

FM1 SERIES

5-Axis single-spindle
high flexibility, fast and compact



FAUSTO MARINELLO



The perfect balance between technology and compactness

FM1 Series: 5 super-productive and customizable axes

The new FM 13, 15 and 17 horizontal machining centers are designed to offer maximum **productivity and flexibility for medium and high production volumes**, with the **possibility of customisation** that fears no comparisons.

— **SUPER COMPACT**

— **MAXIMUM ADAPTABILITY**

Each machine of the FM1 series is available with **pallet change** (FM132, FM152, FM172) or without pallet change (FM131, FM151, FM171).

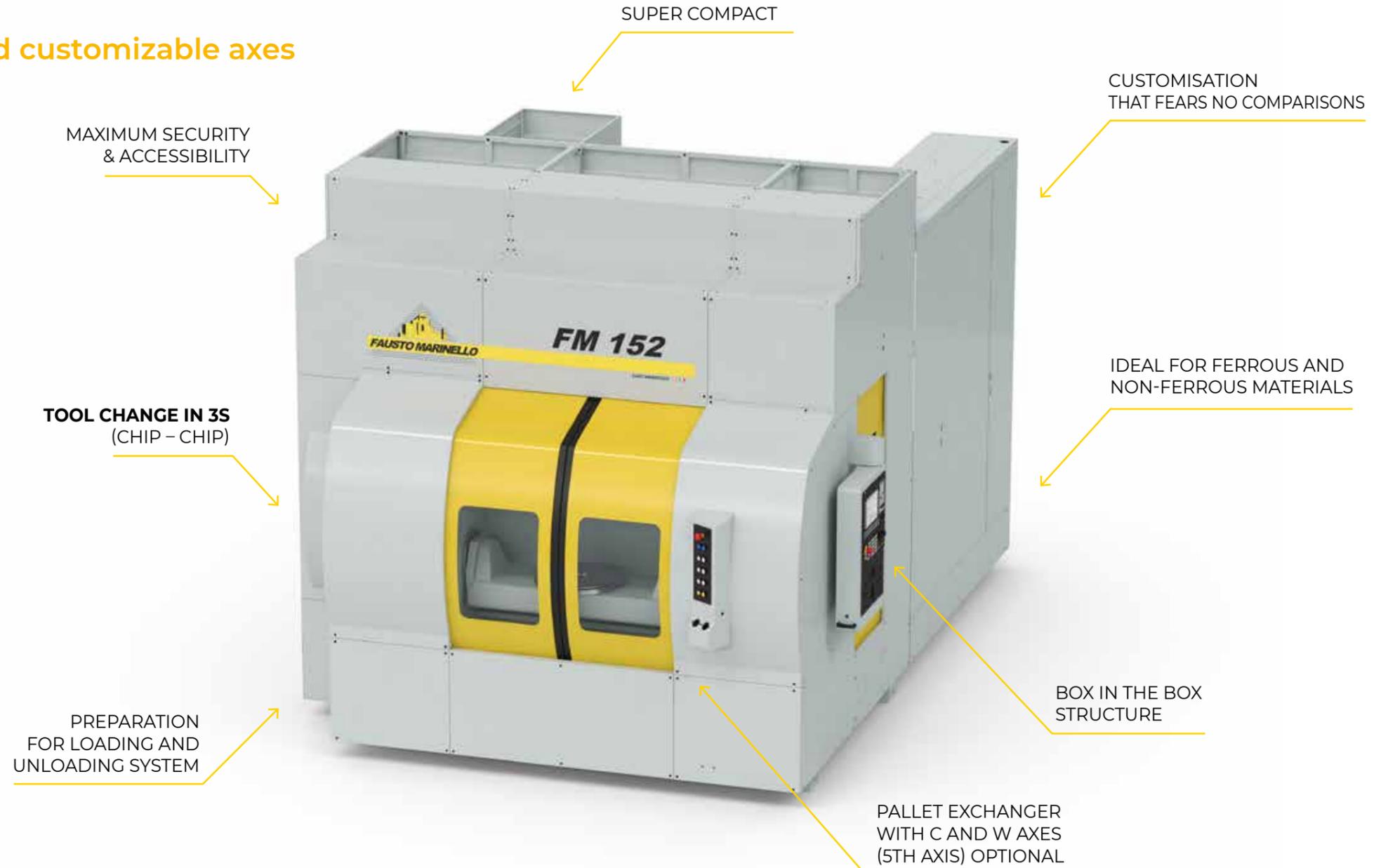
— **MAXIMUM ACCESSIBILITY**

The FM1 series ensures an **accessibility that has never been reached** in machining centers before for any maintenance operation or calibration, mechanical, electrical or hydraulic.

— **IDEAL FOR THE MOST VARIED APPLICATIONS**

FM1 is the ideal series of machining centers for many industrial sectors: automotive, machinery construction, precision mechanics, aerospace, hydraulic components, etc., and in all processes where it is essential to obtain high quality results at competitive costs.

FAUSTO MARINELLO is the best technological partner for extremely productive results.



FAUSTO MARINELLO

FAUSTO MARINELLO, part of the FAMAR group, is constantly looking for technological solutions for its customers' production needs. The company designs and develops **innovative solutions for machinery used for milling**, in particular it offers **horizontal single- or multi-spindle machining centres**. The **machines** manufactured follow the production philosophy of the FAMAR group and are **designed and built with a view to modularity**, with a **technology that can be customized** according to the needs of the production process requested by the customer.

FM1 SERIES APPLICATIONS



FM1

Accessible and tailored technology

In standard versions, the FM1 series is equipped with a complete 5-axis module. All machining centres of the FM1 series have a “box in the box” structure that allows maximum rigidity, efficiency, precision and dynamics, allowing optimal chip removal and quality of the finished product.

MAXIMUM TECHNOLOGY

The FM1 series offers an axis travel speed up to 90 m/min* with accelerations up to 15 m/s²*. The passive times between processes are therefore minimal.

The machining centres of the FM1 series are all equipped with a base with a closed cell structure to ensure maximum rigidity and the maximum possible dynamics to achieve the highest level of performance and quality. This structure also guarantees maximum thermal stability and the ability to absorb the vibrations generated by the processes.

Thanks to their high stability and dynamics, they are ideal for processing both steel and ferrous alloys and aluminium alloys.

Depending on the model and the need for electrospindles, the machines of the FM1 line can be equipped with tool attachment HSK-A63, HSK-A80, HSK-A100.

FM1 machining centres guarantee tool change times of less than

3 seconds, thus reducing the production time.

The electrical opening (optional) of the loading/unloading doors allows for any part loading and unloading system (robotic, portal, etc.) to be used.

MAXIMUM ACCESSIBILITY

Thanks to the rational and ergonomic design, the interventions of operators or maintenance technicians in any area of the machine are carried out with the utmost ease and safety.



FAUSTO MARINELLO ELECTROSPINDLE

The electrospindles of the FM1 series are designed by FAUSTO MARINELLO.

They are available in versions 10,000 and 17,500 rpm* with spindle attachment HSK-A63, HSK-A80, HSK-A100.

MAXIMUM FLEXIBILITY

The FM1 series can be used for each type of process and is available with single 5th axis table, double 5th axis tables or special tables.

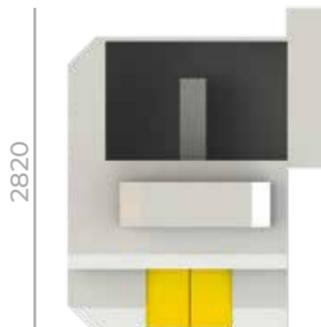
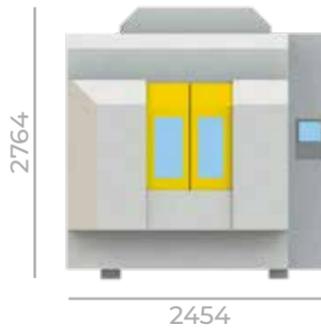
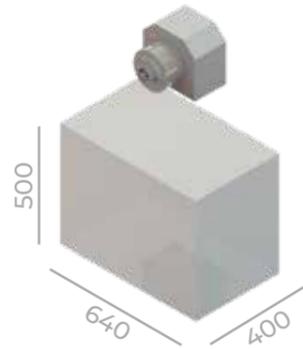
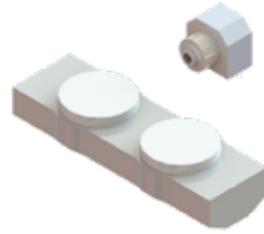
MAXIMUM STABILITY

Thanks to the particular structure of the base filled with polymeric cements*, FM1 machines are ideal for extreme precision machining. They offer high rigidity, minimal thermal expansion and maximum vibration absorption.



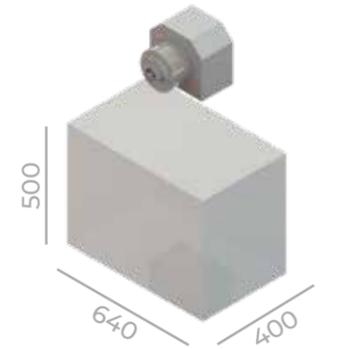
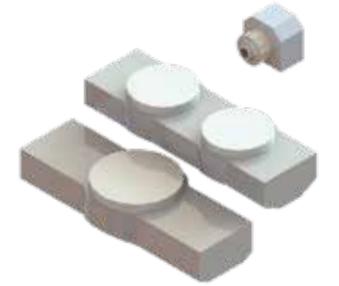
FM131

WORK AREA	HSK - A63	HSK - A80
X axis stroke [mm]	640	
Y axis stroke [mm]	500 (+270)	
Z axis stroke [mm]	400	
A AXIS		
Maximum table dimensions [mm]	Ø620x880	
Drive unit	Motor torque	
Maximum weight of equipment and workpiece [kg]	400	
Maximum speed	50	
C/W axis	1 or 2 per axis	
ELECTROSPINDLE		
Maximum speed [rpm]	10000	10000
OPTIONAL maximum speed [rpm]	17500	
Rated power [kW]	28	33
Power S6 (40%) [kW]	32	35
Nominal torque [Nm]	63	143
Torque S6 (40%) [Nm]	80	200
Spindle bearing	80	90
PERFORMANCE		
Drive unit	Ball screw	
X axis acceleration [m/s ²]	10	
X axis fast speed [m/min]	75	
Maximum X axis thrust [N]	8000	
Y axis acceleration [m/s ²]	10	
Y axis fast speed [m/min]	75	
Maximum Y axis thrust [N]	8000	
Z axis acceleration [m/s ²]	15	
Z axis fast speed [m/min]	80	
Maximum Z axis thrust [N]	5500	
MAGAZINE		
Tool change	Pick-up	
Capacity	40	42
Optional capacity 1	80	60
Optional capacity 2	120	90
Maximum tool diameter [mm]	Ø75	Ø100
Maximum tool diameter (adjacent free positions [mm])	Ø160	
Maximum tool length [mm]	320	
Maximum tool weight [kg]	8	
Tool change time (chip-to-chip) [s]	≤ 2.5	
GENERAL DATA		
CNC	Siemens	
OPTIONAL CNC	Fanuc	



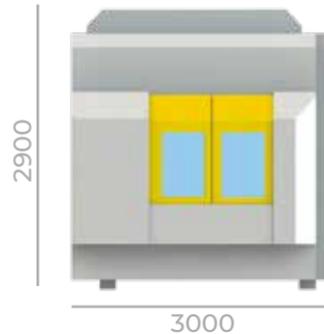
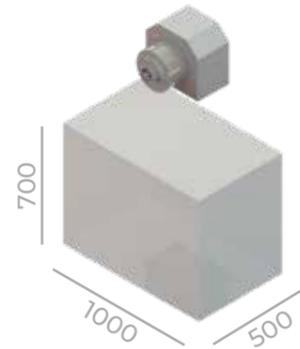
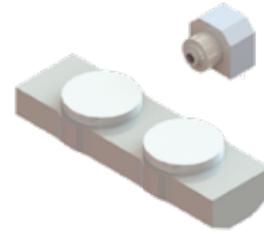
FM132

WORK AREA	HSK - A63	HSK - A80
X axis stroke [mm]	640	
Y axis stroke [mm]	500 (+270)	
Z axis stroke [mm]	400	
Q AXIS		
Oscillation time 180° [s]	3	
A/U AXIS		
Maximum table dimensions [mm]	Ø620x880	
Drive unit	Motor torque	
Maximum weight of equipment and workpiece [kg]	400	
Maximum speed	50	
C/W axis	1 or 2 per axis	
ELECTROSPINDLE		
Maximum speed [rpm]	10000	10000
OPTIONAL maximum speed [rpm]	17500	
Rated power [kW]	28	33
Power S6 (40%) [kW]	32	35
Nominal torque [Nm]	63	143
Torque S6 (40%) [Nm]	80	200
Spindle bearing	80	90
PERFORMANCE		
Drive unit	Ball screw	
X axis acceleration [m/s ²]	10	
X axis fast speed [m/min]	75	
Maximum X axis thrust [N]	8000	
Y axis acceleration [m/s ²]	10	
Y axis fast speed [m/min]	75	
Maximum Y axis thrust [N]	8000	
Z axis acceleration [m/s ²]	15	
Z axis fast speed [m/min]	80	
Maximum Z axis thrust [N]	5500	
MAGAZINE		
Tool change	Pick-up	
Capacity	40	42
Optional capacity 1	80	60
Optional capacity 2	120	90
Maximum tool diameter [mm]	Ø75	Ø100
Maximum tool diameter (adjacent free positions [mm])	Ø160	
Maximum tool length [mm]	320	
Maximum tool weight [kg]	8	
Tool change time (chip-to-chip) [s]	≤ 2.5	
GENERAL DATA		
CNC	Siemens	
OPTIONAL CNC	Fanuc	



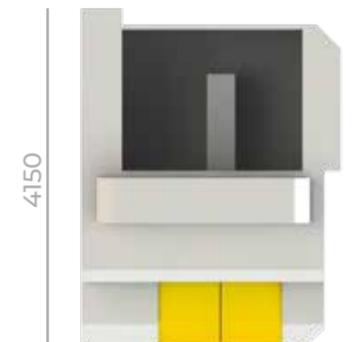
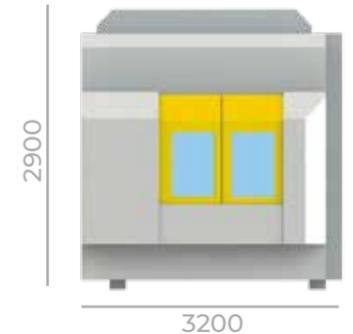
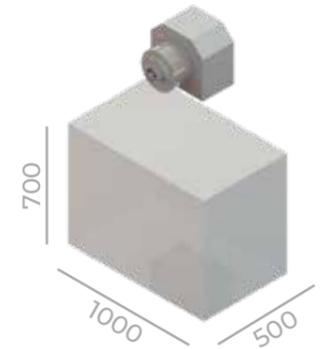
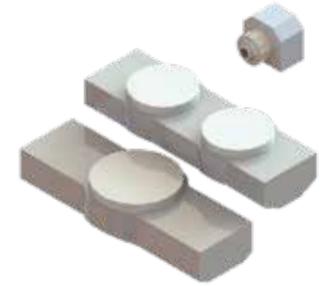
FM151

WORK AREA	HSK - A63	HSK - A80
X axis stroke [mm]	1000	
Y axis stroke [mm]	700 (+270)	
Z axis stroke [mm]	500	
A AXIS		
Maximum table dimensions [mm]	Ø800x1310	
Drive unit	Motor torque	
Maximum weight of equipment and workpiece [kg]	700	
Maximum speed	50	
C/W axis	1 or 2 per axis	
ELECTROSPINDLE		
Maximum speed [rpm]	10000	10000
OPTIONAL maximum speed [rpm]	17500	
Rated power [kW]	28	33
Power S6 (40%) [kW]	32	35
Nominal torque [Nm]	63	143
Torque S6 (40%) [Nm]	80	200
Spindle bearing	80	90
PERFORMANCE		
Drive unit	Ball screw	
X axis acceleration [m/s ²]	10	
X axis fast speed [m/min]	75	
Maximum X axis thrust [N]	10000	
Y axis acceleration [m/s ²]	10	
Y axis fast speed [m/min]	75	
Maximum Y axis thrust [N]	15000	
Z axis acceleration [m/s ²]	15	
Z axis fast speed [m/min]	80	
Maximum Z axis thrust [N]	8000	
MAGAZINE		
Tool change	Pick-up	
Capacity	60	64
Optional capacity 1	140	112
Optional capacity 2	200	160
Maximum tool diameter [mm]	Ø80	Ø100
Maximum tool diameter (adjacent free positions [mm])	Ø160	
Maximum tool length [mm]	320	
Maximum tool weight [kg]	10	
Tool change time (chip-to-chip) [s]	≤ 2.75	
GENERAL DATA		
CNC	Siemens	
OPTIONAL CNC	Fanuc	



FM152

WORK AREA	HSK - A63	HSK - A80
X axis stroke [mm]	1000	
Y axis stroke [mm]	700 (+270)	
Z axis stroke [mm]	500	
Q AXIS		
Oscillation time 180° [s]	3	
A/U AXIS		
Maximum table dimensions [mm]	Ø800x1310	
Drive unit	Motor torque	
Maximum weight of equipment and workpiece [kg]	700	
Maximum speed	50	
C/W axis	1 or 2 per axis	
ELECTROSPINDLE		
Maximum speed [rpm]	10000	10000
OPTIONAL maximum speed [rpm]	17500	
Rated power [kW]	28	33
Power S6 (40%) [kW]	32	35
Nominal torque [Nm]	63	143
Torque S6 (40%) [Nm]	80	200
Spindle bearing	80	90
PERFORMANCE		
Drive unit	Ball screw	
X axis acceleration [m/s ²]	10	
X axis fast speed [m/min]	75	
Maximum X axis thrust [N]	10000	
Y axis acceleration [m/s ²]	10	
Y axis fast speed [m/min]	75	
Maximum Y axis thrust [N]	15000	
Z axis acceleration [m/s ²]	15	
Z axis fast speed [m/min]	80	
Maximum Z axis thrust [N]	8000	
MAGAZINE		
Tool change	Pick-up	
Capacity	60	64
Optional capacity 1	140	112
Optional capacity 2	200	160
Maximum tool diameter [mm]	Ø80	Ø100
Maximum tool diameter (adjacent free positions [mm])	Ø160	
Maximum tool length [mm]	320	
Maximum tool weight [kg]	10	
Tool change time (chip-to-chip) [s]	≤ 2.75	
GENERAL DATA		
CNC	Siemens	
OPTIONAL CNC	Fanuc	



FM171

WORK AREA

	HSK - A63	HSK - A100
X axis stroke [mm]	1400	
Y axis stroke [mm]	850 (+400)	
Z axis stroke [mm]	600	

A AXIS

Maximum table dimensions [mm]	Ø1000x1760	
Drive unit	Motor torque	
Maximum weight of equipment and workpiece [kg]	1000	
Maximum speed	50	
C/W axis	1 or 2 per axis	

ELECTROSPINDLE

Maximum speed [rpm]	10000	10000
OPTIONAL maximum speed [rpm]	17500	
Rated power [kW]	28	20
Power S6 (40%) [kW]	32	26
Nominal torque [Nm]	63	262
Torque S6 (40%) [Nm]	80	340
Spindle bearing	80	100

PERFORMANCE

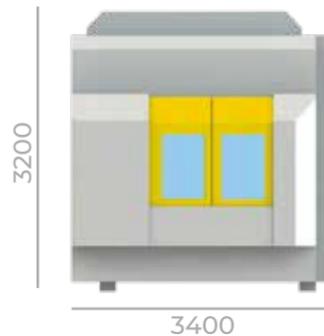
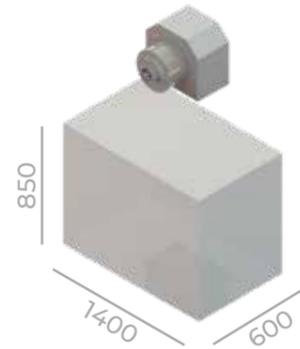
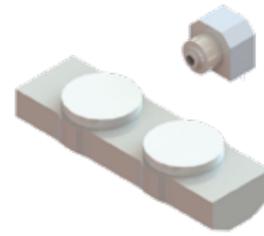
Drive unit	Ball screw	
X axis acceleration [m/s ²]	9	
X axis fast speed [m/min]	60	
Maximum X axis thrust [N]	12000	
Y axis acceleration [m/s ²]	9	
Y axis fast speed [m/min]	60	
Maximum Y axis thrust [N]	18000	
Z axis acceleration [m/s ²]	13	
Z axis fast speed [m/min]	80	
Maximum Z axis thrust [N]	10000	

MAGAZINE

Tool change	Pick-up	
Capacity	84	60
Optional capacity 1	140	100
Optional capacity 2	210	150
Maximum tool diameter [mm]	Ø80	Ø110
Maximum tool diameter (adjacent free positions [mm])	Ø250	
Maximum tool length [mm]	450	
Maximum tool weight [kg]	8	20
Tool change time (chip-to-chip) [s]	≤3.5	

GENERAL DATA

CNC	Siemens	
OPTIONAL CNC	Fanuc	



FM172

WORK AREA

	HSK - A63	HSK - A100
X axis stroke [mm]	1400	
Y axis stroke [mm]	850 (+400)	
Z axis stroke [mm]	600	

Q AXIS

Oscillation time 180° [s]	3	
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A/U AXIS

Maximum table dimensions [mm]	Ø1000x1760	
Drive unit	Motor torque	
Maximum weight of equipment and workpiece [kg]	1000	
Maximum speed	50	
C/W axis	1 or 2 per axis	

ELECTROSPINDLE

Maximum speed [rpm]	10000	10000
OPTIONAL maximum speed [rpm]	17500	
Rated power [kW]	28	20
Power S6 (40%) [kW]	32	26
Nominal torque [Nm]	63	262
Torque S6 (40%) [Nm]	80	340
Spindle bearing	80	100

PERFORMANCE

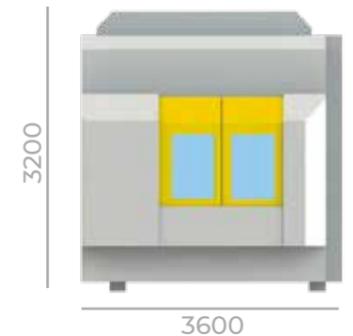
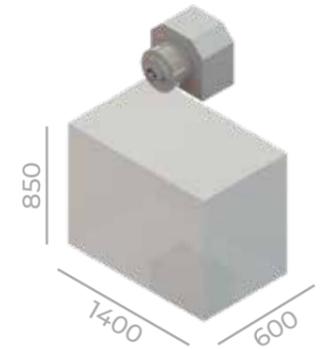
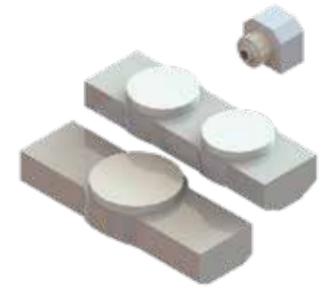
Drive unit	Ball screw	
X axis acceleration [m/s ²]	9	
X axis fast speed [m/min]	60	
Maximum X axis thrust [N]	12000	
Y axis acceleration [m/s ²]	9	
Y axis fast speed [m/min]	60	
Maximum Y axis thrust [N]	18000	
Z axis acceleration [m/s ²]	13	
Z axis fast speed [m/min]	80	
Maximum Z axis thrust [N]	10000	

MAGAZINE

Tool change	Pick-up	
Capacity	84	60
Optional capacity 1	140	100
Optional capacity 2	210	150
Maximum tool diameter [mm]	Ø80	Ø110
Maximum tool diameter (adjacent free positions [mm])	Ø250	
Maximum tool length [mm]	450	
Maximum tool weight [kg]	8	20
Tool change time (chip-to-chip) [s]	≤3.5	

GENERAL DATA

CNC	Siemens	
OPTIONAL CNC	Fanuc	



Overall dimensions workspace

The FM1 series is available with single or double 5th axis tables, a dual possibility that makes the FM1 series extremely flexible. In addition to this, thanks to the great experience and professionalism of our design department, it is possible to have special 5th-axis tables, customizable according to the customer's needs.

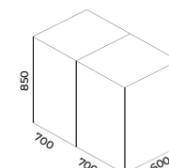
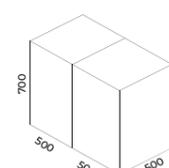
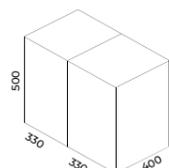
SINGLE TABLE



DOUBLE TABLE

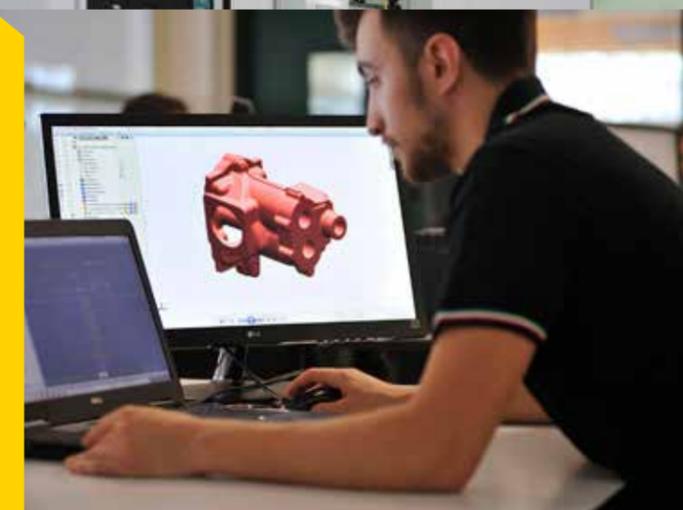


	FM13X	FM15X	FM17X
C AXIS	1x	1x	1x
Maximum table dimensions [mm]	Ø500x420	Ø750x570	Ø900x700
Maximum weight of equipment and workpiece [kg]	350	600	750



ASSISTANCE

In Italian, English, French and German. Fast and reliable delivery of spare parts. Electrospindles always in stock for maximum protection of your investment.



From the idea to the full process

A set of skills

Thanks to the cooperation between the companies of the FAMAR group, such as **FAUSTO MARINELLO**, **FAMAR** and **FAMAR Automations**, we are able to develop complete production processes, from the raw piece to the finished and assembled product, combining drilling, milling, turning, grinding, assembly and automation operations.

— CUSTOMIZATION

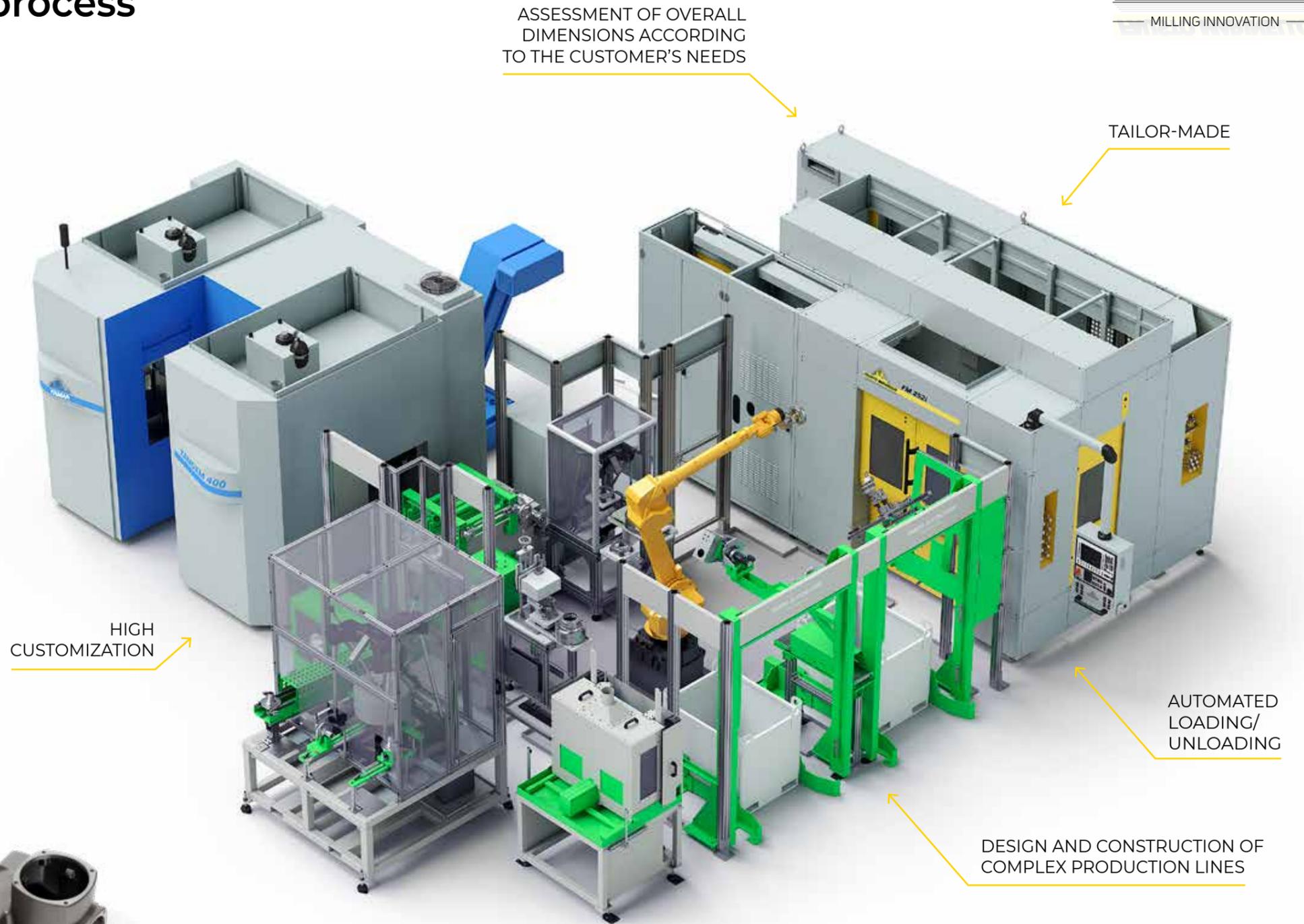
The machines of the FM1 series can be completely customized to meet the customer's needs.

— AUTOMATION

Thanks to the experience of our FAMAR Automation department, we are able to develop robotic islands for the automatic loading/unloading of parts, assessing the customer's needs in terms of production and layout.

— DESIGN AND PRODUCTION PROCESSES

Collaboration between different companies of the group allows for the design and implementation of complex production lines capable of satisfying every customer's needs.





Part of:



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