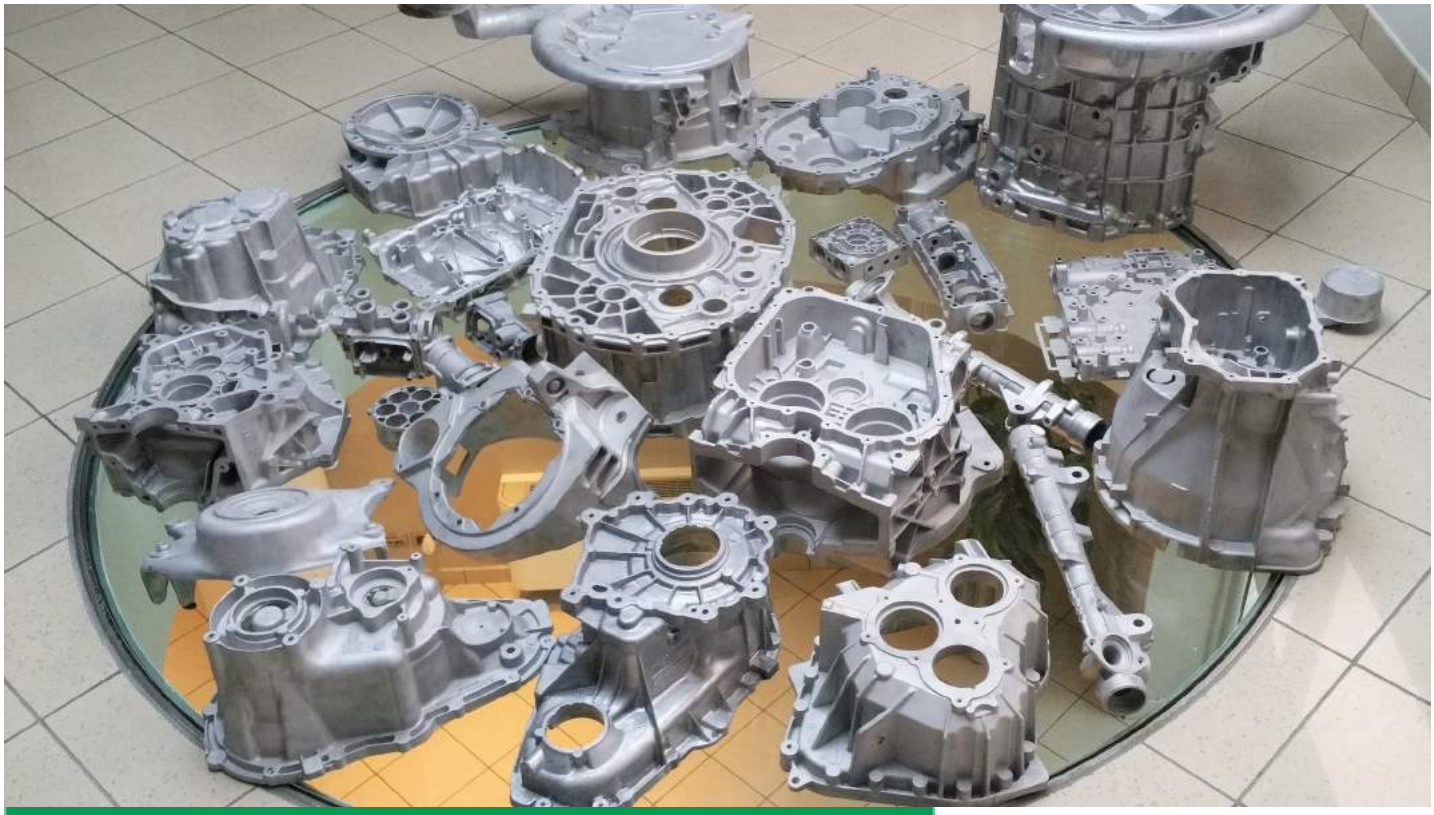
QUALITY AND PRECISION
ALWAYS IN THE FOCUS

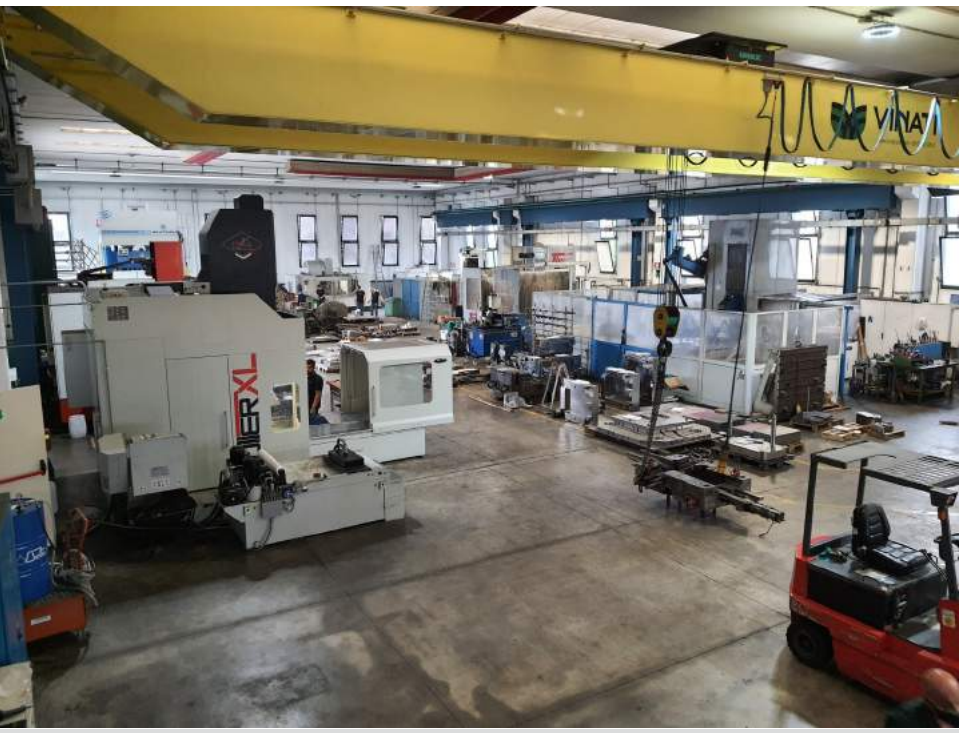


13 Minutes READING TIME

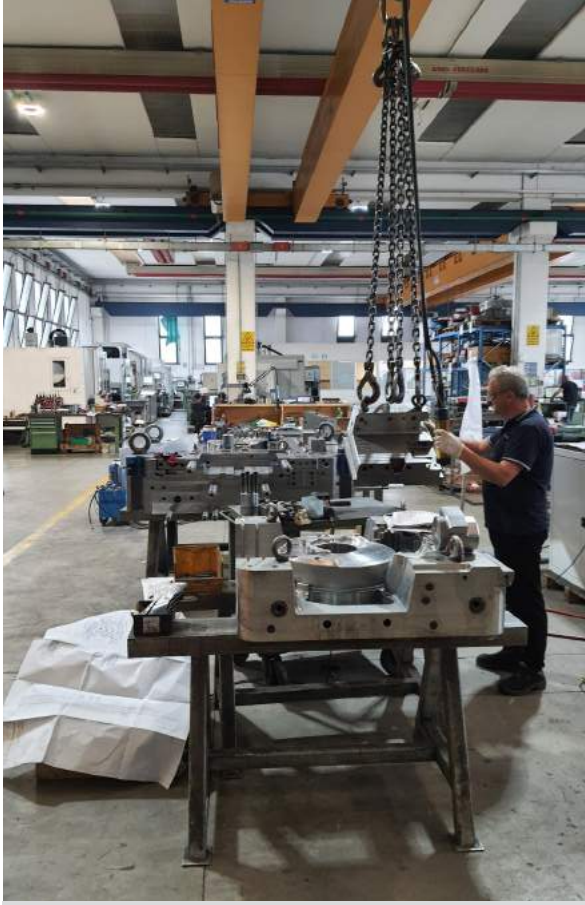
With experience rooted in the mid-eighties, the company Gruppo Ideal Stampi operates in the design and construction of die-casting molds (aluminum and zamak), especially for the automotive sector. An I.M.S.A. machine was installed for deep drilling up to 1,000 mm.

In Italy in the province of Brescia, specifically in Chiari, operates Gruppo Ideal Stampi, a company always at the cutting edge, ready to meet the needs of its customers, whether they concern design or the production process. “Flexibility, technical competence and maximum quality,” explains Guglielmo Vezzoli, owner of the company, “represent the strong points on which we orient our activity and which have given us constant growth over the years and growing appreciation from the market.”

*Translation of the article published in the Italian technical magazine **COSTRUIRE STAMPI** (Publitec publishing) – November 2023*



View of Ideal Stampi production area



Assembly area

Gruppo Ideal Stampi is a company with more than 30 years of tradition: in fact, it was founded in 1984 by brothers Guglielmo and Pierluigi Vezzoli, initially as a small business active in the construction of plastic and die-casting molds for fashion accessories, handles for furniture and household appliances, toys and household goods.

“From the early 2000s,” Vezzoli says, “we specialized in the construction of aluminum and magnesium die-casting molds.”

An important step in Ideal Stampi took place in 2016, when Guglielmo Vezzoli became the sole owner of the company, in addition to beginning investments in Industry 4.0, with the purchase of a ERP system capable of monitoring processes from the quotation stage to the delivery stage of molds.

Guglielmo Vezzoli's children have also joined the company: Silvia, Administration Manager, and Matteo, Production Department Manager.

Providing foundries with an all-round service

Gruppo Ideal Stampi cooperates with important foundries, both domestic and international (Europe, North and South America), for which it supplies molds for the production of components for the automotive (gearbox-engine parts as well as structural parts) and lighting (street lamps and ceiling lights) segments.

“With nearly four decades of experience and more than 2,000 die-casting molds built, we have the experience and technology to design and build molds for aluminum and magnesium in a wide variety of industries, using technologies such as vacuum, squeeze and jet-cooling,” Vezzoli explains.

Ideal Stampi also designs and manufactures trimming tools to be supplied together with the die casting mold, so that the customer can receive a complete service.

"This activity makes it possible to have a final casting thought out in the design both at the blank level from the die casting mold and from the blanked casting," Vezzoli points out.

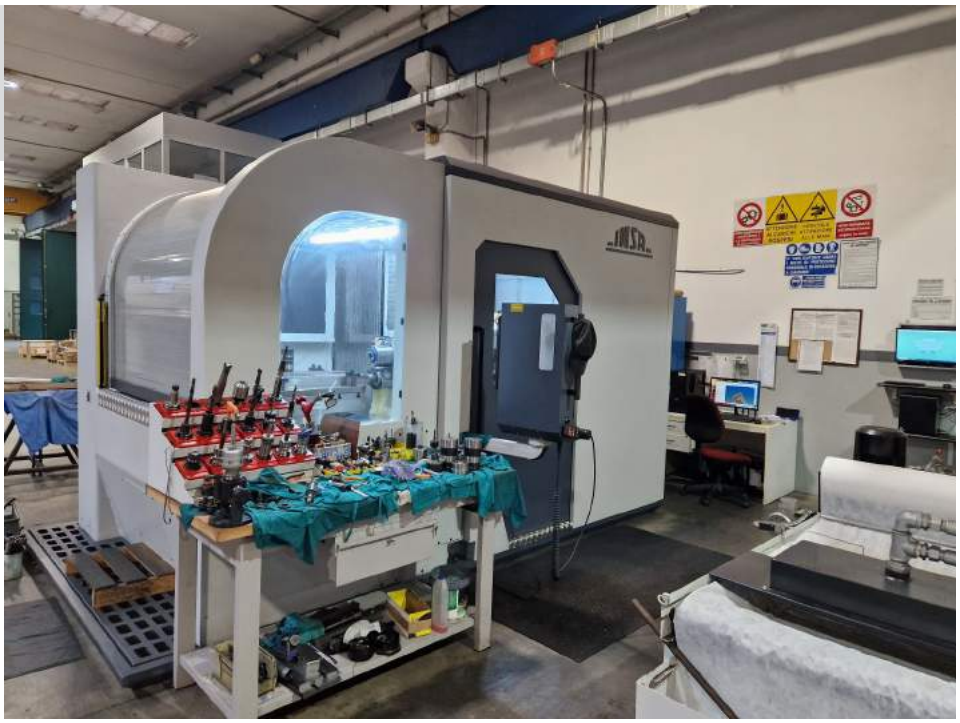
One of the goals of this Brescia-based company is precisely to provide foundries with an all-around service. “We start from modeling and engineering on the components to be produced, to performing sampling and pre-series of our molds, as well as 2D/3D CMM dimensional surveys on the castings to be sampled. The sampling and pre-series include X-ray inspection of the castings as well as visual and laser inspection to assess good part conformation,” Vezzoli says.

Clearly, Ideal Stampi also provides quick service for spare parts, maintenance and any modifications on its dies and other equipment.

The technical office, within the

Machining on MF1000/2C by I.M.S.A.

The deep drilling and milling machine MF1000/2C installed in the machining area of Gruppo Ideal Stampi



company, follows all customer needs. “Thanks to the experience of our technicians, we develop the casting, channels and vents to be applied to the mold following the customer's specifications. We launch the first simulation, which is then analyzed and modified according to the results so that we can launch the second simulation, which will be the one that will then be applied in the mold. We update the design of the 3D and 2D mold to be used for construction with the most suitable die casting,” Vezzoli explains.

Modern, high-precision machinery

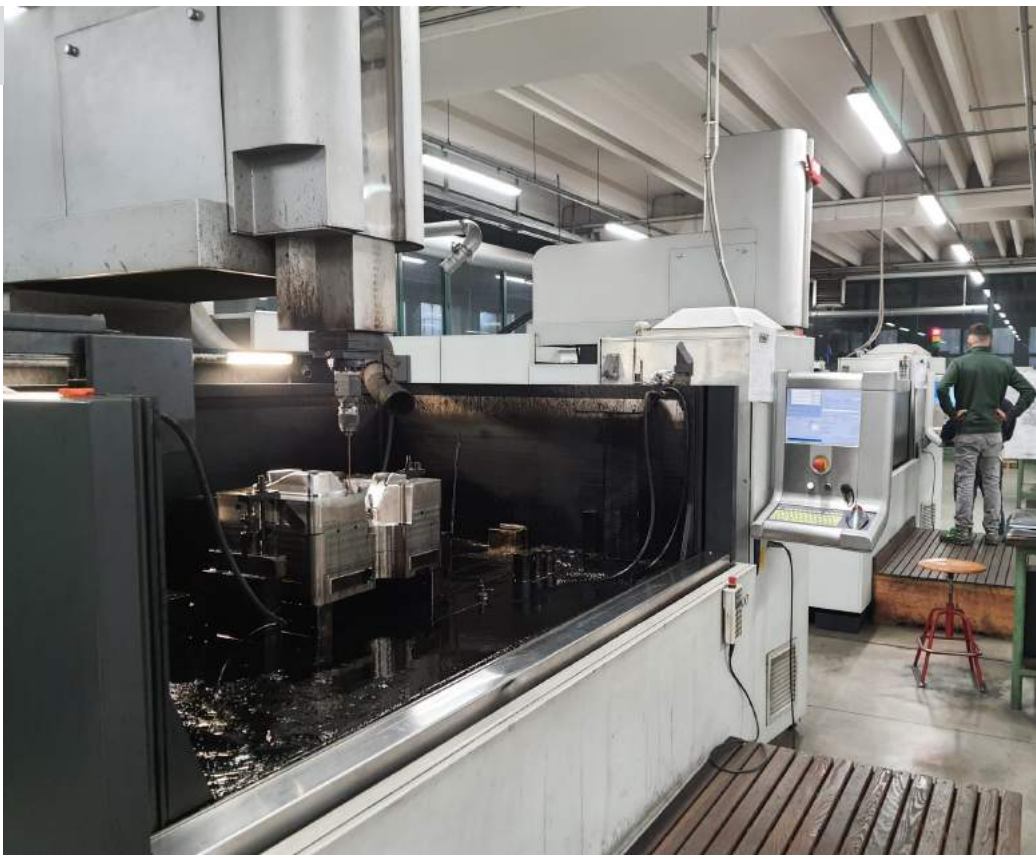
Gruppo Ideal Stampi is a very demanding company. “Given our target sectors,” Vezzoli emphasizes, “quality and precision are the absolute goals we aim for when we begin the design of a new piece of equipment, right up to the completion of its production cycle. To produce quality molds, along with experience and individual skills, modern, high-precision machinery is also essential.”

In addition to the quality of equipment, the Brescia-based company is also renowned for its speed of response to market demands. “Adherence to agreed delivery times definitely represent one of our strengths,” Vezzoli emphasizes.

Ideal Stampi has all the technology necessary to manufacture molds capable of meeting the strict requirements imposed by their clients.

“Thanks to a targeted policy of investment in new machinery (updated year by year through the insertion of new equipment) and careful staff training, we have had a steady growth that today allows us to deal with different types of markets, thanks to a workforce of 40 people, as well as selected suppliers who help us provide quality molds. With all this, we have

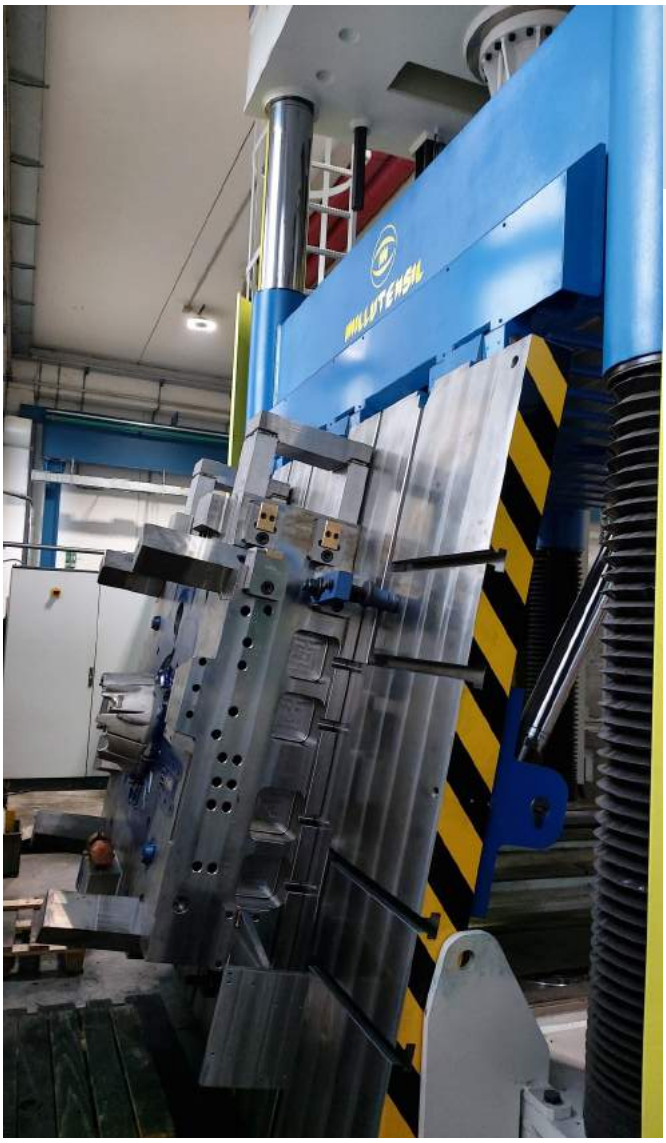
EDM area



available 180,000 hours/year to spend on the design and construction of our molds," Vezzoli says.
The production department is equipped with high-tech machines: fifteen 3-, 4-, and 5-axis high-speed machining centers, six EDM machines (four sinker-EDM and two wire-EDM), four CNC and two parallel lathes, three grinding machines, and a state-of-the-art mold adjustment press, in addition to the classic shop floor machines.
"In the production department we have set up an area where, through a laser scanner and an optical scanner, we check and superimpose with the 3D model of the mold the most delicate parts of the mold itself," Vezzoli explains.
Thanks to its machinery, Ideal Stampi is able to process molds with a maximum size of 2,500 mm and a total weight of up to 35-40 tons.

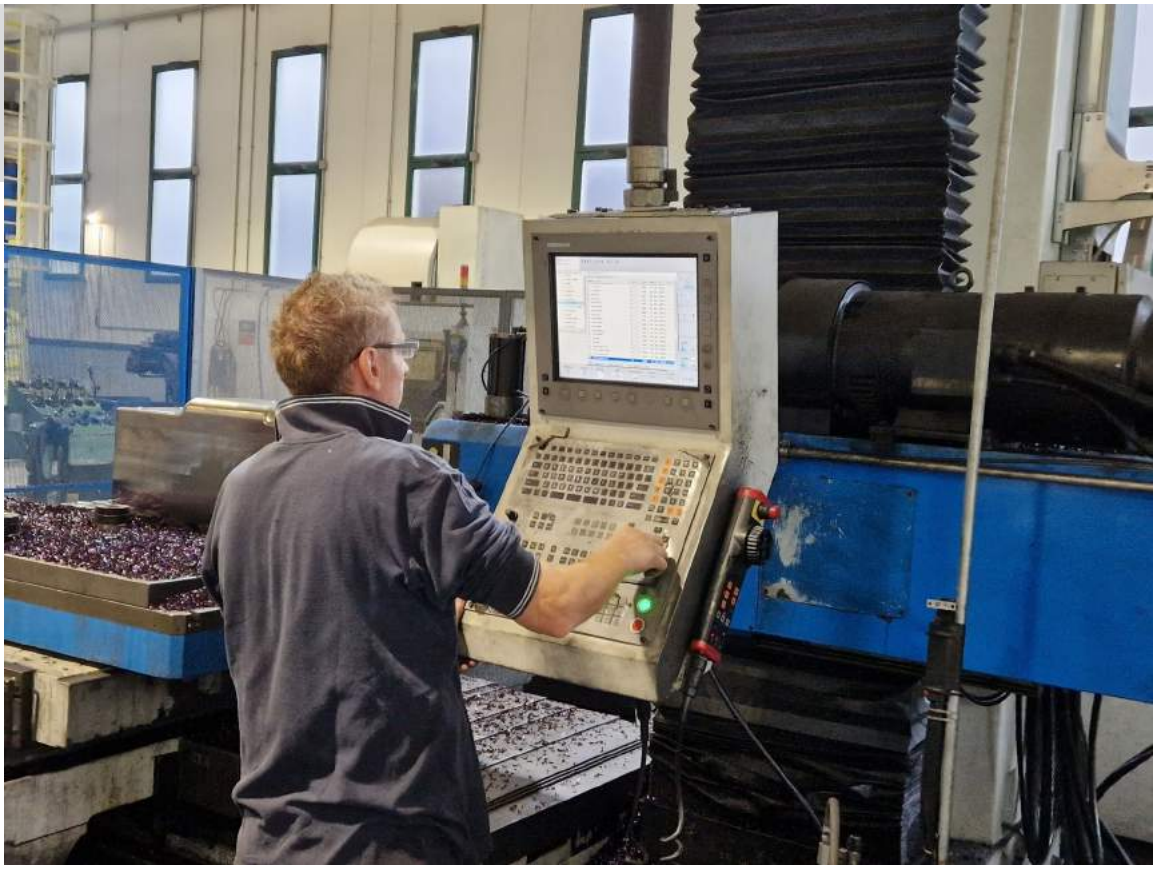
Deep drilling tasks have been increasing over the years

Deep drilling activities in die casting molds have been an important part of Ideal Stampi's daily operations in recent years, which is why last year the company purchased a new machine specifically for this operation: the MF1000/2C gun drilling and milling machine from I.M.S.A.
"With the numerous water lines that are now present in a die-casting mold, without their machine we would be forced to outsource this processing, with the risk of possible delays in delivery," Vezzoli says. "I consider the MF1000/2C gun drilling machine to be the most suitable model for most moldmakers as it



A tryout press is present in the work shop

Gruppo Ideal Stampi provides foundries with an all-round service



allows numerous machining operations on medium and small size molds."

Gruppo Ideal Stampi uses the I.M.S.A. drilling machine for holes up to 1,000 mm; beyond 1,000 mm to 2,000 mm it relies on a Monti boring machine.

I.M.S.A.'s MF1000/2C deep drilling machine is the latest evolution of the previous MF1000C model, which has now been renovated with a dual-spindle configuration. The ram is now equipped with two separate spindles: one for threading and milling, and one for deep hole drilling with a gun drill.

A compact machine

MF1000/2C is a compact machine that offers all the characteristic advantages of IMSA gun drilling machines for mold makers, such as rigidity in any position thanks to the gantry column, control functions of the drilling process, and complete coolant management in terms of pressure and flow rates as well as recovery, filtering and cooling.

With a length of 4.40 m and a width of 2.55 m, the MF1000/2C occupies a very compact space on the shop floor with respect to its axis travels and the workpiece that can be machined: the drilling depth with a gun drill is a maximum of 1,000 mm, with a vertical Y travel of 500 mm and a horizontal travel of 1,000 or 1,100 mm depending on the version.

Two machine versions for molds up to 2 or 4 t

MF1000/2C is available in two versions depending on the mold to be processed.

Customers who need to make conditioning holes in molds of up to 2 t, where the circuit has orthogonal, single-tilt and even double-tilt holes, can choose the version with a 2,000 kg dynamic capacity roto-tilting table and 1,000 mm horizontal X-axis. The table rotates 360° and pivots from +25° to -20°, both angular movements have a resolution of 0.001° and are controlled by perimeter inductive measuring systems. In this version, the machine accommodates within its structure a workpiece of maximum diagonal 1,300 mm (swing clearance).

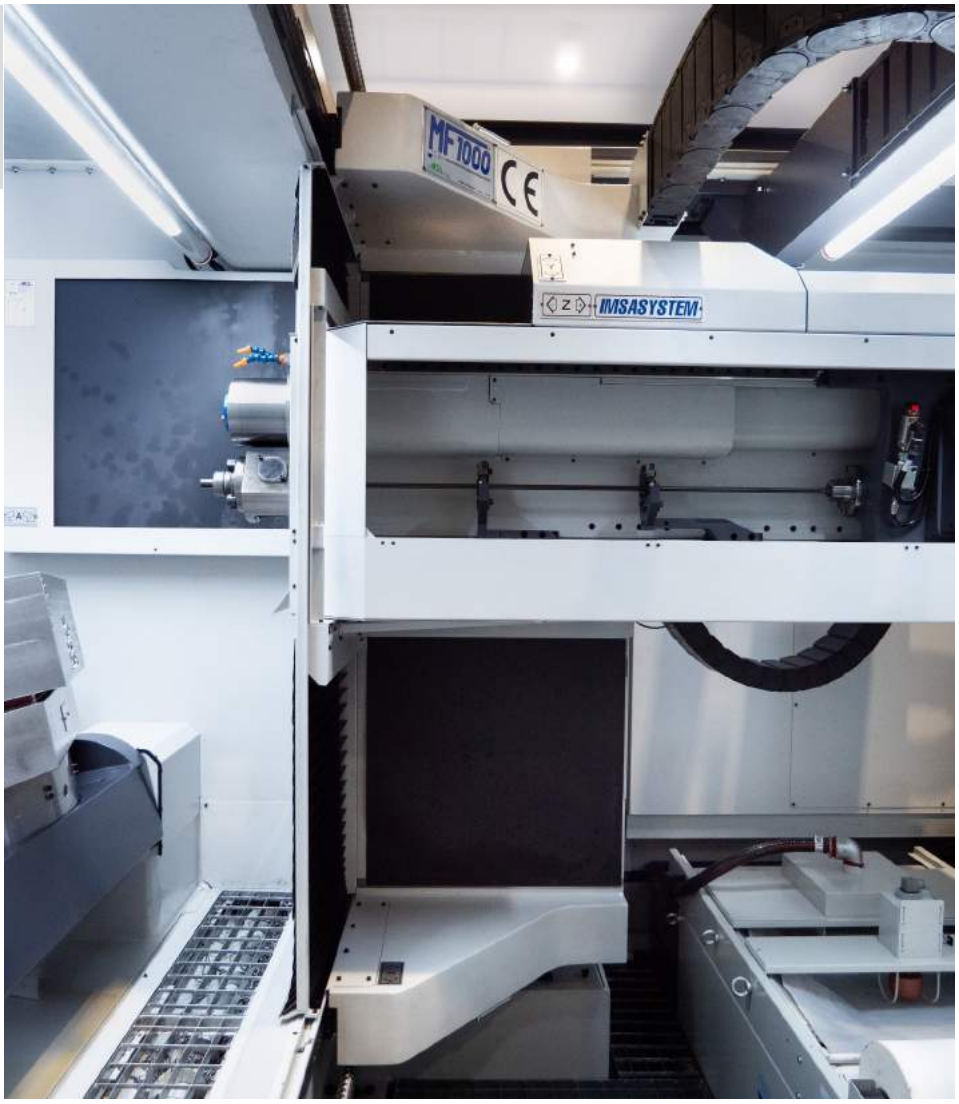
If the table tilting is not required but rather a higher load-bearing capacity is needed, the other version of the MF1000/2C is equipped with a rotary table with a dynamic load-bearing capacity of up to 4,000 kg; in this case the horizontal X-axis is 1,100 mm and allows loading of a workpiece with a maximum diagonal of 1,650 mm (swing clearance).

Deep drilling capabilities

MF1000/2C drills diameter 4 to 25 mm from solid without pilot hole, up to diameter 32 mm in counter-boring, for a maximum depth of 1,000 mm.

The CNC is Heidenhain and features deep drilling cycles

On MF1000/2C, the vertical gantry column forms a self-supporting structure with the machine base that requires no foundation work



specially developed by I.M.S.A. programmers in collaboration with Heidenhain itself. The functions specific to the deep hole drilling process manage the electronic approach to the workpiece, read shear and thrust stresses to prevent drill breakage, and transform coordinates for inclined machining.
For successful gun drilling, the cutting oil must be properly managed in terms of pressure but also temperature and its degree of cleanliness. For pumping, the MF1000/2C is equipped with a CNC-controlled high-pressure pump and inverter; for clarification, an automatic filtration unit thoroughly purifies the oil (16 µm) and is integrated in the machine's casing; and finally, two refrigerators are arranged alongside the machine to cool the spindles and drilling oil. The chip conveyor is standard. A floor tank accommodates the entire machine preventing oil leakage to the floor.

Milling capabilities and machining change

This gun drilling machine also allows milling operations to be performed on the mechanics of the mold. It therefore performs, in addition to deep drilling, hole preparation and completion operations such as light roughing, spot-facing, counter-boring, and threading. Above all, thanks to the I.M.S.A. configuration with separate spindles, switching between the two spindles takes place fully automatically via the M-function, without requiring operator intervention, thus also during unmanned times and shifts. Another advantage of separate spindles is the fact that each spindle line has been optimized for the machining operations it will perform, without compromise. Milling capabilities can be complemented by a 10-place tool changer magazine.

Challenges in the mold industry

Like many mold making companies, one of the main problems that Gruppo Ideal Stampi encounters on a daily basis is the lack of qualified personnel.
In addition to the skilled workforce shortage, moldmakers are also struggling with ever-shrinking margins. “Many commissioning companies believe that a 3D file is enough to be able to buy the mold anywhere. In reality, this is not the case. For sure, new technologies and the standardization of some operations have improved and simplified daily work, but it is equally true that designing and building a quality mold requires the experience and the 'know-how' art of the moldmaker. This misleading narrative has led purchasing departments, especially those of large companies, to select suppliers only and exclusively based on price, consequently causing a never-ending price fight, which harms all companies in our industry,” Vezzoli concludes. ■

I.M.S.A. srl
23890 Barzago (Lecco) Italy
Tel. +39 031 860444
www.imsaitaly.com