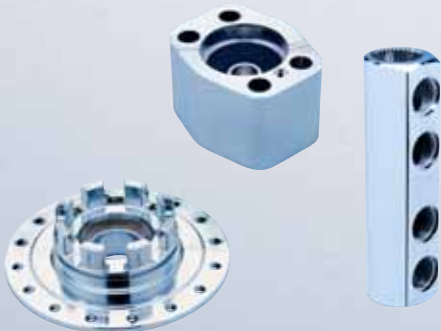




EMCOMILL series

Universal tool milling machines.

Manual or program-controlled - for all applications.



EMCOMILL FB 3. The multitalent.

Technical data	FB 3
Angle plate	600 x 200 mm (7.8 x 7.9")
X/Y/Z	300/200/350 mm (11.8/7.9/13.8")
Power	1,4 kW (1.9 hp)
Tool chuck	DIN 2080 SK 30

The EMCOMILL FB 3 is ideal for toolmaking and mold making, for plant engineering, prototype manufacturing and small-series production. These machines are best suited for use in small machine shops. As the smallest in EMCO's range of milling machines, the FB 3 is built to meet the highest of standards of precision and flexibility at all unbeatable price.

Guideways

- large
- durable
- low wear
- adjustable, taper rails act in two directions
- induction-hardened: 400-550 HB 30

Spindle guard and slide clamp

Machine Stand

- low-vibration, stress-free cast iron
- three-point support

Vertical milling head

- swivels sideways
- speedy changeover to horizontal milling
- outstanding repeat accuracy
- quiet operation
- adjustable precision taper-roller bearings

Handwheels

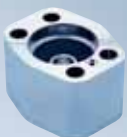
- safety handwheels for X and Y
- ergonomic design
- excellent feed precision
- easily legible scale rings

Machine pedestal

- rigid, welded sheet-steel
- integrated coolant system
- removable coolant reservoir



Applications of the EMCOMILL FB 3



Distributor
(brass)



Wheel hub
(steel)



Tool holder disc
(machining steel)

Vertical milling head ▶

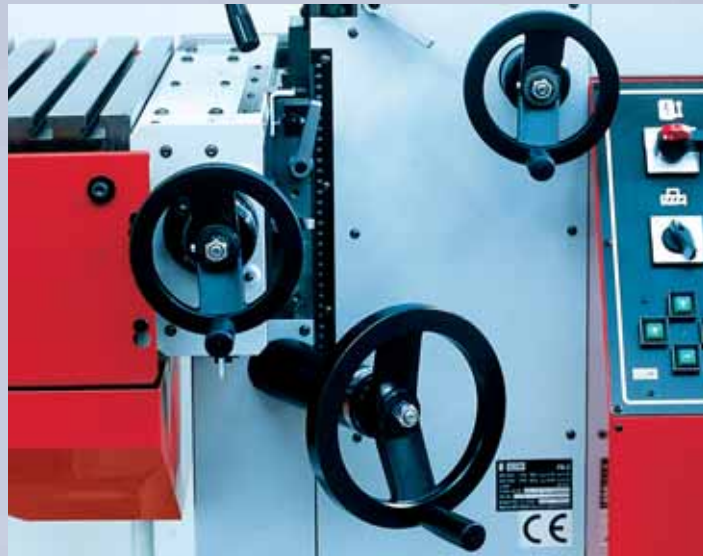
Vertical milling head with 45 mm (1.8") quill travel. Swivel-mounted vertical milling head $\pm 90^\circ$.

**Horizontal milling head**

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

Option

Part fitting with tailstock

**Safety handwheels (X/Y)**

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

Control panel

Control panel with ergonomically designed keypad for easy operation.

**Fast Facts**

- Compact, vibration-free cast iron machine stand
- Swiveling vertical milling head
- Vertical-head drive with palloid tooth system for quiet operation
- Large safety handwheels with scales
- 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 (Option)
- Machine compliant with European safety standards (CE)

Basic machine

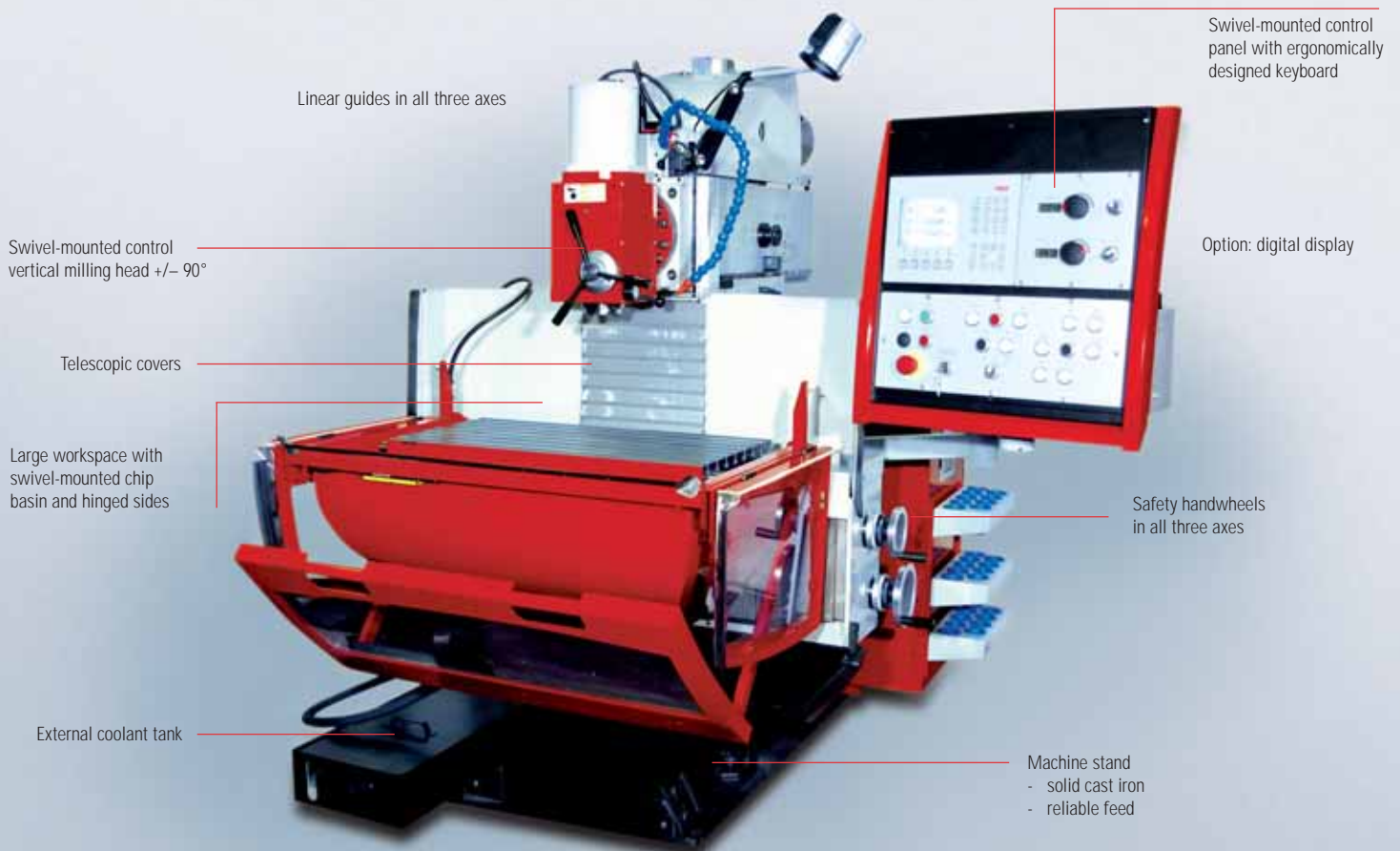
- Coolant system
- Rigid angle plate
- Vertical milling head with swivel arm
- Chip catcher
- Spray guard
- Toolmaker precision to DIN 8615
- Operator's toolset
- 24 month warranty
- Operating instructions and spare parts list

EMCOMILL C 40 *Linear*.

Precision and dynamism.

Technical data	C 40 <i>Linear</i>
Angle plate	800 x 400 mm (31.5 x 15.7")
X/Y/Z	450/350/400 mm (17.7/13.8/15.7")
Power	7 kW (9.4 hp)
Tool clamping	DIN 69871 SK 40
Speed range	60–4500 rpm

The C 40 *Linear*, successor of the popular FB 4, is intended for production-oriented users. High chip-cutting power, precision and universality are the characteristic features of these machines. The workspace is large enough to handle workpieces weighing up to 600 kg. Our wide range of accessories cover everything you need to handle even the most complicated milling projects with precise axis positioning and higher rapid-motion speeds.



Applications of the EMCOMILL C 40 *Linear*



Gear wheel
(hard machining/
steel)



Pneumatic distributor
(steel)



Drilling flange
(steel)

Fast Facts

- Swivel-mounted control panel
- Inching mode for main and feed drives
- Reversible main spindle
- Covers eliminate the risk of injuries
- Rigid NIRO covers
- Shafts and gears hardened and ground
- Linear guides
- Sturdy machine structure
- Horizontal spindle switches off for vertical milling
- Safety handwheels in X, Y, Z
- Main motor with spindle brake
- Milling spindle supported radially and axially in four bearings
- Coolant system
- Machine compliant with European safety standards (CE)

SK 40 tool storage ▶ system (option)

The SK 40 tool storage system mounted on the machine helps with fast tool changes and keeps tools clean and safely stored.



Options



Machining a die-opener disc with the boring tool



Setting up a part for milling with a 3D sensor



EMCO three axis position display (optional)



Changeover to horizontal milling

Swivel-mounted vertical milling head. Horizontal milling spindle DIN 69871 SK 40

Basic machine

- Coolant system
- Rigid angle plate
- Ball screws
- Linear guides X/Y/Z
- Workspace guard
- Swivel-mounted vertical milling head
- Chip-catcher tray
- Toolmaker precision to DIN 8615
- Operating instructions and spare parts list
- Operator's toolset
- 24 month warranty



Large workspace

The C 40 *Linear* has a large workspace with hinged spray guards for a safe, clean working area.



Control Panel

The swivel-mounted digital control panel with ergonomically designed keypad for safe and simple operation. The EMCO 3-axis digital display including linear measuring scales X/Y/Z.

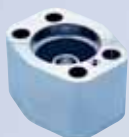
EMCOMILL FB 5/FB 6. A strong team.

Technical data		FB 5
Angle plate		800 x 400 mm (31.5 x 15.7")
X/Y/Z		600/400/400 mm (23.6/15.7/15.7")
Power (100/40% ED)		4/5,3 kW (5.4/7.1 hp)
Tool clamping		DIN 69871 SK 40
Hydraulic tool clamping		
		FB 6
Angle plate		900 x 500 mm (35.4 x 19.7")
X/Y/Z		700/500/500 mm (27.6/19.7/19.7")
Power (100/40% ED)		5/6,6 kW (6.7/8.9 hp)
Tool clamping		DIN 69871 SK 40
Hydraulic tool clamping		

The FB 5 and FB 6 models bring more strength to the global success story of the EMCOMILL machine series. The best of the newest features are longer working travel (with flat guides in three axes), hydraulic tool chucking and an external coolant system.



Applications of the EMCOMILL FB 5/FB 6



Distributor
(brass)



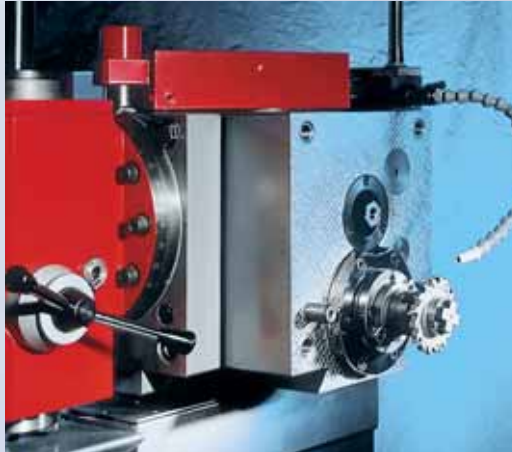
Wheel hub
(steel)



Plunger
(steel)

Swivel-mounted part fitting

The swivel-mounted part fitting with tailstock, mounted on the vertical clamping surface, makes it possible to machine complex parts.



Vertical milling head

Drilling large diameters with the vertical milling head. Quill travel up to four inches (4").



Versatility

Horizontal milling for any number of machining needs. Swinging out the vertical head enables machining with the horizontal spindle.

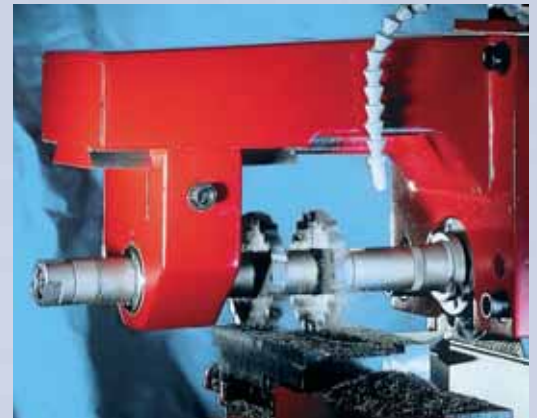
The EMCOMILL FB 5

Standard version (shown here).
Optional position display available.



Horizontal milling

Horizontal milling with long milling spike for clamping several milling tools. The counter-holder for supporting long milling spikes is mounted in lieu of the vertical milling head.



Swivel-mounted vertical milling head

Swivelling the vertical milling head makes it possible to machine complex parts. $\pm 90^\circ$ swivel.



Flute milling

Flute milling possible by adding collet chucks.

Controllers and Position Displays

You can choose your system of preference when it comes to controllers for our milling machines - the options range from 3-axis digital display to 3-axis continuous-path control. The right controller for the job in the finest quality.



HEIDENHAIN ND 780 digital display for the EMCOMILL FB 3, FB 5 and FB 6

The ND 780 is the successor model to the legendary ND 700. With this display, HEIDENHAIN sets new standards in user-friendliness and workshop-suited design. The ND 780 specially designed for use on milling, drilling and turning machines and can be configured with up to three axes for incremental gauges. The monochrome flatscreen monitor is an innovation for position displays of this class. It offers the operator comfortable options for navigating through a wide range of menus. Position values, dialogue and input displays, graphic functions and the graphic positioning aid are shown extremely clearly. There are extensive online help topics available as well. The ND 780 was distinguished by the international Industry Forum Design in 2005 for its excellent ergonomic design and high quality.



HEIDENHAIN POSITIP PT 880 digital display for the EMCOMILL FB 5 and FB 6

The POSITIP PT 880 is a position display for hand-operated machine tools. Whether you manufacture single prototypes, replacement parts or small series, the POSITIP PT 880 helps you through all steps of the process with its clear menu on a large, easy-to-read color flat screen. When milling, the POSITIP PT 880 automatically compensates for the milling radius. The graphic start-up assistant helps you visually control 2D milling. The profile monitor shows your tool movements within the pre-determined tolerance limits. The magnifier function makes this possible even for relatively strict limits, while you keep an overall view in a second window.

Linear path control system HEIDENHAIN TNC 124 for the EMCOMILL FB 5 and FB 6

A linear path control system with the functional scope of the new TNC 124 allows you to manage simple manual projects. The machine axes are positioned using direction keys, or you have the option to key in a target position. The TNC 124 accounts for the length and radius of 99 different tools. It had standard cycles for cutting hole circles and hole channels for milling rectangular pockets. If you have more complex projects or part series, you have the opportunity to create an NC program.





▶ **Three axis continuous path control (X/Y/Z)**
HEIDENHAIN TNC 310 for EMCOMILL FB 5 and FB 6

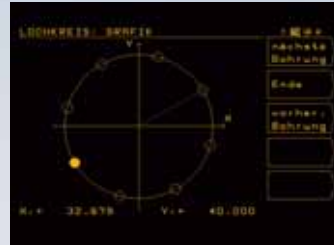
The TNC 310 is a compact continuous-path control for milling machines with three controlled axes. The control unit is best suited for the workshop. Every conventional milling and drilling job is programmed on the machine. The Heidenhain plain-text dialogue is opened at the press of a key. It then actively supports the TNC 310 with the following cycles: drilling, tapping, grinding, skimming, drilling templates, milling flutes, rectangular and round pockets, filing down flat surfaces. For simple tasks such as surface milling, it is easy to operate the TNC 310 machine manually. Handwheels are not required.



Program cycle, drill hole circle
 HEIDENHAIN TNC 310



Program cycle, drill
 HEIDENHAIN TNC 310



Graphic hole circle
 HEIDENHAIN TNC 310



Graphic simulation
 HEIDENHAIN TNC 310

Variants				
	FB 3	C 40 Linear	FB 5	FB 6
Manual	•	•	•	•
Digital display	•	•	•	•
TNC 124	–	–	•	•
TNC 310	–	–	•	•

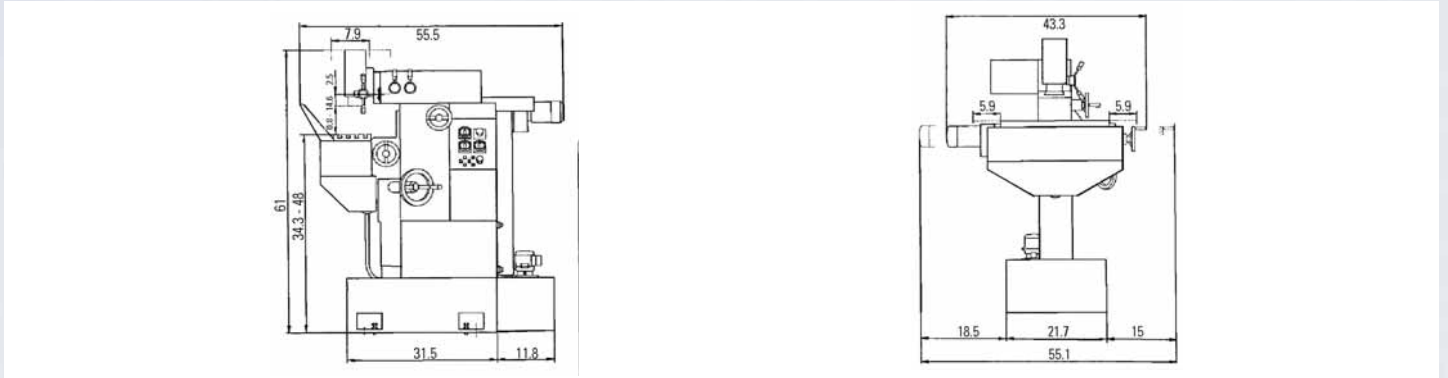
▶ **EMCO three axis position display**
for the EMCOMILL C 40 Linear

The EMCO three axis position display offers a permanent display of the position of the X, Y and Z axis on a TFT screen. The axis positions are determined by using linear scales with a precision of four inches (4"). Functions: permanent display X/Y/Z, 99 tool points, 99 contour points, reference point, remaining path, metric/imperial, tool-radius correction, drill template support, time. Languages: German, English, Spanish, Italian, Dutch, French. Screen size 6.5" color TFT, resolution 640 x 480 (VGA).

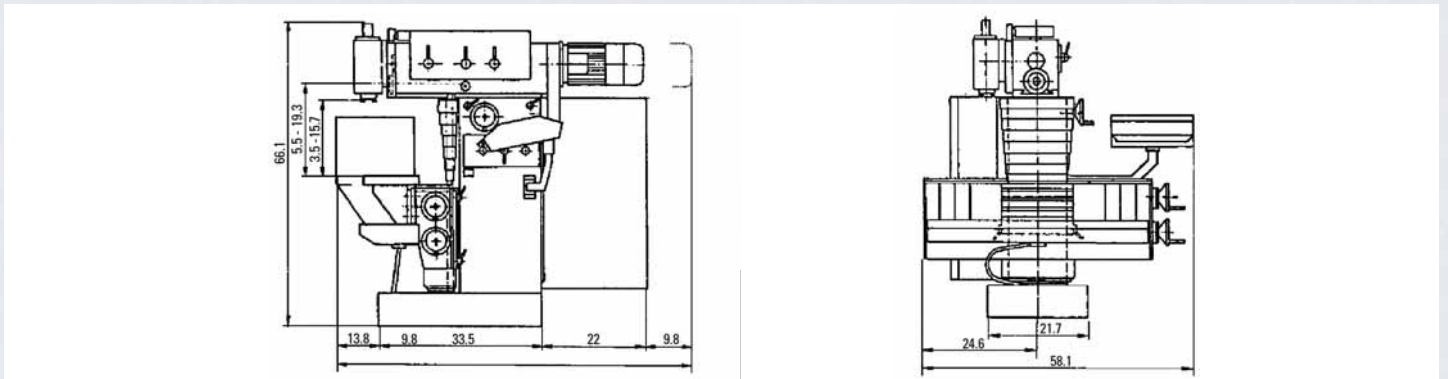


The engineering

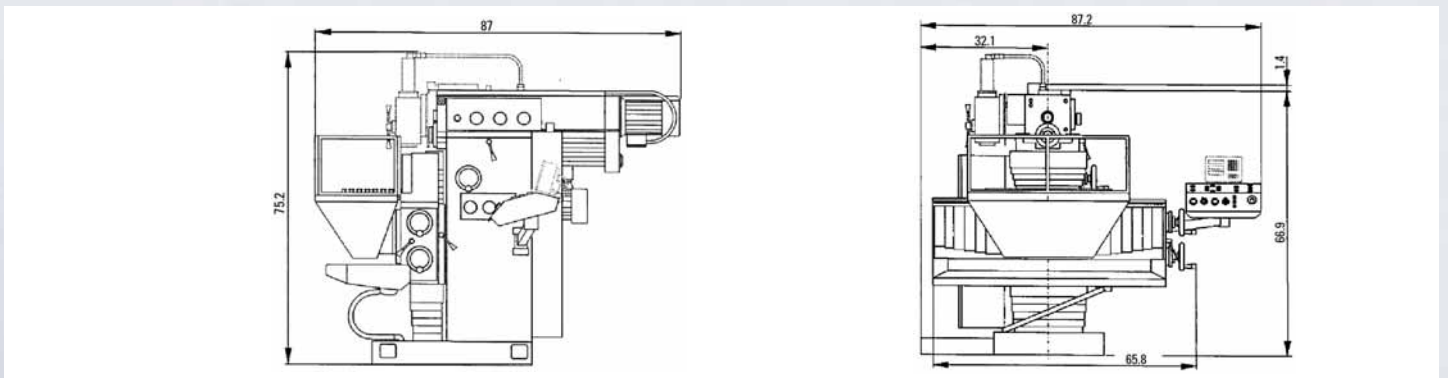
Floor plan EMCOMILL FB 3



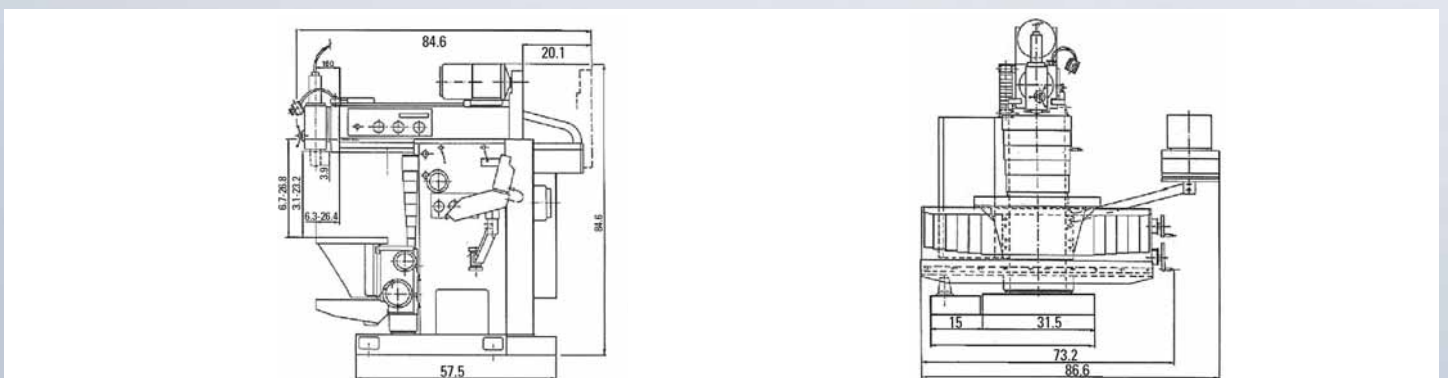
Floor plan EMCOMILL C 40 Linear



Floor plan EMCOMILL FB 5



Floor plan EMCOMILL FB 6



Technical data	FB 3	C 40 Linear	FB 5	FB 6
Working range				
Horizontal longitudinal feed (X)	300 mm (11.8°)	450 mm (17.7°)	600 mm (23.6°)	700 mm (27.6°)
Vertical plate feed (Z)	350 mm (13.8°)	400 mm (15.7°)	400 mm (15.7°)	500 mm (19.7°)
Horizontal cross feed (Y)	200 mm (7.9°)	350 mm (13.8°)	400 mm (15.7°)	500 mm (19.7°)
Vertical plate clamping area				
600 x 180 mm (23.6 x 7.1°)	400 x 256 mm (15.7 x 10.1°)	500 x 320 mm (19.7 x 12.6°)	500 x 320 mm (19.7 x 12.6°)	
Width of T-grooves	12 x 21 mm (0.5 x 0.8°)	14 mm (H 8) (0.6° (H 8))	14 mm (H 8) (0.6° (H 8))	14 mm (H 8) (0.6° (H 8))
Pitch/number of T-grooves	90 mm (3.5°)/2 grooves	50 mm (2°)/5 grooves	50 mm (2°)/5 grooves	50 mm (2°)/5 grooves
Permissible workpiece weight	Maximum 50 kg (110.2 lb)	Maximum 400 kg (881.8 lb)	Maximum 500 kg (1102.3 lb)	Maximum 600 kg (1322.8 lb)
Rigid angle plate, clamping area				
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°)	900 x 500 mm (35.4 x 19.7°)	
Width of T-grooves	12 x 21 mm (0.5 x 0.8°)	14 mm (H 8) (0.6° (H 8))	14 mm (H 8) (0.6° (H 8))	14 mm (H 8) (0.6° (H 8))
Pitch/number of T-grooves	45 mm (1.8°)/4 grooves	50 mm (2°)/8 grooves	50 mm (2°)/8 grooves	50 mm (2°)/10 grooves
Permissible workpiece weight	Maximum 50 kg (110.2 lb)	Maximum 300 kg (661.4 lb)	Maximum 400 kg (881.8 lb)	Maximum 500 kg (1102.3 lb)
Horizontal milling spindle				
Tool chuck	DIN 2080 SK 30	DIN 69871 SK 40	DIN 69871 SK 40	DIN 69871 SK 40
Mechanical speeds	8	Continuous	18	18
Speed range	80–2 200 rpm	60–4500 rpm	63–3 150 rpm	63–3 150 rpm
Clearance above plate	80–430 mm (3.2–16.9°)	22–620 mm (0.9–24.4°)	148–550 mm (5.8–21.7°)	160–670 mm (6.3–26.4°)
Swiveling vertical milling head				
Tool chuck	DIN 2080 SK 30	DIN 69871 SK 40	DIN 69871 SK 40	DIN 69871 SK 40
Quill travel	45 mm (1.8°)	80 mm (3.1°)	100 mm (3.9°)	100 mm (3.9°)
Swiveling vertical milling head	+/- 90°	+/- 90°	+/- 90°	+/- 90°
Mechanical speeds	8	Continuous	18	18
Speed range	80–2 200 rpm	60–4500 rpm	63–3 150 rpm	63–3 150 rpm
Clearance above plate	35–385 mm (1.4–15.2°)	30–430 mm (1.2–16.9°)	61–463 mm (2.4–18.2°)	80–590 mm (3.1–23.2°)
Milling spindle drive				
IEC standard motor 2-speed	AC main motor	AC main motor	AC main motor	AC main motor
Power	100%/60% ED, 1,1/1,4 kW (1.5/1.9 hp)	100%/40% ED, 5,5/7 kW (7.4/9.4 hp)	100%/40% ED, 4/5,3 kW (5.4/7.1 hp)	100%/40% ED, 5/6,6 kW (6.7/8.9 hp)
Feed drive				
Feed	Stepless in X and Y axes	Stepless	18 mechanical feeds	18 mechanical feeds
Feed range, X and Y/Z axes	0–550 mm/min/manual (0–521.7 ipm/manual)	10–2000 mm/min (0.4–78.7 ipm)	16–800/8–400 mm/min (0.6–31.5/0.3–15.7 ipm)	16–800/8–400 mm/min (0.6–31.5/0.3–15.7 ipm)
Rapid traverse in X and Y/Z axes	1200 mm/min/manual (47.2 ipm)	5000/4000 mm/min (196.9/1578.5 ipm)	2000/1000 mm/min (78.7/39.4 ipm)	3000/1500 mm/min (118.1/59.1 ipm)
Coolant system				
Coolant in tank	30 liters (7.9 gal)	40 liters (10.6 gal)	40 liters (10.6 gal)	40 liters (10.6 gal)
Central lubrication				
	Manual	2-circuit automatic	2-circuit automatic	2-circuit automatic
Tool chucking				
	Manual	Manual (Optional Hydraulic)	Hydraulic	Hydraulic
Electricity supply				
Voltage supply	400 V/3/PE/50 Hz	400–440 V/3/PE/50 Hz	400 V/3/PE/50 Hz	400 V/3/PE/50 Hz
Machine dimensions				
Overall length	1150 mm (45.3°)	1500 mm (59°)	2210 mm (87°)	2115 mm (83.3°)
Overall width	1410 mm (55.5°)	1800 mm (70.9°)	2155 mm (84.8°)	2220 mm (87.4°)
Overall height	1550 mm (61°)	1880 mm (70.9°)	1910 mm (75.2°)	2120 mm (83.4°)
Weight of machine	500 kg (1102.3 lb)	1600 kg (3527.4 lb)	2200 kg (4850.1 lb)	2550 kg (5621.7 lb)
Sound pressure level				
Maximum sound pressure level to DIN 45 635	82 dB(A)	80 dB(A)	77 dB(A)	80 dB(A)
Variants:				
Digital position indication				
Glass scales, integrated	Optional	Optional	3 grooves HEIDENHAIN	3 grooves HEIDENHAIN
Digital display	Optional	Optional	Optional	Optional

Submitted by:

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