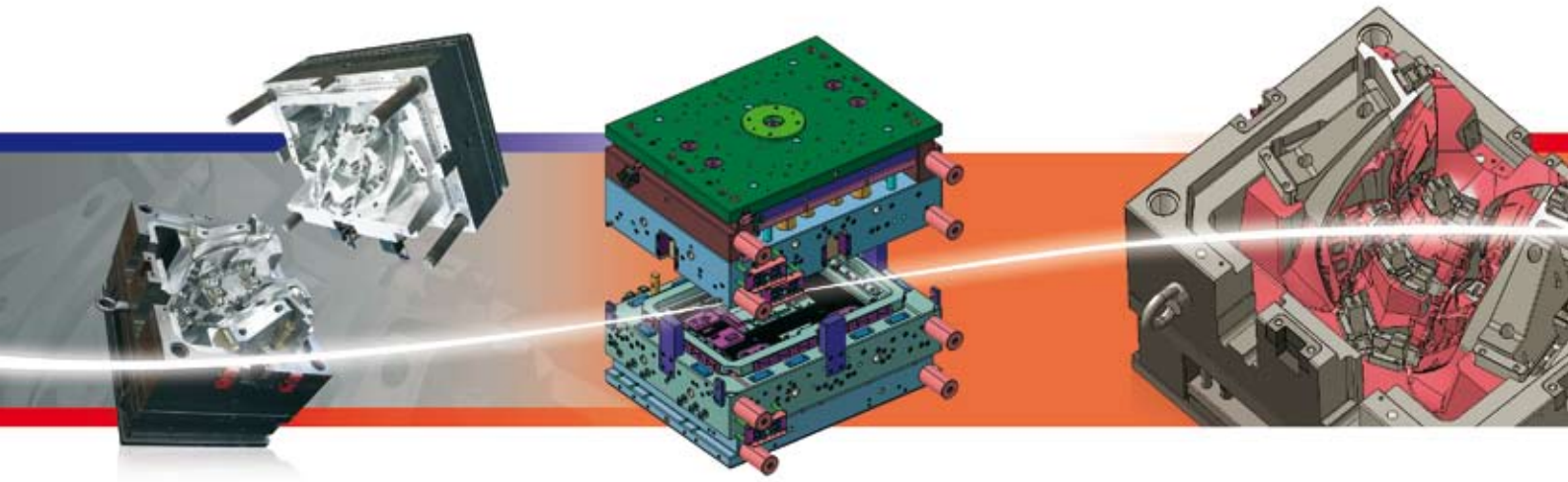
TJ Moldes

Making sophisticated mold design easy with CATIA



Overview

Challenge

TJ Moldes needed to reduce delivery times, respond quickly to last-minute change requests, and keep costs down while maintaining the high quality of the molds upon which it has built its reputation

Solution

The company uses CATIA and its dedicated Solution for Mold for all its design needs

Benefits

CATIA for Mold Solution frees designers from repetitive, time-consuming tasks, increases manufacturability of molds thanks to virtual testing, and helps TJ Moldes take on more complex mold design projects

"We are always innovating with CATIA. From one mold to another, we design things more efficiently thanks to the fact that we can virtually test out new ideas to find better solutions. This invariably improves mold quality."

Joaquim Silva
Product Developer
TJ Moldes

Longtime manufacturer of complex molds

TJ Moldes, located in Marinha Grande, Portugal, develops and produces precision injection molds for components such as automotive grills and light casings, electrical appliances, packaging, and gardening products. Founded in 1985, the company has 136 employees that design, manufacture and test highly sophisticated molds. Its biggest customers, Montaplast and Valeo, are Tier 1 suppliers of plastic parts to automotive OEMs such as Daimler and BMW. In the high tech industry, Philips relies on TJ Moldes to design and manufacture molds for the back covers of its television sets.

Demand for shorter delivery times

TJ Moldes continuously faces the challenge of reducing delivery times, responding to last-minute change requests, and keeping costs down. To do so, the company strives to improve productivity throughout the design and production process.

TJ Moldes has built a solid reputation with its customers over the years. One reason for the trust is the quality and sophistication of its molds. CATIA has enabled TJ Moldes to take on more complex mold design projects and deliver them faster. "Many of our customers use CATIA and when they see what we can do with our Mold Solution, it reinforces their trust in us," said João Bom, production planner, TJ Moldes.

Flexibility to make changes at all times

"Our molds are sophisticated mechanisms and can comprise several thousand parts," said Carlos Silva, modeling specialist, TJ Moldes. Verifying how the mold components operate together and detecting possible interferences in a virtual environment helps avoid errors and saves manufacturing time. "CATIA is very reliable and enables us to simulate reality. This makes everyone's job easier since we can pre-visualize how the many small parts of a mold fit together," said Silva.

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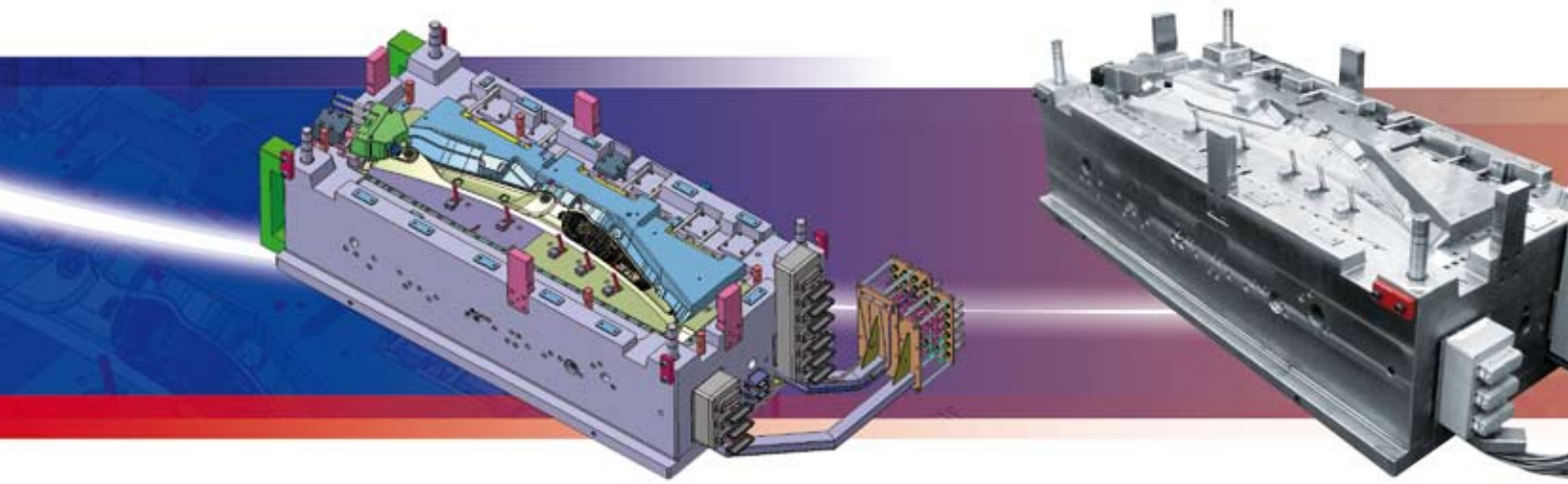

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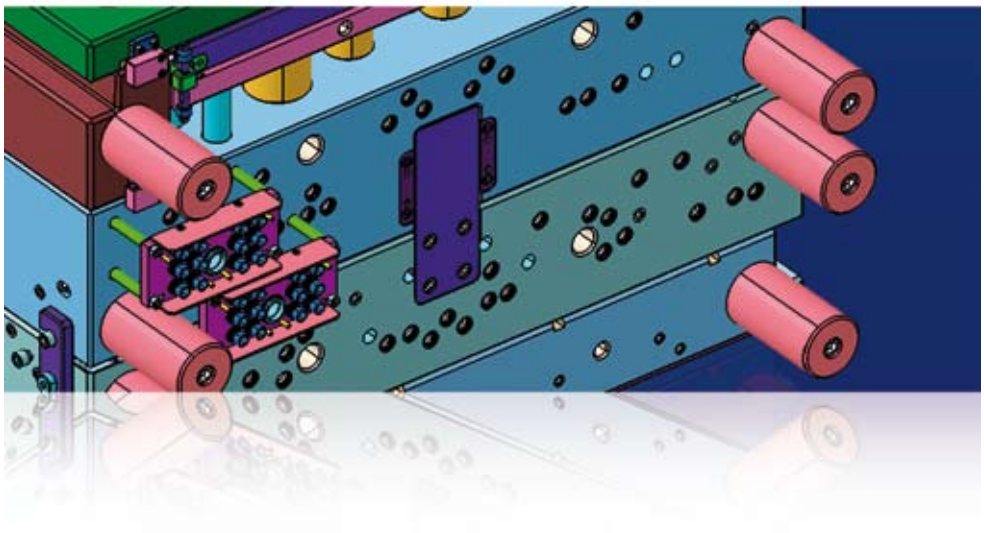
Carlos Silva
Modeling Specialist
TJ Moldes

"The hardest part about designing a mold is imagining the process of un-molding the part," said Joaquim Silva, product developer, TJ Moldes. "This means imagining all the movements of the mechanisms needed to detach the plastic part from the mold. Very often, customers ask us to design the mold before they finish the part development. We are always able to find a solution thanks to the power and flexibility of the CATIA for Mold Solution."

Rapid design-to-prototype production

The development process of a new mold typically begins with TJ Moldes receiving a 3D design of the part to be molded from the customer. In general, the part is represented as a 3D CATIA solid of very high quality from which the designers begin to create the mold. However, TJ Moldes sometimes receives non-native CATIA data. In this case it can use CATIA to analyze the validity of the imported shape and repair it to improve its quality if necessary.

Design, manufacturing (machining and hole-cutting), and assembling the mold all take place in parallel. "Fast design-to-prototype production is absolutely necessary in order to deliver the mold on time," said Carlos Silva. "Since we can create the mold design so quickly with the CATIA for Mold Solution, we can begin the



machining process almost in parallel which gives the Manufacturing team a head start to begin machining the different parts of the mold right away."

"We start with steel blocks, manufacture the different mold components, which we then assemble to create the mold, and then we test the mold by producing a small group of plastic parts, which we send to the customer for validation. If the customer is satisfied with the quality of the parts, we deliver the mold itself so that the customer can produce the part in series," said Silva.

Component library and templates

Thanks to templates and component libraries, TJ Moldes' molds reflect the specificities of the customers' parts. TJ Moldes designs custom mold components that can be reused for designing new molds for the same customer. This considerably reduces repetitive design creation. "The template-based approach in CATIA enables us to reuse assemblies of components that are specific to individual customers, thus accelerating the design process," said Joaquim Silva.

TJ Moldes continues to capitalize on CATIA's template capabilities. The company is currently creating templates to make 2D drawings for eroding machines.

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João Bom
Production Planner
TJ Moldes

Structured yet flexible design approach

The CATIA for Mold solution offers designers a structured yet flexible approach to defining and structuring mold design tasks. “CATIA does not impose a rigid way of working,” said Joaquim Silva. “It gives us several possibilities and solutions to the different kinds of problems that always appear when developing a mold project. Since we have customers in different countries and industries, this flexibility is very important because it allows us to adapt our work processes to the specifications of each customer.”

More innovative creative designs

With CATIA, TJ Moldes can quickly address customer demand for more products, increase quality, and shorten delivery times as well as focus on innovation. “With the CATIA for Mold Solution, we are always able to innovate,” said Joaquim Silva. “From one mold to another, we design things more efficiently thanks to the fact that we can virtually test out new ideas to find better solutions.”

TJ Moldes designers are adamant about their attachment to CATIA. “Trade CATIA? No way,” said Joaquim Silva. “We have tried other solutions before, but they were not as efficient.”

To further enhance efficiencies, TJ Moldes will test 3DVIA Composer in the near future to generate information for the production department to help in the manufacture and assembly of each mold.

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Images courtesy of TJ Moldes

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