Universal milling machines with toolmaker precision for industrial use

EMCOMAT FB-600 MC
EMCOMAT FB-3 L
WITH
POSITION DISPLAY

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.

MACHINE BASE
/ Rigid, welded sheet steel
/ Integrated coolant system
/ Removable coolant reservoir

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
/ Easily legible scale rings

MACHINE WITH OPTIONAL EQUIPMENT
EMCOMAT FB-3 L
WITH
POSITION DISPLAY

Pneumatic distributor (Steel)
**TECHNICAL HIGHLIGHTS**

**VERTICAL MILLING HEAD**
Vertical milling head with DIN 2080 SK 30 and clampable 45 mm quill travel. Swivel-mounted vertical milling head with palloid tooth system.

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

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

**POSITION DISPLAY UNITS**
HEIDENHAIN ND 7013
HEIDENHAIN POSITIP 8016
With 7” screen for touch operation. With 12” screen for touch operation.

**OPTIONAL**
Dividing head with tailstock.

**CONTROL PANEL**
Control panel with ergonomically designed keyboard and a swivel-mounted position display for easy operation.

**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 axes
- Integrated safety clutches
- Adjustable, long-life precision taper roller bearings for vertical head horizontal milling spindles
- Automated stepless feed in X and Y
- Swivel-mounted digital display

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EMCOMATT FB-3L
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 ample 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

**GUIDEWAYS**
- Linear guides in all axes
- Large guide length
- Low wear

**COOLANT TANK**
- External coolant tank with coolant pump

**MACHINE STAND**
- Massive cast construction
- For easy transport

**CONTROL PANEL**
- Position display unit based on SINUMERIK 828D

**HANDWHEELS**
- Safety handwheels in all three axes
- Ergonomic design
- Excellent feed precision
- Easily legible scale rings
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 cycle-controlled 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.

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
- Long
- Low wear

COOLANT TANK
- External coolant tank with coolant pump

MACHINE STAND
- Massive cast construction
- For easy transport

WORKSPACE GUARD
- Retractable with large chip shield
- Telescopic covers

Dashboard
- Steel
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.

CHANGEOVER TO HORIZONTAL MILLING
Horizontal milling spindle DIN 69871 SK 40

SAFETY HANDWHEELS
Ergonomically placed handwheels ensure easy and safe handling in all three axes.

RETRACTABLE WORKSPACE
Retractable workspace guard with vertical clamping arm.

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

SWIVELING DEVICE
Swivel-mounted vertical milling head. Controlled by end switch.

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
Machine tools are facing ever-increasing requirements. They are supposed to be ever faster, ever more precise and ever more user-friendly!

Nowadays, these criteria are met by modern CNC control units. What is new, however, is the wish for networking, something that the state-of-the-art controls included in EMCO’s machine tool programme are capable of. Many customers are asking for standardized control units within their production. In order to cater for these needs, the Emcomat FB-450 and FB-600 are available with the following versions.

**Sinumerik 828D with “Manual Machine”**

The Manual Machine operating area gives you the possibility to control a machine without the necessity to create a machining program. 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, edge milling
- User-friendly input screens with help screens and animated elements are available for parameterizing the cycles.

**Heidenhain’s TNC 620**

A compact, versatile contouring control with three controlled axes and one controlled spindle. The following functions are available:

- 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
- Milling cycles: pockets, notches, contouring, multi-pass milling, thread milling, etc.
- Milling cycles: pockets, notches, contouring, multi-pass milling, thread milling, etc.
- Coordinate transformation
- Programming assistance
- Teach-in
- Touch probe cycles

**Position display**

Thanks to the 3-axis position display based on SINUMERIK 828D, the positions of the X, Y and Z-axis 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.

Possible indications include tools, speed, feed rate (T, S, F), setting of the zero point, tool list, tool chart, radius compensation.
### TECHNICAL DATA

<table>
<thead>
<tr>
<th>Model: FB-3 L</th>
<th>FB-450</th>
<th>FB-600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal longitudinal feed (X)</td>
<td>300 mm</td>
<td>450 mm</td>
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<tr>
<td>Vertical table feed (Z)</td>
<td>350 mm</td>
<td>400 mm</td>
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<tr>
<td>Horizontal cross feed (Y)</td>
<td>200 mm</td>
<td>350 mm</td>
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<tr>
<td>Table clamping area vertical table (LxW)</td>
<td>600 x 180 mm</td>
<td>400 x 270 mm</td>
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<tr>
<td>Width/number of T-grooves</td>
<td>12 x 21 mm / 2 pieces</td>
<td>14 mm (H 8) / 5 pieces</td>
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<tr>
<td>Permissible workpiece weight</td>
<td>max. 50 kg</td>
<td>450 kg</td>
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<tr>
<td>Clamping area rigid angle table (LxW)</td>
<td>600 x 200 mm</td>
<td>800 x 400 mm</td>
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<tr>
<td>Width/number of T-grooves</td>
<td>12 x 21 mm / 4 pieces</td>
<td>14 mm (H 8) / 8 pieces</td>
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<tr>
<td>Permissible workpiece weight</td>
<td>max. 50 kg</td>
<td>300 kg</td>
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<tr>
<td>Horizontal milling spindle</td>
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<td></td>
</tr>
<tr>
<td>Tool chuck</td>
<td>DIN 2080 SK 30</td>
<td>DIN 69871 SK 40</td>
</tr>
<tr>
<td>Mechanical speeds</td>
<td>8 stufenlos</td>
<td>8 stufenlos</td>
</tr>
<tr>
<td>Speed range</td>
<td>80 – 2200 rpm</td>
<td>10 – 5000 rpm</td>
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<tr>
<td>Clearance above table</td>
<td>80 – 430 mm</td>
<td>-</td>
</tr>
<tr>
<td>Vertical milling head</td>
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<td></td>
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<tr>
<td>Tool chuck</td>
<td>DIN 2080 SK 30</td>
<td>DIN 69871 SK 40</td>
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<tr>
<td>Quill travel</td>
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<td>80 mm</td>
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<td>Swiveling vertical milling head</td>
<td>+/–90°</td>
<td>+/–90°</td>
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<tr>
<td>Mechanical speeds</td>
<td>8 stufenlos</td>
<td>8 stufenlos</td>
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<tr>
<td>Speed range</td>
<td>80 – 2200 rpm</td>
<td>10 – 5000 rpm</td>
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<tr>
<td>Clearance above table</td>
<td>35 – 385 mm</td>
<td>40 – 440 mm</td>
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<tr>
<td>Power</td>
<td>100% / 60% ED, 1,1 / 1,4 kW</td>
<td>100% / 40% ED, 7 / 10 kW</td>
</tr>
</tbody>
</table>

### INSTALLATION PLAN

**EMCOMAT FB-450 MC**

**FB-450 with position display**

**Indications in millimeters**

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**EMCOMAT**

- SERIES

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**INSTALLATION PLAN**

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**TECHNICAL DATA**

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**Power**

- Feed drive
- Leistung Vorschubmotor 100% ED
- 0,55 kW
- 1 kW
- 1 kW

**Feed drive**

- Feed range X/Y/Z axis
- X/Y: 50-550 mm / Z: manually 10 – 2000 mm/min
- 10 – 5000 mm/min
- 10 – 2000 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

**Coolant system**

- Coolant in tank
- 30 liters
- 40 liters
- 40 liters

- Max. pump capacity
- 30 l/min
- 30 l/min
- 30 l/min

**Machine dimensions**

- Overall length
- 1410 mm
- 1980 mm
- 2100 mm

- Overall width
- 1150 mm
- 2030 mm
- 2190 mm

- Overall height
- 1550 mm
- 1990 mm
- 1990 mm

- Weight of machine
- 500 kg
- 2270 kg
- 2370 kg
INSTALLATION PLAN

EMCOMAT FB-600 MC / FB-600 with position display

Indications in millimeters