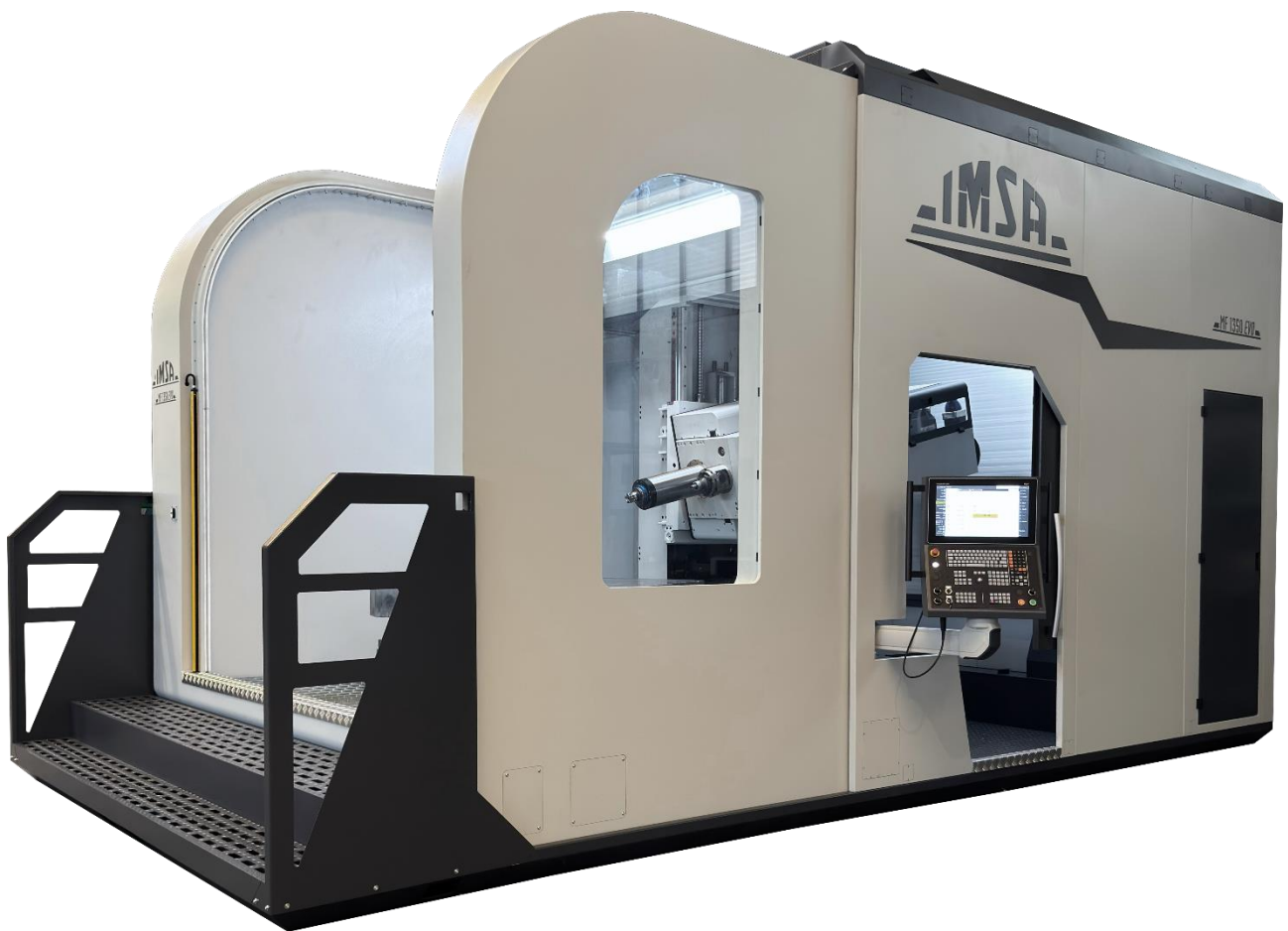


MF 1350 EVO

High Tech Gun Drilling and Milling Centre



Specialists in Precision Deep Drilling

Deep hole drilling and milling in synergy

For molds and blocks up to 16,000 kg, with a swing clearance up to 2,600 mm within the machine structure.

Orthogonal, single-angle and double-angle machining with table rotation and machining unit tilting. The machine's extended transverse travels increase accessibility to the workpiece surface, enabling a single setup at the center of the table.

The MF1350EVO is equipped with two separate spindles: one dedicated to deep hole drilling and one dedicated to milling, with automatic changeover between the two operations.

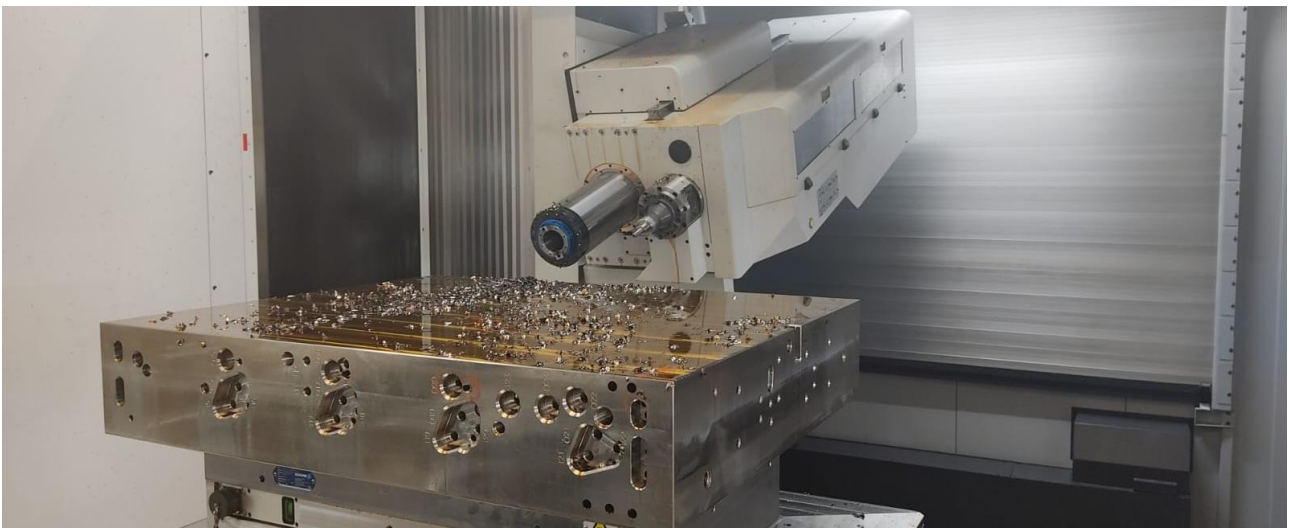
DEEP HOLE DRILLING: For decades, IMSA has employed a **dedicated gun drilling unit**, not shared with the milling function. This enables **true optimization of the deep hole drilling process**. 11 kW spindle, 4,200 rpm. Single-cycle drilling depth up to 1,350 mm. Optimal drilling diameters from solid: 5-40 mm.

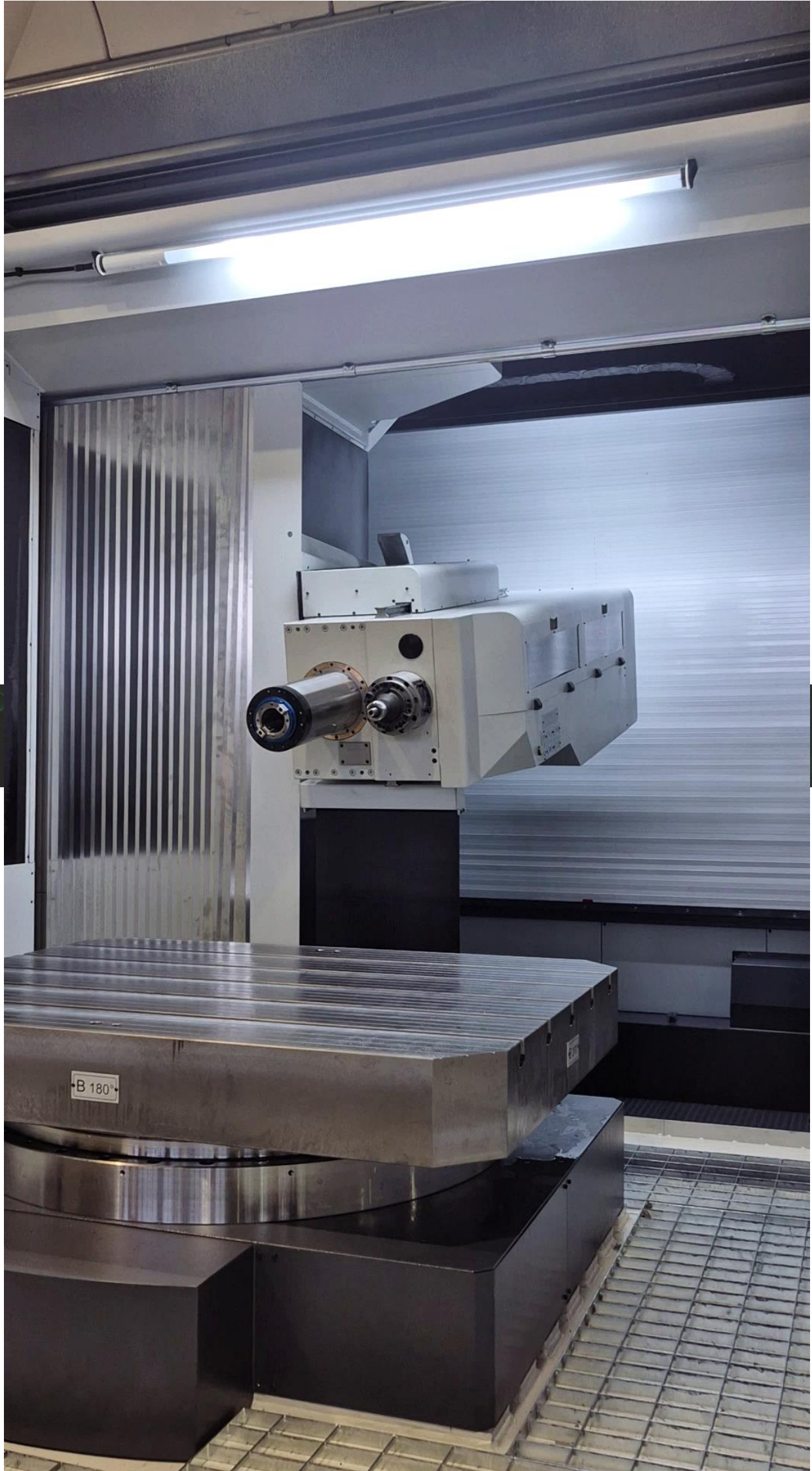
MILLING: ISO 50 machining unit with 29 kW spindle, 6,000 rpm, 200 Nm, mounted on a **separate axis** with additional **independent travel: no intervention required** to switch from drilling to milling and vice versa; each spindle is optimized for its specific process without technical compromise.

Machining without constant operator attendance

In the MF1350EVO, every design choice is focused on precision, rigidity and reliability, from the machine components to the operating logic.

Thanks to the two dedicated spindles and the automatic changeover between them, constant operator attendance is not required. Electronic monitoring of the deep hole drilling process ensures safe unattended operation. Tool magazines for the milling spindle, available in various storage sizes, provide an adequate number of tools for automatic machining.





Fewer setups, more machining time

The MF1350EVO is designed to minimize non-productive time on the shop floor.

Deep hole drilling is **performed continuously**, with optimally supported gun drills and properly filtered and cooled cutting fluid, reducing the frequency of tool regrinding interventions thanks to the rigidity of the machine structure and the controlled management of the drilling process.

Milling operations, from roughing to the machining of pockets, slots, threads and counterbores, are carried out **directly on the same machine**, allowing the workpiece to remain on the MF1350EVO throughout many stages before and after deep hole drilling, without continuous transfers to and from other machining centers.

The tilting spindle unit and rotary table enable **compound-angle machining**, while the machine kinematics, with its extended travels, allow the workpiece to be **machined on four sides in a single setup and from a single origin**.

The result is a more streamlined process, with fewer interruptions, less manual intervention and greater effective machine utilization.



The deep hole drilling capabilities

For decades, IMSA has built its gun drilling machines with a **dedicated spindle unit**, not shared with the milling function. According to our design philosophy, this enables us to **truly optimize the deep hole drilling process**.

Under typical mold steel machining conditions, it is possible to **achieve 30-40 meters of drilling, equivalent to 10-12 hours of unattended operation**, before the gun drill requires regrinding.

Stable operating conditions for optimal drilling

The deep hole drilling unit features no fewer than six drill support points. Unlike machines with removable chip boxes and steady rests, IMSA aligns these components rigidly with the drilling head structure **once and for all during machine assembly**. The result is a level of rigidity that allows drilling runs averaging 6 to 8 times longer than those achievable on machines equipped with removable chip boxes and steady rests.

Temperature, pressure and oil cleanliness are also essential for optimal drilling performance. The MF1350 EVO features two inverter-controlled pumps with pressure monitoring, automatic 16-micron filtration and a heat exchanger for oil cooling. A chip conveyor, floor pans and full machine enclosure are included as standard.

Configuration for drilling with water-based coolant instead of cutting oil is also available.

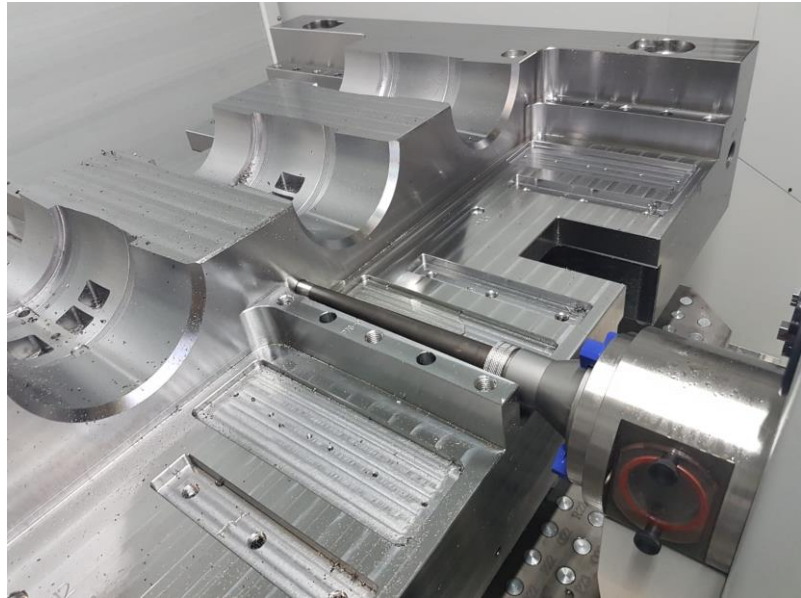


4-side machining from a single origin

The MF1350EVO's extended travels increase workpiece accessibility and enable a wide range of machining operations while maintaining a single setup at the centre of the table.

Advanced RTCP functions enable compound-angle machining.

The workpiece can be machined on all four sides from a single origin, with both spindles operating without the need for continuous repositioning



Control

Heidenhain CNC with deep hole drilling cycles specifically developed by IMSA programmers in collaboration with Heidenhain.

Specific IMSA functions for deep hole drilling process control:

- Electronic approach to the workpiece,
- Electronic drill breakage protection through cutting load monitoring,
- Advanced RTCP for compound-angle machining,
- Single origin for the management of both spindles on all four sides of the workpiece.



The milling capabilities

Milling operations, including roughing, pockets, slots, counterbores, threading and more, are carried out directly on the same machine, without moving the workpiece. The MF1350EVO therefore enables complete mold machining within a single continuous process, reducing waiting times, workpiece handling and dependence on other machine tools.

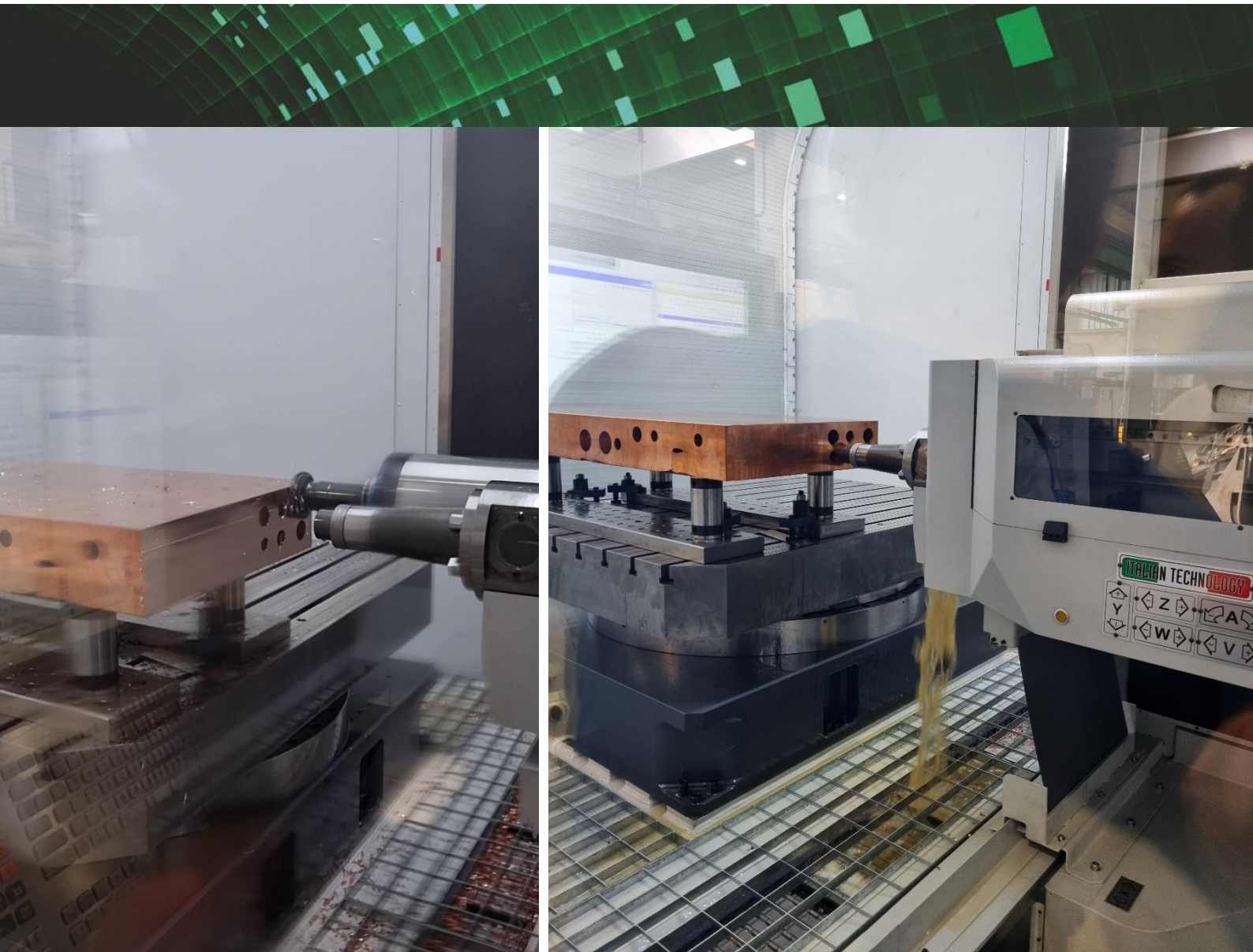
The MF1350 EVO is equipped with an ISO 50 milling head mounted on the same tilting machining unit as the deep hole drilling spindle, positioned alongside it and operating independently. This independent-axis system, a distinctive feature of IMSA machines:

- enables each spindle to be optimized without technical compromise,
- and allows fully automatic changeover between drilling and milling operations in just a few seconds, without operator intervention.

The ISO 50 milling spindle delivers 29 kW of power, speeds up to 6,000 rpm and 200 Nm of torque. The motor is liquid-cooled to minimize thermal expansion during machining.

The entire machining unit features a 500 mm approach travel toward the workpiece (W axis), complemented by the 400 mm independent travel of the milling quill (Z axis), for a total of 900 mm. These travels increase operational flexibility, making it easy to reach different areas of the workpiece without repositioning.

ISO 50 tool magazines for milling, available in various storage sizes, provide the autonomy required for fully automatic machining cycles.





MF 1350

CE

IMSASYSTEM

Y V A
W Z

Self-supporting structure, no special foundations

The machine is built on a self-supporting **monobloc structure**, which supports both the table and the Gantry column. This configuration **makes special foundations unnecessary** and allows installation directly on the shop floor.

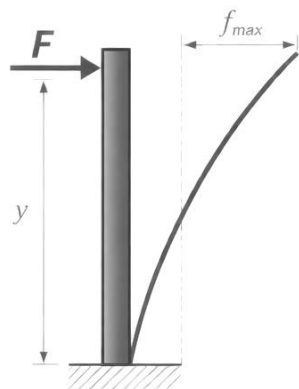
The entire machine is enclosed within a modern oil-tight enclosure, helping keep the surrounding area clean. The front door, made of extruded aluminum, provides a **wide opening** for workpiece loading, whether by forklift or overhead crane from above.

The IMSA Gantry structure, with the column supported both at the top and bottom, provides 16 times greater rigidity than traditional designs with a column guided only at the base. Every major machine component is designed to maximize rigidity. This allows the use of **high-performance tools in all machining positions** for deep hole drilling and milling, while maintaining high productivity.

STRUCTURAL ADVANTAGES OF

IMSA VERTICAL GANTRY

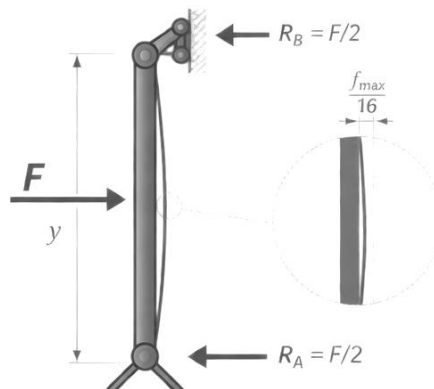
MOBILE COLUMN



BENDING MOMENT	$M_{max} = F \cdot y$
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DEFLECTION	$f_{max} = \frac{F \cdot y^3}{3EI}$
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VERTICAL GANTRY



BENDING MOMENT	$M_{max} = \frac{F \cdot y}{4}$
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DEFLECTION	$f_{max} = \frac{F \cdot y^3}{48EI}$
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↓ **4x**
LOWER STRESS STATE

↑ **16x**
HIGHER STIFFNESS

Force distribution **minimizes** structural stress and **maximizes** machining accuracy.

A solid technical design for continuous machining

The performance of the MF1350EVO is built on a machine structure designed to ensure rigidity, precision and long-term repeatability.

Drives with planetary gearboxes, inductive linear scales and liquid-cooled spindles help maintain stable operating conditions even during the most demanding machining operations.

Particular attention has been paid to the positioning accuracy of the linear and rotary axes, ensuring accuracy and repeatability during complex machining operations, including work on multiple sides of the workpiece.

MF 1350 EVO SPECIFICATIONS

Watch MF1350EVO
YouTube Shorts



MAIN MOVEMENTS

Maximum drilling depth, in single operation	V axis	1.350 mm
Column longitudinal movement	X axis	2.120 mm
Offset between drilling and milling spindle	(X axis)	220 mm
Column longitudinal movement, net travel	X axis	1.900 mm
Headstock vertical movement	Y axis	1.250 mm
Headstock tilting angle (infinite position)	A axis	+20 ...-20 °

GUN DRILLING SPINDLE

Drilling slide approach travel	W axis	500 mm
Optimal drilling dia., solid	(4)	5 – 40 mm
Gun drilling spindle motor		11,0 (S1) kW, 4.200 rpm
Max. oil pressure		100 bar
Oil filtration degree		16 µm
Driver type for gundrills: standard		Ø 25 x 70 mm

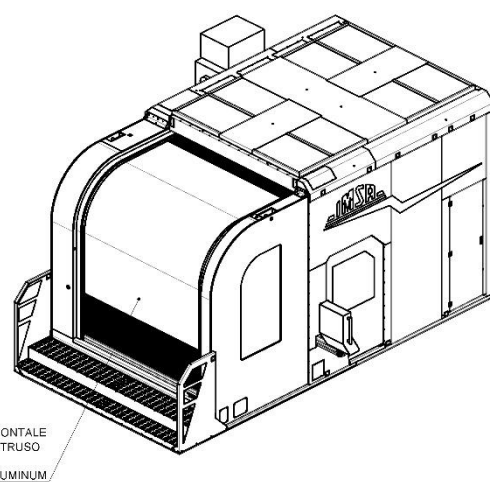
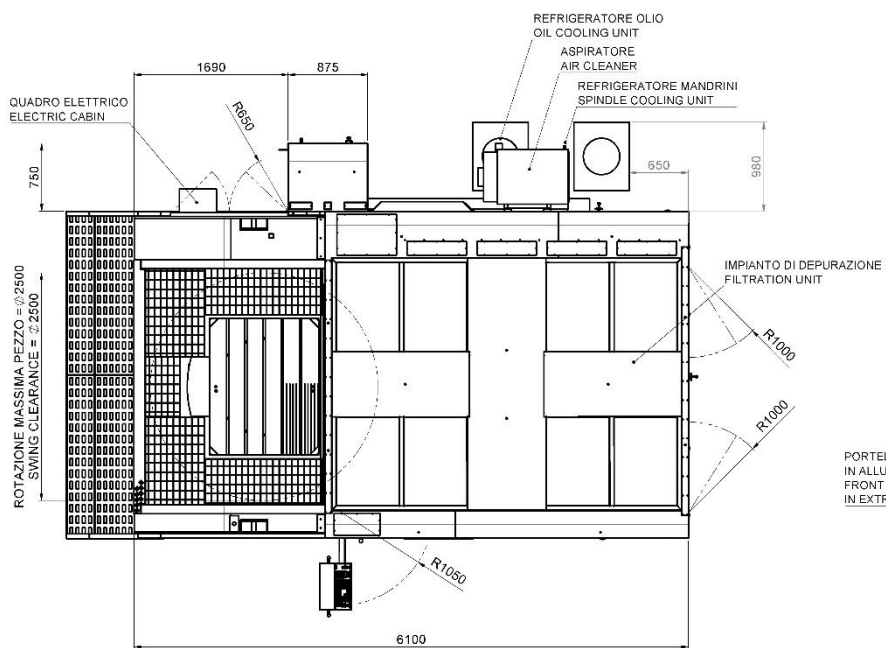
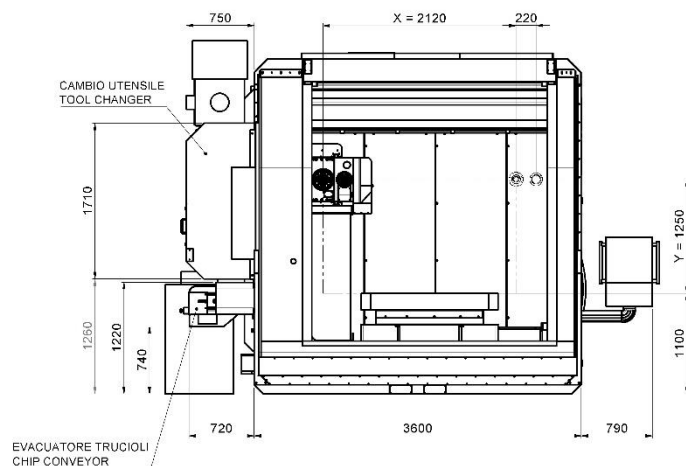
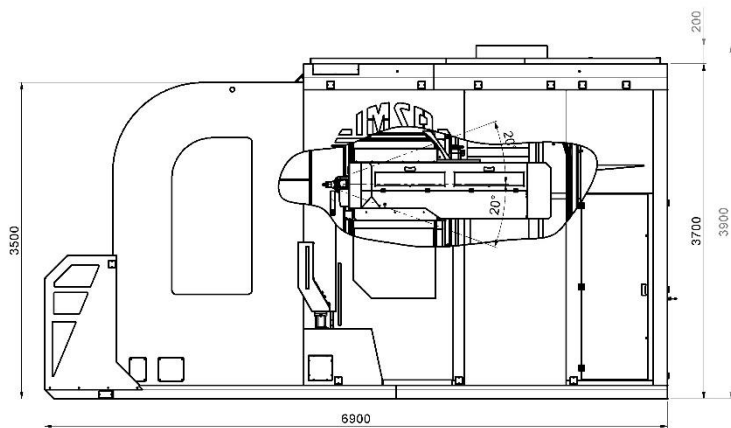
ISO 50 MILLING SPINDLE

Working horizontal stroke	W axis	500 mm
Independent stroke of milling quill	Z axis	400 mm
Total movement	W+Z	900 mm
Milling spindle motor		29,0 (S1) kW, 6.000 rpm
Milling spindle nominal torque		200 Nm
Spindle taper		ISO 50
Oil passage inside the spindle		50 bar
Oil at spindle side (nozzle)		8 bar
Air at spindle side (nozzle)		6 bar
Air passage inside the spindle (Option)		6 bar

ROTARY TABLE

Rotary table size		1.200 x 1.500 mm
Rotation resolution (infinite position)	B axis	0,001 °
Table load		16.000 kg
Standard T-slots		22 mm

We can assist you in determining the most appropriate solution for your machining requirements.





Specialists in Precision Deep Drilling



I.M.S.A. srl - Via Don G. Dell'Acqua, 2/D - 23890 Barzago (Lecco) - Italy

Tel. +39 031 860444 - info@imsaitaly.com - www.imsaitaly.com