

# SIEMENS

*Ingenuity for life*

Industrial machinery and heavy equipment

## Mec-Plast

Moldmaking and injection molding specialist offers full service with Siemens Digital Industries Software solutions

### Product

NX

### Business challenges

Manufacture tiny components within one-hundredth of a millimeter tolerance

Create competitive bids using CAD data from customers

Reduce time to update mold manufacturing processes due to part design changes

### Keys to success

Implement NX to automate the entire development and production process for molds and tooling

Use NX Mold Wizard to accelerate and standardize mold design

Accurately analyze mold injection process and structures

Employ NX CAM to program milling, turning and EDM operations across all CNC machines

### Results

Automated end-to-end manufacturing of complex molds

Accurate mold and tooling costs

Improved collaboration with customers by providing consulting services

With NX CAD, NX CAM and Mold Wizard, Mec-Plast offers consulting services for the design and production of pneumatic valves and solenoids

### Turnkey injection molding products and services

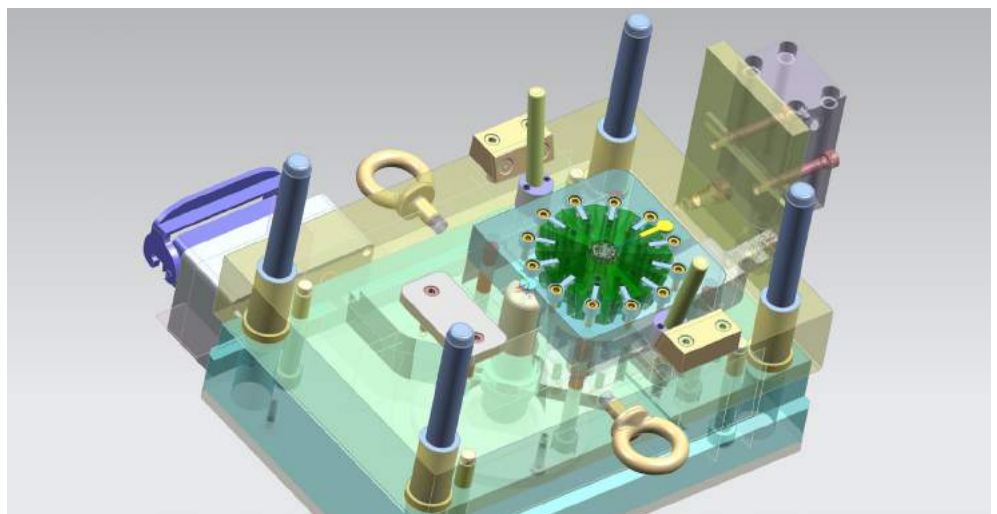
Mec-Plast has been in the moldmaking and injection molding business for over 35 years. The company is a model of Italian excellence, gradually expanding to the current organization with nine employees guided by owner Ivan Missaglia and his father, who founded the company in 1983. Mec-Plast specializes in small and miniature technical parts, especially for solenoid valves and pneumatic components. The company offers turnkey service from

feasibility studies, through design proposal and quote, up to mold construction and injection molding operations.

"Our portfolio includes solenoid valves of different sizes, mainly 10, 15 and 22 millimeters," Ivan Missaglia says. "These components are very small and require tolerances within few hundredths of a millimeter. That's why the customer relies on our experience and expertise, submitting a drawing of the part to be checked by our engineers who study its feasibility and possible actions for modification and optimization."

### Continuous evolution

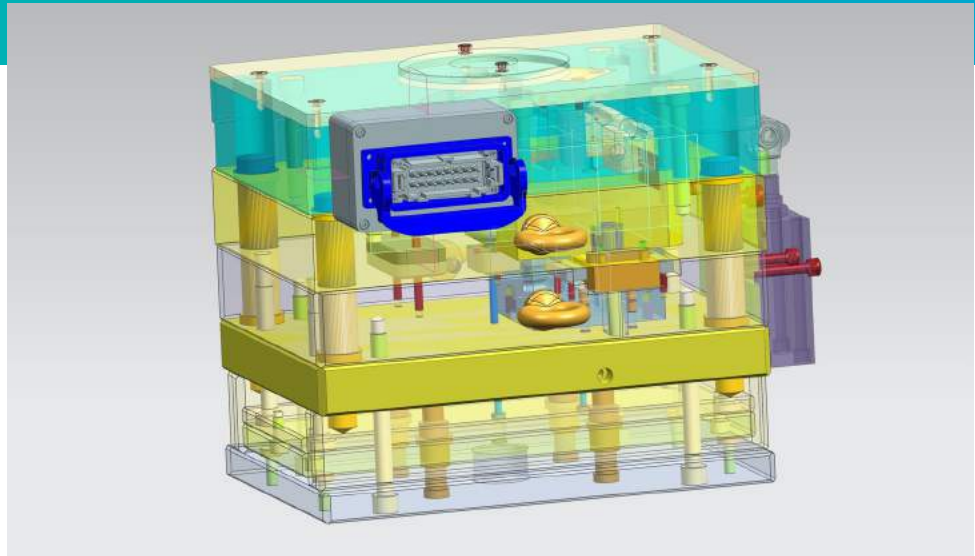
Throughout its history, the company has experienced the technological evolution of design tools from drawing boards to 3D CAD software to CAD/CAM integration. In 2002,



**Results** *(continued)*

Rapid implementation of design changes, from drawings to CNC programs

Safe machine operations using G-code-driven simulation



Mec-Plast became one of the early adopters of the new NX 3D design suite and eventually expanded its development toolset with the addition of NX Mold Wizard and NX CAM.

“In the typical process, customers submit STEP files from different CAD packages,” Missaglia explains. “Our engineers import these files into NX to execute feasibility studies with mold-specific tools that check draft angles and undercuts. NX Mold Wizard provides moldability analysis tools that help us create a reliable and detailed offer, including all costs for mold and tooling. Another key feature of NX is that it supports an integrated end-to-end process with full data associativity. “As CAD and CAM are tightly integrated, the entire

process is updated automatically after each change, from the 2D drawing to the 3D assembly and the toolpath,” Missaglia adds.

The analysis performed by Mec-Plast may also include injection process studies using the Moldex3D application integrated in NX, a third-party solution sold by Siemens. “In some cases, we also carry out structural analysis on the plastic component to check deformation,” Missaglia adds. “For instance, we have recently applied the customer-specific compression load to a molded part to check possible deformation. This type of analyses uses the CAE features included in the NX package and enables us to provide consulting services to customers.”

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Ivan Missaglia  
Owner  
Mec-Plast

### From computer to machine tool

Once the 3D model of the mold has been defined, the next step is the generation of toolpaths using NX CAM, which can handle all necessary machining operations, including 5-axis milling, die-sink and wire-cut EDM and turning. "The Siemens software has always kept up with the pace of technological evolution, adding features for the new generation of 5-axis machine tools," Missaglia says.

NX includes a virtual machining capability that enables NC programmers to perform kinematic simulations that directly use the machine and controller models and machining code to check for possible collisions and clashes before starting the machining process. These features are essential for safety and efficiency, enabling Mec-Plast engineers to check the G-code file of the machining process that will be executed by the machine tool for reliable simulation. The simulation results accurately reflect the postprocessed numerical control code in its native format. Normally,

the postprocessor applies modifications approved by the customer, so simulating the operation of 5-axis machines after postprocessing helps assure total safety.

"The unified interface of NX offers great ease-of-use, meaning that it is very easy for our mold engineers to change drafts and all geometric parameters to make sure that a part can be injection molded," Missaglia says. "Some CAD software can be complicated when the designer has to deal with non-native geometries, but this is not an issue with NX and synchronous technology. With NX, you always find a way, anything you design can be machined. With other CAD packages there is no way to modify imported files and you often have to rebuild the model from scratch."

Mec-Plast routinely handles complex surfaces that require high-quality geometry. "Our molds have intricate surfaces due to very strict tolerances," Missaglia says. "NX offers an ideal solution with its advanced tools for surface modeling."

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Ivan Missaglia  
Owner  
Mec-Plast

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### Solutions/Services

NX

[www.siemens.com/nx](http://www.siemens.com/nx)

NX Mold Wizard

[www.siemens.com/nx](http://www.siemens.com/nx)

NX CAD

[www.siemens.com/plm/nxcad](http://www.siemens.com/plm/nxcad)

NX CAM

[www.siemens.com/plm/nxcam](http://www.siemens.com/plm/nxcam)

### Client's business

Established in 1983, Mec-Plast S.a.s. specializes in the design and construction of injection molds, mainly for solenoid valves and pneumatic components.  
[www.mec-plast.it](http://www.mec-plast.it)

### Client location

Canonica d'Adda, Bergamo  
Italy

### Solution Provider Partner

Team3d

[www.team3d.it](http://www.team3d.it)

### Trusted partner

Since 2010, Mec-Plast has been supported by Team3d, a Siemens Platinum solution partner with a team of engineers that can address all possible customer requirements. "Our designers and engineers can rely on extensive technical support provided by Team3d," Missaglia says. "The company's help desk is always accessible for any problem or daily request. For very complex specific situations, we have been supported directly by Team3d specialists coming to our offices."

To an expert and qualified customer like Mec-Plast, Team3d primarily offers advanced consulting services to optimize postprocessors and machine tool operations. "We are proud to collaborate with a smart and specialized organization that makes the most of the technology it has adopted," says Antonio Martinelli, Sales Director of Team3d. "For us, Mec-Plast is a tangible example of the benefits you can obtain by implementing a fully integrated suite with all the solutions offered by Siemens, from analysis to design to machining."

*"The Siemens NX CAM software has always kept up with the pace of technological evolution, adding features for the new generation of 5-axis machine tools."*

Ivan Missaglia  
Owner  
Mec-Plast

### Siemens Digital Industries Software

Americas +1 314 264 8287  
Europe +44 (0) 1276 413200  
Asia-Pacific +852 2230 3333

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