-pass milling, thread milling, etc.
- Coordinate transformation
- Programming assistance
- Teach-in
- Touch probe cycles

# [Engineering]

## Highlights

- Compact, vibration-free cast iron machine stand
- Swiveling vertical milling head
- Mechanical safety handwheels with scale ring
- Automated stepless feed in X, Y and Z axes
- Coolant device
- Linear guides in X/Y/Z



**Horizontal milling.** Horizontal milling with long milling arbor for clamping several milling tools. The overarm for supporting long milling arbors is mounted instead of the vertical milling head.



**Safety handwheels (X).** Ergonomically placed handwheels ensure easy and safe handling in all three axes.



**Changeover to horizontal milling.** Horizontal milling spindle DIN 69871 SK 40



Retractable workspace guard with vertical clamping area.

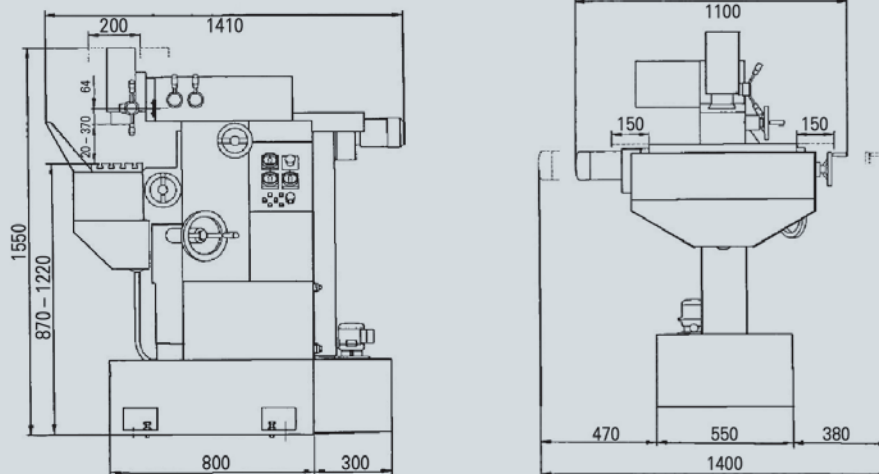


A large **chip shield** at the front of the machine allows for trouble-free chip disposal.

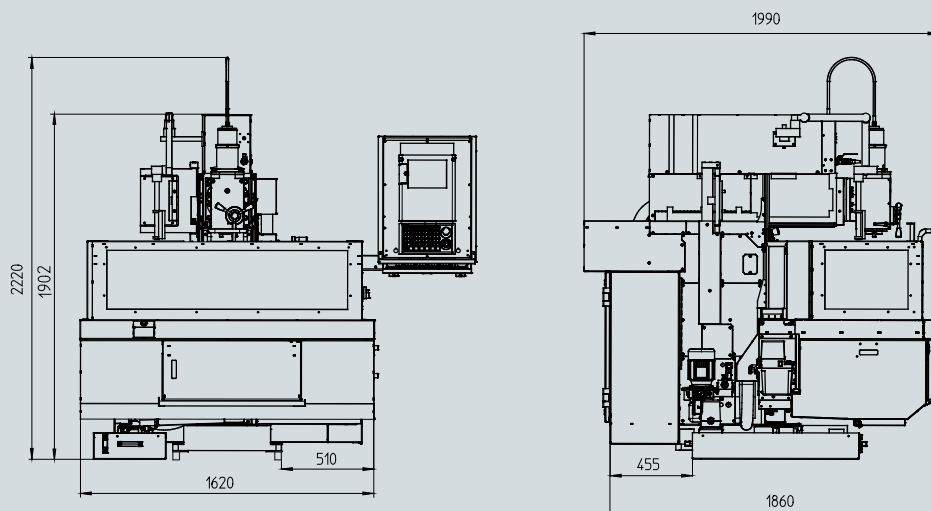


**Swivel-mounted vertical milling head** with quill for manual drilling operations. Thanks to a swivel range of  $\pm 90^\circ$ , even difficult machining can be performed easily.

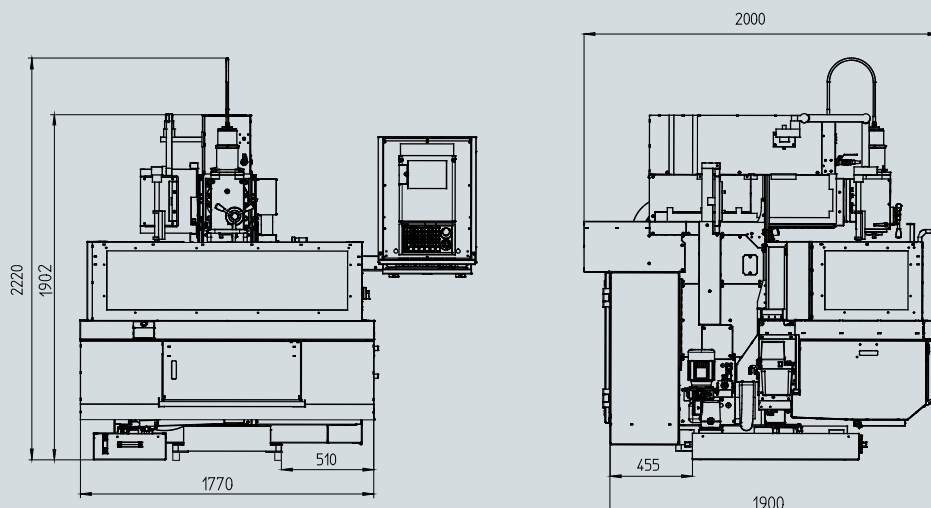
## Floor plan EMCOMAT FB-3 L



## Floor plan EMCOMAT FB-450 MC / FB-450 with position display unit



## Floor plan EMCOMAT FB-600 MC / FB-600 with position display unit





# EMCOMAT FB-3 L, FB-450, FB-600

## Technical data

	FB-3 L	FB-450	FB-600
<b>Work area</b>			
Horizontal longitudinal feed (X)	300 mm (11.8")	450 mm (17.7")	600 mm (23.6")
Vertical table feed (Z)	350 mm (13.8")	400 mm (15.7")	400 mm (15.7")
Horizontal cross feed (Y)	200 mm (7.9")	350 mm (13.8")	400 mm (15.7")
<b>Table</b>			
Clamping area vertical table (LxW)	600 x 180 mm (23.6 x 7.1")	400 x 270 mm (15.7 x 10.6")	400 x 270 mm (15.7 x 10.6")
Width/number of T-grooves	12 x 21 mm/2 pieces (0.5 x 0.8")	14 mm (H 8)/5 pieces (0.6" (H8))	14 mm (H 8)/5 pieces (0.6" (H8))
Permissible workpiece weight	50 kg (110.2 lb)	450 kg (992.1 lb)	450 kg (992.1 lb)
Clamping area rigid anlg table (LxW)	600 x 200 mm (23.6 x 7.9")	800 x 400 mm (31.5 x 15.7")	800 x 400 mm (31.5 x 15.7")
Width/number of T-grooves	12 x 21 mm (4 pieces)	14 mm (H 8 / 8 pieces)	14 mm (H 8 / 8 pieces)
Permissible workpiece weight	50 kg (110.2 lb)	300 kg (661.4 lb)	300 kg (661.4 lb)
<b>Horizontal milling spindle</b>			
Tool chuck	DIN 2080 SK 30	DIN 69871 SK 40	DIN 69871 SK 40
Mechanical speeds	8	continuous	continuous
Speed range	80 – 2200 r.p.m.	10 – 5000 r.p.m.	10 – 5000 r.p.m.
Clearance above table	80 – 430 mm (3.2 – 16.9")	230 – 630 mm (9.1 – 24.8")	230 – 630 mm (9.1 – 24.8")
<b>Vertical milling head</b>			
Tool chuck	DIN 2080 SK 30	DIN 69871 SK 40	DIN 69871 SK 40
Quill travel	45 mm (1.8")	80 mm (3.1")	80 mm (3.1")
Swiveling vertical milling head	+/-90°	+/-90°	+/-90°
Mechanical speeds	8	continuous	continuous
Speed range	80 – 2200 r.p.m.	10 – 5000 r.p.m.	10 – 5000 r.p.m.
Clearance above table	35 – 385 mm (1.4 – 15.2")	40 – 440 mm (1.6 – 17.3")	40 – 440 mm (1.6 – 17.3")
<b>Power</b>			
Power	100% / 60% ED, 1.1 / 1.4 kW 100% / 60% ED, (1.5/1.9 hp)	100% / 40% ED, 7 / 10 kW 100% / 40% ED, (9.4/13.4 hp)	100% / 40% ED, 9 / 13 kW 100% / 40% ED(12.1/17.4 hp)
<b>Feed drive</b>			
Power feed motor 100% ED	0.55 kW(0.7 hp)	1 kW (1.3 hp)	1 kW (1.3 hp)
Feed range X/Y/Z axis			
- with position display unit	X/Y: 50-550 mm/min Z: manually	10 – 2000 mm/min	10 – 2000 mm/min
- with track control (MC)		10 – 5000 mm/min	10 – 5000 mm/min
Rapid motion speed in X/Y/Z	X/Y: 1200 mm/min/ Z: manually	2000 / 5000 mm/min	2000 / 5000 mm/min
Feed force X/Y/Z	8 / - kN	10 / 15 kN	10 / 15 kN
<b>Coolant system</b>			
Coolant in tank	30 liters (7.9 gal)	40 liters (10.6 gal)	40 liters (10.6 gal)
Max. pump capacity	15 l/min	25 l/min	25 l/min
<b>Machine dimensions</b>			
Overall length	1410 mm (55.5")	1980 mm (78.0")	2100 mm (82.7")
Overall width	1150 mm (45.3")	2030 mm (79.9")	2190 mm( 86.2")
Overall height	1550 mm( 61.0")	1990 mm (78.3")	1990 mm (78.3")
Weight of machine	500 kg (1102.3 lb)	2270 kg (5004,5 lb)	2370 kg (5224 lb)

