



Adding Value to U.S. Molding

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Yes, you can produce your plastic products profitably in the U.S. Re-shoring your plastic molded products to the U.S. can enable growth in your product brand (and your customer's) via value-added molding and automation.

It all starts with the injection mold. But all molds are not created equal. To add another cliché, you get what you pay for.

When you talk about cost, it is not simply the initial quoted cost of the injection mold. Surely, you can purchase a low-cost mold in China. But what is the total / lifetime cost that will be incurred by your molding operation? Are you maintaining a competitive advantage with innovation that can be protected in the U.S.?

Let's consider some of the factors that go into your total molding cost.

Quality is #1

You need the highest quality for your injection mold to produce repeatable parts - each and every shot of the molding machine. Expert design experience and innovation is needed for mold robustness and durability. Precision machining of mold components and mold shop internal quality systems ensures interchangeability of components. Over long-term mold operations, it is critical that normal parts can be easily replaced to minimize any downtime. Zahoransky relies on German engineering to offer the most durable and reliable of molds that are long-term and low-maintenance.

Mold Cavitation

High cavitation mold capability provides the proper sizing for the annual volume requirements that your business requires. Running your molding machines at maximum output drives to the lowest cost, and reduces the total machinery and support equipment required in your factory. The smaller number of molds also enables the greater control that you have of your product quality.

Zahoransky has the experience to design and fabricate injection molds that best fits your molding machine size and preferred manufacturer. Stack molds are an option to deliver double the mold output from a single mold, as illustrated in the picture:



Cycle Time

The lowest possible cycle time ensures the highest mold output and productivity. Valve gated hot runner systems are the norm at Zahoransky to deliver the best cycle time. Expert mold design can affect cycle time greatly through steel selection, properly sized cooling channels, and optimum venting to ensure smooth injection of the plastic. Proper processing, utilizing Moldflow analysis and scientific molding principles, will ensure repeatable molding results and critical dimensional stability.

Flexibility

Cost efficiencies can be built into your mold design to ensure longevity of your investment. For products with regular revisions and model changes, it may be best to design in flexible cavity changes. Zahoransky has a Platform mold offering whereby quick change cavities can be interchanged easily in-the-press. The mold base / structure and hot runner are reusable to save approx. 50% on secondary capital investment.



Added Value - Product Function

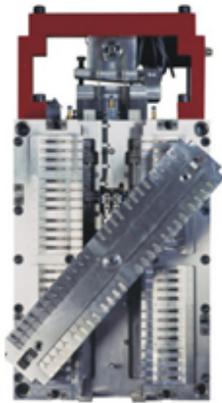
Product value can be greatly increased by adding function. The technology for the fabrication of multi-component molds allows for complex molding of a 2nd or 3rd component. Functional improvements to your product can be developed by integrally molding one plastic resin onto the

other. This could include molding a seal into a single mold. Plastic resin material selection could enable the seal to be chemically and mechanically bonded within the 1st component for improved functionality. For ergonomic and aesthetic enhancements to your design, the incorporation of thermoplastic elastomers (TPE's) is a good choice to add a tactile feel and gripability.

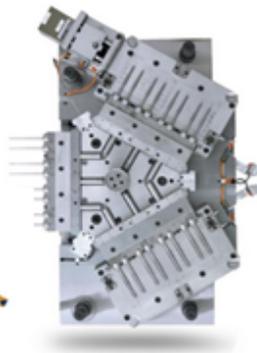
Mold Transfer Configurations

For multi-component mold projects, transfer time within the mold becomes a critical factor governing the overall cycle time. Custom, internal transfer mold designs (90, 180, 270 deg. rotation) offer the fastest transfer time. If external movement of the parts is needed, then an integrated transfer mechanism (servo driven) is very efficient, while ensuring accuracy of movement.

Examples of the many possible transfer configurations that Zahoransky has wide experience with are illustrated here:



Integral 180 deg. index bar provides high transfer accuracy.



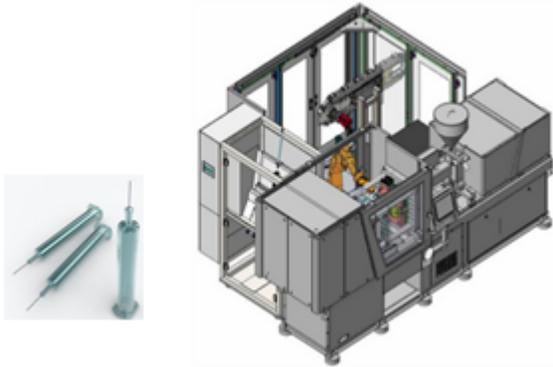
120 deg. transfer allows cooling and ejection for fastest cycle times.



Pick & place platform for multi-component mold flexibility.

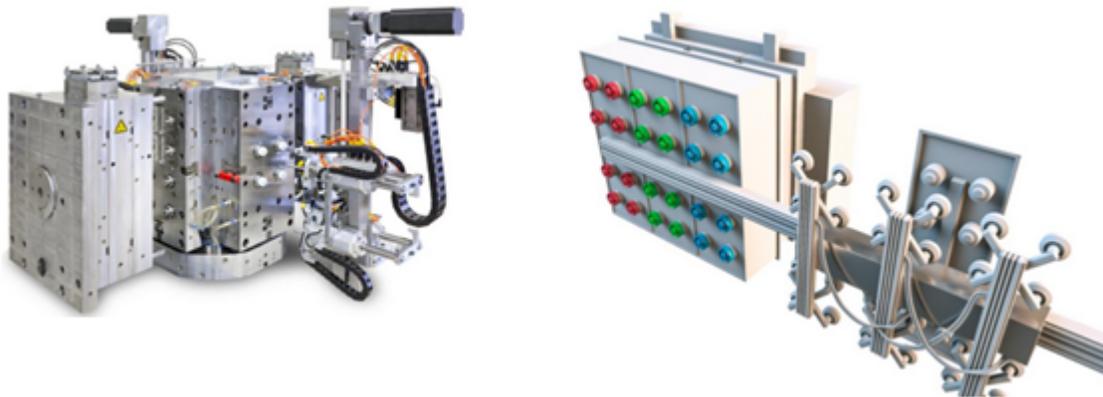
Added Value - Automation

Integrated automation to the mold is a means to provide a complete solution to raise the value of your U.S. molding operation. This could be an efficient, integrated feed system for inserts, or a takeaway system to remove the final molded parts for operations such as flexing of hinges, vision inspection, stacking into a packing station, secondary assembly, etc. One example of such a custom mold system offered by Zahoransky for need feeding, inspection, siliconization and capping of pre-filled medical syringes (shown below).



Complex “hybrid” insert mold designs can further integrate your mold with automation. Value is added to your process via a complete system approach by incorporating inserts (also labels) into your product for over-molding. The operation of the mold and automation needs to perform as one for the highest efficiency. Zahoransky offers this one-stop shopping solution for system automation to ensure that the electronic controls, software, and safety are all seamlessly integrated.

In-mold assembly also adds value to your molding operation. On a single molding machine center, multiple components can be molded simultaneously and then brought together as an assembly. Zahoransky offers either high-capacity cube molds (patented) or single face in-mold assembly systems for in-mold assembly operations. This enables the molder to deliver an assembly directly from the single molding machine center instead of multiple machines, inventory, and a separate assembly machine. Quality is improved with in-mold assembly as the individual components are always controlled with direct cavity-to-cavity matching.



These examples show a progressive approach towards high quality and value-added solutions to make molding in the U.S. a profitable operation once again.

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