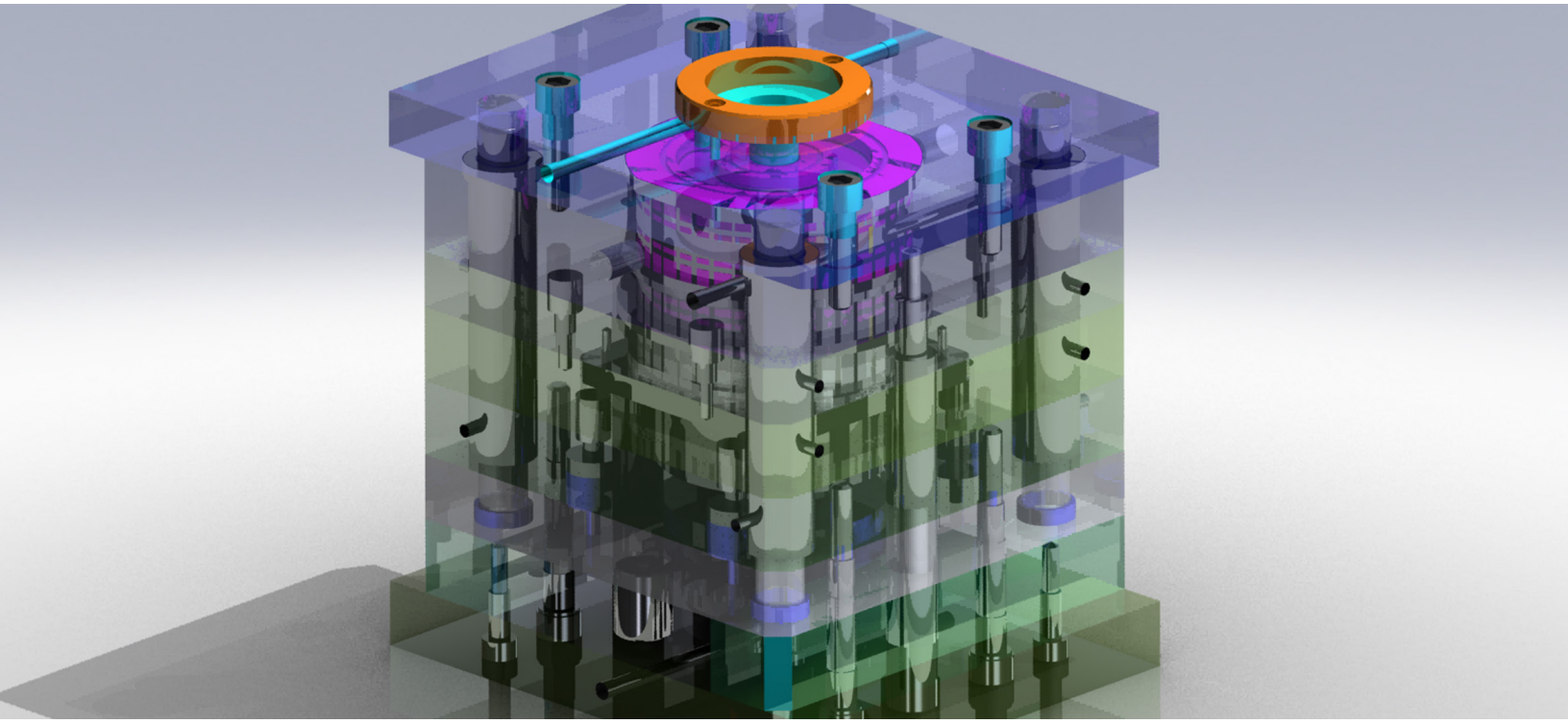
The Genius Behind the Products We Use Every Day

POWERFUL SOLIDWORKS AND IMOLD COMBINATION HELPS MAJESTY DISPENSING SYSTEMS GRAB GLOBAL MARKET SHARE



- As consumers, we rarely think about the pumps, nozzles, and misters that dispense our consumer goods, but they are ultimately major conveniences with the power to affect the price we will pay for a product.
- Agile and cost-effective product development is critical to boost the value of packaged products yet keep them affordable to produce.
- Majesty Dispensing Systems of China uses a combination of SolidWorks CAD software and IMOLD computer-aided mold design software to create a flexible, integrated, and cost-effective process from design through manufacturing.

We take so many of life's modern conveniences for granted, giving barely a thought to how they magically appear in our lives. Consider the sleek new dispensers from which we take our soap, shampoo, and household cleaning products, with their clever pistol grips and pumps. (Soap, remember, used to come in a bar or jug.) Although we hardly think about it, mechanical devices that squirt soap and spray mist from a bottle need to be carefully designed, manufactured, and marketed – in a *cost-effective* way so they don't dwarf the cost of the ingredients they contain.

Majesty Dispensing Systems Co., Ltd., of China's Zhongshan City in the Guangdong Province, is one of the largest and most successful creators of these products, as well as their aerosol counterparts, with customers such as Procter & Gamble, HouDy, SC Johnson, Unilever, and Reckitt Benckiser. Majesty serves 65 percent of the Chinese market and 30 percent of the global market. Its revenues quadrupled to 2.5 billion yuan from 2006-2010.

Productivity is a key ingredient of Majesty's success. The company owns several fully automated production facilities containing the world's most advanced stamping machines for producing valve components. A wide variety of molding and assembling machines and a fully equipped moldmaking workshop provide the flexibility to produce whatever clients demand.

SolidWorks

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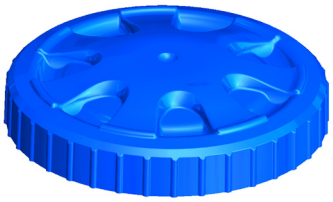
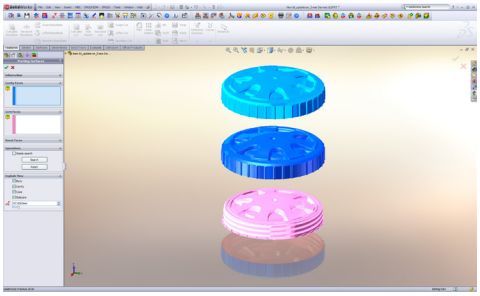
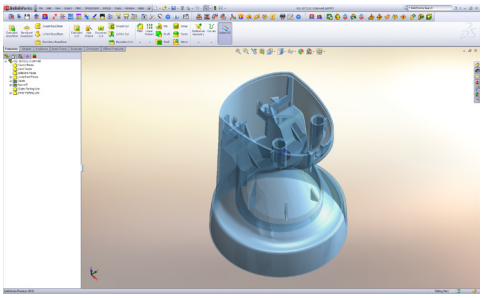


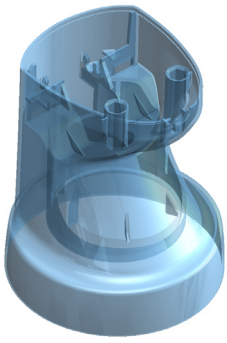
A SolidWorks rendering of an ergonomic Majesty lid



An exploded cavity and core view of a Majesty dispenser lid – gives the designer a preview of how the mold splitting in the SolidWorks/IMOLD environment.



A spray pump actuator part model in the SoildWorks/IMOLD environment.



Close-up of a spray pump actuator part

It starts with SolidWorks

A dispensing pump starts as a design in SolidWorks® 3D computer-aided design (CAD) software. This is the environment where designers continuously refine the device's performance, ergonomics, and aesthetics. These attributes can make a measurable difference in the perceived quality of the liquid ingredients, the price the retail customer will pay for them, and the profits that go to Majesty. The company chose SolidWorks software for this work because it proved the best combination of ease of use and powerful capabilities. SolidWorks lets product designers and engineers quickly try, evaluate, and refine new designs, optimizing material usage and manufacturability as they work. Its configuration capabilities make it easy for Majesty to create an infinite number of designs from a single master file to fit every new application.

Then there's a mold design

Majesty dispensing pumps are injection-molded parts. Whenever a new pump design is final, engineers create a mold design directly from the SolidWorks file using IMOLD computer-aided mold design software from Manusoft Technologies Pte Ltd of Singapore. The software, a SolidWorks Certified Gold Partner product, automatically creates a core and cavity from the SolidWorks model. There's no toggling between applications nor importing/exporting of files. Designers experience the two software products as one, since IMOLD is fully integrated with SolidWorks.

With just a few clicks of the mouse, designers can analyze part moldability, check draft angles, fix part problems, and rotate/translate the part into its ideal mold position. IMOLD uses surfaces extracted from the SolidWorks part design to split the core and cavity inserts and optimize parting line placement. Two parting methods – automatic and interactive – ensure Majesty can quickly and easily separate any part from the mold at any given time. Majesty mold designers also have tools for hole patching, runoff and shutoff surfaces, and sub-insert/side core creation.

Need spark machining?

For especially challenging mold development jobs, such as manufacturing of detailed and hard-to-machine features on mold and press tools, Majesty needs to design electrodes for electrical discharge machining (EDM). EDM uses sparks to create intricate details in molds, such as sharp corners and ribs. Designing electrodes for this practice can be one of the most complex and time-consuming tasks for any mold or die maker. IMOLD EDM enables Majesty to quickly and accurately design and manage these electrodes and their holders. Even Majesty's highly experienced electrode designers benefit from the knowledge-driven automation. The software offers an easy-to-follow, step-by-step process and addresses all of the common types of electrodes, as well as the most complex ones.

"In EDM and every other process we do, the combination of SolidWorks and IMOLD gives us everything we need to initiate a streamlined product development process," said [*spokesperson*]. "All the data we create in mold design drives CNC fabrication of the molds. This is a key part of the cost-effective integrated manufacturing process that lets us grow our market share while dramatically compressing the product delivery schedule."

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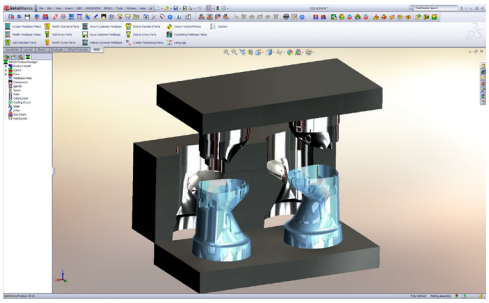
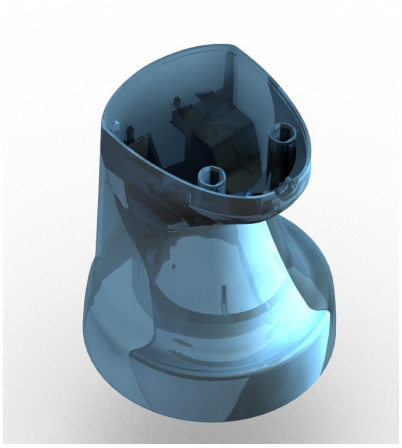


Mold and models in the SolidWorks/IMOLD environment



Great looks and ergonomics add value, and profit margin, to the liquid product.

Components arrayed in a library

Throughout this process, Majesty designers use IMOLD’s Component Gallery to effortlessly insert standard components. Designers simply select the components they want to use, drag them from the library, and assemble them into position, where they automatically mate into the assembly. Dynamic previews facilitate proper insertion. Majesty has combined some of these components into complex assemblies, enabling designers to choose them by specifying model number and sizes.

“Before we purchased SolidWorks and IMOLD, we had to create the libraries from scratch, designing each part from the ground up,” said Majesty [*spokesperson here*]. “Now we just select the mold components we need, let them come together, and move on to the next job. It’s fast, it’s accurate, and it supports our quality standards.”

IMOLD software includes standard mold components from D-M-E, Hasco, Futaba, Meusburger, Rabourdin, Whiter, LKM, Punch, misumi, PCS, Progressive, DMS, and more. Majesty mold designers can select parameters for the dispensing pump and be presented only with those parts or components that meet the design criteria.

“All of these capabilities let us work swiftly from design through manufacturing with minimal effort and maximum results,” said [*spokesperson*]. “It gives our clients exactly what they need, and our consumers a fresh new product experience, at a price that works for us, for our clients, and for our shareholders.”

For more information, visit

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