

Milling solutions designed for you

EMCO-WORLD.COM

Creating and using

[MECOF]

Mecof is one of the leading manufacturers of high speed and high precision milling and boring machining centres. With many years of experience and an extensive know-how, Mecof successfully develops perfect turnkey solutions for the tecnology needs of small businesses as well as of large-scale OEM groups in the automotive and aerospace sector.











[ЕМСО]

Emco is the most important machine tool manufacturer in Austria. With innovative solutions in the field of turning, milling and complete machinings as well as with a world's leading training program, Emco has earned an international reputation. Production facilities are located in Austria, Germany, Italy and Russia.

synergies. The Emco Group

The Emco Group is a network of prestige suppliers from the machine tool manufacturers' sector. This Group, which bundles the strengths and competences of various European manufacturers, creates highly efficient synergies for the companies engaged in metal removal activities.

The result consists of highly economical milling solutions for innovative high technology machines, from very small to very large sizes to satisfy any requirement.









[FAMUP]

Famup is the Italian market leader for CNC machining centres. The product range includes CNC milling centres with X travels from 350 to 3200 mm for efficient industrial production.







Machines with horizontal spindles

Milling machines with moving column, horizontal ram and integrated platform

Design

- Machine column with a large number of ribs for the highest flexural and torsional resistance
- Box-in-box structure for the highest geometric and thermal stability
- Axes movements by precision recirculating ball screws and preloaded nuts or by precision pinion and rack drives
- Rapid feeds up to 30 m/min (linear axes)
- Large monolithic structure (optimized FEM)

Fields of application

Mold manufacturing (steel, aluminium, plastic, prototypes, styling), general precision engineering, machine tools, printing machines, earth moving machinery, energy technologies, aeronautics



[ECOMILL]

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Application fields: General Engineering, Mold and Dies

X axis	from 6000 mm and over
Y axis	1300 mm
Z axis	2500 mm
Spindle motor	60 kW / 600 Nm
Axes feed rate	30 m/min
Power milling heads 3+2 axes	bis: 38 kW / 600 Nm / 6000 rpm
High speed spindle with special support	40,5 kW / 35,4 Nm / 18000 rpm



[ECOMILL PLUS]

Application fields: General Engineering, Mold and Dies, Aerospace

X axis	from 6000 mm and over
Y axis	1600 mm
Z axis	3000 mm
Spindle motor	standard 60 kW / 600 Nm option 40 kW / 1200 Nm
Axes feed rate	30 m/min
Power milling heads 3+2 axes	up to 38 kW / 1000 Nm / 6000 rpm
High speed full 5 axes heads	up to 50 kW / 100 Nm / 24000 rpm

[MECMILL]

Application fields: Precision General Engineering, Mold and Dies, **Power Generation**

X axis	from 6000 mm and over
Y axis	1600 mm
Z axis	3500 mm
Spindle motor	40 kW / 1200 Nm
Axes feed rate	30 m/min
Power milling heads 3+2 axes and/or 5 axes	up to 38 kW / 1000 Nm / 6000 rpm
High speed full 5 axes heads	up to 50 kW / 100 Nm / 24000 rpm

High speed full 5 axes heads $\:$ up to 50 kW / 100 Nm / 24000 rpm

[MECMILL PLUS]

Application fields: Precision General Engineering, Aerospace, **Power Generation**

X axis	from 6000 mm and over
Y axis	1600 – 1800 mm
Z axis	4000 mm
Spindle motor	40 kW / 1200 Nm
Axes feed rate	25 m/min
Power milling heads 3+2 axes and/or 5 axes	up to 38 kW / 1000 Nm / 6000 rpm
High speed full 5 axes heads	up to 45 kW / 300 Nm / 12000 rpm





Machines with vertical spindles

Portal and gantry milling machines

Design

- Robust electrowelded structures to contain the masses and obtain the best rigidity
- High dynamics and high precision in milling thanks to the box-in-box structure of the crossbeam-ram
- Spindles with high-level performances and universal mechanical heads up to 1200 Nm and 38 kW
- Big size recirculating roller linear guideways in all axes
- Rapid feeds up to 100 m/min
- Axes movements with dual drive and anti-backlash electronic system, preloaded nut or linear motors of the latest generation.
- Structural analysis of the components FED optimized

Fields of application

Aerospace, mold and dies (plastic, sheet), general engineering, styling



[LINEARMILL]

Application fields: Mold and Dies, Aerospace	
X axis	from 2500 mm and over
Y axis	2200 – 3000 mm
Z axis	1000 – 1500 mm
Axes feed rate	100 m/min

High speed full 5 axes heads up to 42 kW / 67 Nm / 24000 rpm



DYNAMILL G5

Application fields: Mold and Dies, Aerospace Precision General Engineering, Power Generation

X axis	from 2500 mm and over
Y axis	2200 – 3500 mm
Z axis	1300 – 1500 mm
Spindle motor	51 kW / 330 Nm
Axes feed rate	40 m/min
Power milling heads	up to 38 kW / 600 Nm / 6000 rpm

High speed full 5 axes heads $\,$ up to 50 kW / 300 Nm / 24.000 $\,$ rpm

[DYNAMILL]

Application fields: Mold and Dies, Aerospace		
X axis	from 4550 mm and over (in steps of 2500 mm)	
Y axis	3000 – 4000 mm	
Z axis	1500 – 2500 mm	
Spindle motor	60 kW / 600 Nm	
Axes feed rate	40 m/min	
Power milling heads 3+2 axes and/or 5 axes	up to 38 kW / 600 Nm / 6000 rpm	

High speed full 5 axes heads $\,$ up to 50 kW / 300 Nm / 24000 rpm $\,$





[MEGAMILL]

Application fields: Precision General Engineering, Mold and Dies, Aerospace, Power Generation

X axis	from 7500 mm and over
Y axis	4000 – 5000 – 6000 – 7000 mm
Z axis	1500 – 2000 – 2500 mm
Spindle motor	40 kW / 1200 Nm
Axes feed rate	30 m/min
Power milling heads 3+2 axes and/or 5 axes	up to 38 kW / 1000 Nm / 6000 rpm

High speed full 5 axes heads $\,$ up to 50 kW / 300 Nm / 24000 rpm $\,$

[POWERMILL]

Application fields: Precision General Engineering, Mold and Dies, Aerospace, Power Generation

X axis	ab 6000 mm and over
Y axis	4000 – 5000 – 6000 – 7000 mm
Z axis	1500 – 2000 – 2500 mm
Spindle motor	40 kW / 1200 Nm
Axes feed rate	30 m/min
Power milling heads 3+2 axes and/or 5 axes	up to 38 kW / 1000 Nm / 6000 rpm

High speed full 5 axes heads $\,$ up to 50 kW / 300 Nm / 24000 rpm $\,$



Emco Mecof: customer-specific solutions and options

ACCESSORIES



Tool magazines Automatic tool magazine up to 120 pockets fixed on the column



Equipment for head change 3-pocket head carriage magazine



Enclosures Protective covers for the machining area in front of the machine consisting of modular steel plates (height approx. 2500 mm)



Operator platform Motorized operator platform with vertical and horizontal movement



Rotary tables Translating rotary table with a load capacity up to 60000 Kg

[Spindles]

HIGH SPEED MILLING HEADS WITH ELECTROSPINDLE

VERTICAL MILLING HEAD WITH HIGH-SPEED SPINDLE



up to 42 kW / 67 Nm / 18000 rpm

FULL 5 AXIS FORK TYPE MILLING HEAD WITH HIGH-SPEED SPINDLE SPAZIO 20



45 kW / 300 Nm / 12000 rpm

FULL 5 AXIS FORK TYPE MILLING HEAD WITH HIGH-SPEED SPINDLE SPAZIO 21



up to 50 kW / 100 Nm / 24000 rpm

MECHANICAL MILLING HEADS

UNIVERSAL MILLING HEAD WITH AUTOMATIC MILLESIMAL POSITIONING



up to 38 kW / 1000 Nm / 6000 rpm

MILLING HEAD WITH OFFSET SPINDLE



38 kW / 2000 Nm / 3000 rpm

FULL 5 AXIS UNIVERSAL MILLING HEAD



up to 38 kW / 1000 Nm / 6000 rpm

UNIVERSAL MILLING HEAD WITH HIGH-SPEED SPINDLE



up to 50 kW / 100 Nm / 24000 rpm

HIGH-SPEED SPINDLE WITH SPECIAL SUPPORT



up to 40,5 kW / 35,4 Nm / 18000 rpm

MILLING HEAD WITH EXTENDED SPINDLE



38 kW / 1000 Nm / 4000 rpm

Quality from a single supplier MECOF high-speed milling machines

Unlike other suppliers, EMCO Mecof develops and produces the machinery components crucial for maximum precision and speed in-house.





Thermo-symmetric moving crossbeam

Through an exclusive MECOF system which assures the highest connection rigidity the crossbeam is being fixed to the saddles.

3 Rotary platform

Rotary platform with automatic continuous positioning





Fully automated head changing system

ECOF

Automatic head magazine with 3 stations





The box-in-box structure offers increased rigidity and excellent control of thermal drift both in the horizontal and in the vertical line.



Thanks to the latest software system MECOF designs internally both the mechanical milling heads and the ones with high-speed spindles. From design to manufacture and assembly, completed by a broad range of head changers.



The full automatic head changer in the vertical machine models Linearmill, Dynamill and Megamill disappears completely after the head change operation is finished, leaving the working area completely empty.



This electromechanical, patented and CNC-controlled system for compensation deflection ensures that the processing level is always orthogonal - regardless of projection and weight - to the clamping plane. Thus, a stable tool orientation and position is achieved on the entire travel.



The DUAL DRIVE transmission allows better performances in precision, speed and reverse motion. This system implies a longer life and reliability of the components while maintaining the initial performance for a longer period in comparison to the traditional system.



The DIRECT DRIVE system drastically reduces the number of components involved in the mechanism and exponentially increases the reliability of the spindle line.



The leading edge technology of the linear motors allows accelerations of the highest level combined with high reliability.



MECOF high speed milling centres with horizontal and vertical spindles meet the requirements of modern production and offer high-level performances with a very attractive price-performance ratio.



Aerospace sector Machining a titanium structure



Aerospace sector Machining of a frame



Energy sector Machining of a wind turbine component



Energy sector Machining of a wind turbine component

With their large range of milling heads the MECOF machines are able to meet a wide variety of production requirements. With a single machine both heavy rough and precise superfinish machinings can be carried out.



Automotive sector Machining of a scale model in resin



Automotive sector Machining of a car mould



General engineering Machining of a large-dimensioned column for a machine tool



General engineering Machining a housing for an electric motor

Umill for 5-Ax

UMILL 15007

2

 COMPACT DESIGN
 Maximum precision with top dynamics thanks to extraordinarily stable gantry design

NO FOUNDATION REQUIRED
 Machine bed with inherent rigidity

 STABILITY & RIGIDITY
 Machine bed and cross traverse based on FEM analyses as steel cast construction

5-AXIS MACHINING IN ONE SETUP

- Milling
- Drilling
- Tapping
- Turning etc.

kis Machining

Umill 1500 and Umill 1800 machines have been perfectly designed for 5-axis machining operations such as milling, drilling, tapping and turning in one setup. Featuring a robust and rigid construction but yet providing high dynamics, these gantry-type machines convince with optimum results.



5 HIGH DYNAMICS & PERFORMANCE

- Mechanical milling head: 38 KW / 600 Nm / 6000 rpm
- Example: milling head with electric spindle: 45 kW / 300 Nm / 12000 rpm further customised solutions on request
- High rapid traverse speeds: up to 60 m/min
- Acceleration of up to 6 m/s²

CONTROL

Heidenhain TNC 640 HSCI or Siemens 840D sl

MAXIMUM MACHINE AVAILABILITY

- Automatic temperature compensation (Z-axes thermal growth)
- Automatic adjustment of the machine kinematics
- Continuous and dynamic vibration adjustment
- Dynamic collision monitoring
- Remote maintenance and teleservices
- Imbalance analyses (optional)

[UMILL 1800]



Application fields: Precision General Engineering, Molds and Dies, Aerospace, Power Generation

Technical data	UMILL 1800
X-axis	1800 mm (71")
Y-axis	2150 mm (85")
Z-axis	1250 mm (50")
Rapid motion speed	60 m/min
Milling head with mechanical spindle	38 KW / 600 Nm / 6000 rpm (51 hp / 221,5 lbf ft / 6000 rpm)
Milling head with high-speed spindle	45 KW / 300 Nm / 12000 rpm (60 hp / 443 lbf ft / 12000 rpm) or 50 kW / 100 Nm / 20000 rpm (66,7 hp / 148 lbf ft / 20000 rpm)
Undercut	15°
Rotary table for milling and turning	ø 1800 mm (71"), load capacity 5 tons, 250 rpm
Rotary table for milling	ø 1700 x 1400 mm (67 x 55"), load capacity 10 tons, 10 rpm

[UMILL 1500]



Application fields: Precision General Engineering, Molds and Dies, Aerospace, Power Generation

Technical data	UMILL 1500
X-axis	1500 mm (59")
Y-axis	1500 mm (59")
Z-axis	1100 mm (43.3")
Rapid motion speed	60 m/min
Milling head with high-speed spindle	45 KW / 300 Nm / 12000 rpm (60 hp / 443 lbf ft / 12000 rpm)
Undercut	15°
Rotary table for milling and turning	ø 1400 mm (55.1"), load capacity 3,5 t, 260 rpm
Rotary table for milling	ø 1400 x 1200 mm (55.1 x 47.2"), load capacity 4,5 t, 20 rpm

[UMILL 750]



Technical data

UMILL 750

	Travel X / Y / Z	750 / 610 / 500 mm (29.5 / 24 / 19.7")
	Rapid motion speed X / Y / Z	50 m/min (1969.1)
	Tool magazine	40 / 60 spaces
	Table diameter	750 x 600 mm (29.5 x 23.6")
	Table load	400 kg (881.6)
	Speed range	50 – 15000 rpm
	Drive power	26 kW (34.8 hp)

[UMILL 630]



Technical data	UMILL 630
Travel X / Y / Z	500 / 460 / 450 mm (19.7 / 18.1 / 17.7")
Rapid motion speed X / Y / Z	50 m/min (1968.5")
Tool magazine	40 spaces
Table diameter	630 x 500 mm (24.8 x 19.7")
Table load	300 kg (661)
Speed range	50 – 15000 rpm
Drive power	20 kW (27.2 hp)

Long lifetime and efficiency EMCO FAMUP milling centres

An EMCO Famup machining centre is a vertical milling solution with high-level performances that thanks to its lasting quality and the cost-optimized construction offers a high productivity.





Tool magazine 2

In case of the version with live tool turret, tool changing happens quickly and safely along the X-axis and at the outer limits of the Z- and X-axes. Up to 120 tool stations available.



Machine bed 🖪

Apart from the requisite stability, it also offers optimum vibration damping.



Feed in the Z-axis 4

In order to be able to move the Z-axis quickly - namely with 40 m/min - and precisely, the axis is, due to the high weight, driven by two ball screws and two motors in master/slave configuration.



Milling Spindle

The machine is equipped with a liquid-cooled motor spindle and comes with convincing performance data. Featuring a spindle speed of 15,000 rpm, 46 kW power and a torque of 170 Nm, the machine is also suitable for heavy machining. A motor spindle with 1,800 rpm is available with the HSK A63 version.





5 Numerical control of the latest generation

The panel can be moved, rotated and adjusted towards the work area. This ergonomic design creates ideal working conditions for the operator.



6 Table

The table is made of cast iron and provides a usable clamping surface of 3500×1050 mm. The maximum table load (with even distribution) is 5000 kg. The table `s height above the floor is 1000 m. The TORQUE rotary table has a diameter of 900 mm and is designed for workpiece weights of up to 2000 kg (with even distribution).

Machining centres by EMCO FAMUP

Highlights

- Stable machine architecture
- Ergonomic design for the operator and for the maintenance
- Drives with high-level performances for a high chip removal capacity and a large volume of removed material
- A variety of options
- Customized basic equipment (basic variants)
- Ideal for small and medium sizes thanks to short setup times
- Machine options for the machining of small and large workpieces

Basic data

- Polymer concrete machine beds for a high vibration damping or realized in stabilized cast iron
- Linear and roller guideways
- High dynamics on the axes, mainly thanks to the ball recirculating systems and to the direct drive linear motors
- Recirculating-ball guideways ISO 3 quality
- Automatic central lubrication
- Spindles can be realized as mechanical spindles for high chip removal capacity and as electrospindles with very good performances
- Numerical controls of the latest generation Siemens, Fanuc and Heidenhain



[EMCO MMV 3200]

Fields of application: industrial companies (e.g. automotive industry), aircaft industry, general mechanical processes

Stroke in X / Y / Z	mm	3200 / 1000 / 950
Rapid feeds in X / Y / Z	m/min	50 / 40 / 40
Clamping surface	mm	3500 x 1050
Table load	kg	5000
Speed range	rpm	50 – 15000 / 18000
Drive power	kW	46
Tool magazine	slots	40 / 60 –120
Tool holder		ISO 40 (BT 40 / HSK-A63)



Part of a structure

 Casting
 Material: Aluminium alloy AIMg 4,5 Mn Dimensions: 200 x 70 x 1000 mm

[EMCO MMV 2000]

Fields of application: industrial companies (e.g. automotive industry), aircaft industry, general mechanical processes

Stroke in X / Y / Z	mm	2000 / 800 / 750
Rapid feeds in X / Y / Z	m/min	50 / 50 / 50
Clamping surface	mm	2400 x 950
Table load	kg	2200
Speed range	rpm	50 – 15000 / 18000
Drive power	kW	46
Tool magazine	slots	40 (80)

Tool holder

ISO40 (BT40, HSK-A63)



Counter mould

- Casting Material: Aluminium alloy AlMg 4,5 Mn
- Dimensions: 1000 x 250 x 150 mm



EMCO MAXXMILL 750

Fields of application: 5-sided machining for industrial companies (e.g. automotive industry), toolmaking, general engineering

Stroke in X / Y / Z	mm	750 / 610 / 500
Rapid feeds in X / Y / Z	m/min	30 / 30 / 30
Tool magazine	slots	30 (40 / 60)
Clamping surface	mm	750 x 600
Table load	kg	300 (500)
Speed range	rpm	50 – 12000 / 15000
Drive power	kW	15 / 20
Tool holder		ISO40 (BT40 / HSK-A63)

Tool holder

Workpiece

Bar segment Material: Aluminium Dimensions: 250 x 300 x 50 mm

[EMCO MAXXMILL 630]

Fields of application: 5-sided machining for industrial companies (e.g. automotive industry), toolmaking, general engineering

Stroke in X / Y / Z	mm	500 / 460 / 450
Rapid feeds in X / Y / Z	m/min	30 / 30 / 30
Tool magazine	slots	30 / 60
Clamping surface	mm	630 x 500
Table load	kg	200
Speed range	rpm	50 – 12000 / 15000
Drive power	kW	15 / 20
Tool holder		ISO40 (BT40 / HSK-A63)



Block valve

Bar segment Material: Steel S235JR Dimensions 60 x 60 x 60 mm

EMCO MAXXMILL 400

Fields of application: 5-sided machining for tool and mould making, mechanical, precision and medical engineering, optical industry

Stroke in X / Y / Z	mm	350 / 250 / 300
Rapid feeds in X / Y / Z	m/min	30 / 30 / 30
Tool magazine	slots	20 (30, 50)
Clamping surface	mm	ø 400
Table load	kg	80
Speed range	rpm	50 – 12000 / 24000
Drive power	kW	7 / 16
Tool holder		20 (30, 50) ISO30, 30 (50) HSK-A40



Workpiece for the 5-axis high-performance cutting

Bar segmentMaterial: Steel CK45 Dimensions: 150 x 150 x 40 mm







[EMCOMILL 1200]

Fields of application: general mechanical processes, engineering, industrial companies

Stroke in X / Y / Z	mm	1200 / 610 / 500
Rapid feeds in X / Y / Z	m/min	30 / 30 / 30
Clamping surface	mm	1340 x 650
Table load	kg	1500
Speed range	rpm	50 – 12000 (15000)
Drive power	kW	15 (20)
Tool magazine	slots	30 (40/60)

Tool holder

Contours machining

ISO40 (BT40, HSK-A63)

Bar segment

Material: Aluminium Dimensions: 400 x 400 x 50 mm

[EMCOMILL 750]

Fields of application: general mechanical processes, general engineering, industrial companies

Stroke in X / Y / Z	mm	750 / 610 / 500
Rapid feeds in X / Y / Z	m/min	30 / 30 / 30
Clamping surface	mm	900 x 650
Table load	kg	800
Speed range	rpm	50 – 12000 (15000)
Drive power	kW	15 (20)
Tool magazine	slots	30 (40/60)

Tool holder

ISO40 (BT40, HSK-A63)



Pump housing

Casting Material: Aluminium
 Dimensions: 200 x 200 x 200 mm

[EMCOMILL E350]

Fields of application: production of small parts for the clock/watch industry and medical technology, general mechanical processes

Stroke in X / Y / Z	mm	350 / 250 / 300
Rapid feeds in X / Y / Z	m/min	24 / 24 / 24
Clamping surface	mm	500 x 300
Table load	kg	100
Speed range	rpm	50 – 10000
Drive power	kW	6,8
Tool magazine	slots	20
Tool holder		ISO30



Tool

Turned workpiece Material: Steel St37B Dimensions: 40 x 55 mm













5-sided machining with swivel head and rotary table (MMV 2000)



5-sided machining with a swiveling rotary table, driven by worm screw (Maxxmill 630)



4-axis machining by means of a rotary table (EMCOMILL Series)



3-axis machining on a travelling column machine (EMCOMILL 1200)



5-sided machining of a housing on a swivel/rotary table (MAXXMILL 750)



5-sided machining with rotary/tilting table (MAXXMILL 630-750)



Simultaneous 5-axis machining with 45° B-axis (MMV 3200)



5-sided machining of a distributor with 24,000 rpm motor spindle (MAXXMILL 400)





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