

## VITRO, S.A.B. DE C.V.

*ADVANCING COSMETIC BOTTLE DEVELOPMENT WITH SOLIDWORKS DESIGN SOLUTIONS*



Using SOLIDWORKS Professional design software, Vitro can more efficiently create innovative and complex bottle shapes for cosmetics and fragrances, such as the asymmetrical Hello Kitty ribbon perfume bottle shown here.

### **Challenge:**

Improve the ability to model, visualize, and communicate innovative cosmetic bottle design concepts while streamlining production and shortening time-to-market.

### **Solution:**

Implement SOLIDWORKS Professional design software to accelerate development.

### **Results:**

- Cut design cycles by 30 percent
- Reduced scrap and rework by 20 to 30 percent
- Developed bottles with more complex, organic shapes
- Improved design visualization and customer communication

Vitro, S.A.B. de C.V. has produced glass products for more than a century. The leading glass manufacturer in Mexico and one of the largest in the world, the company offers high quality products in two areas: flat glass and glass containers. Vitro's container products are mainstay packaging solutions for the food, beverage, wine and liquor, pharmaceutical, and cosmetic industries. Headquartered in Monterrey, Mexico, Vitro's Glass Containers Business Unit operates six production facilities in Mexico, one in South America, and participates in two other operations in Central America.

The Vitro Cosmos Plant in Toluca, 35 miles from Mexico City, focuses solely on the development of bottles for cosmetics, fragrances, and toiletries. In 2002, the company's management decided to upgrade from AutoCAD® and GMS 2D tools to a parametric 3D CAD system. According to Design Technology Manager Sergio Alvarez, the company moved to 3D to maintain its competitive edge as a leading innovator in cosmetic bottle design.

"In the cosmetic bottle industry, shape, form, and function are everything," Alvarez says. "We are not as concerned about weight as we are about the bottle's aesthetic shape—how it looks to the eye and how it feels in your hand. Designing in 2D limited our ability to visualize and communicate 3D concepts, and made it more difficult and time-consuming to make adjustments and modifications."

"The primary reason that we needed to move to a 3D design solution was to accelerate development and increase throughput," adds New Product Development Manager Miguel Ortiz. "Much of our business involves custom designs for which we need to create a model, develop a mold, and produce a prototype for customer approval. By moving to 3D, we believed we could accelerate cycles and improve performance."

After evaluating some CAD applications and SOLIDWORKS® 3D design packages, the Vitro Cosmos Plant standardized on SOLIDWORKS Professional software. Vitro chose SOLIDWORKS because of the versatility and ease of use of its surface modeling, mold development, and design visualization and communication tools.

"We conducted a four-month benchmark evaluation during which we tested and rated each application," Alvarez recalls. "SOLIDWORKS was the clear winner of that benchmark and is helping us consistently achieve our product development goals."

### **DELIVERING COMPLEX SHAPES FASTER**

Since implementing SOLIDWORKS Professional software, the Vitro Cosmos Plant has realized a 30 percent reduction in development cycles, despite growing customer demand for more complex, organic bottle shapes. Ortiz attributes these productivity gains to the greater design efficiencies made possible by SOLIDWORKS.

"The biggest benefit of using SOLIDWORKS is the mix of surface and solid modeling tools, which enable us to take on extremely challenging shapes, like the recent Hello Kitty perfume bottle that we designed," Ortiz stresses. "That bottle has a unique shape—it is the Hello Kitty ribbon—that is not symmetric. SOLIDWORKS gives us the tools that we need to not only design these types of complex shapes but also develop the molds and tooling required to produce them."

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**— Miguel Ortiz, New Product Development Manager**

### **MAKING MOLD DEVELOPMENT MORE EFFICIENT**

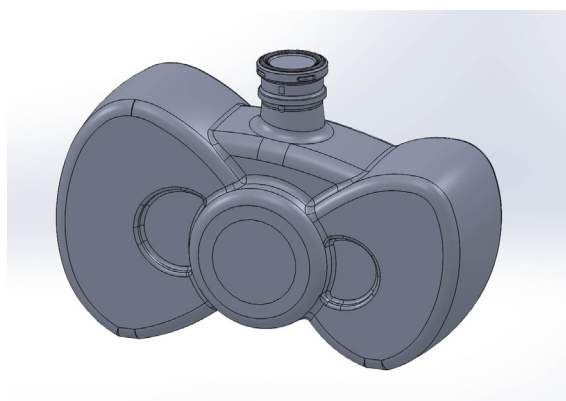
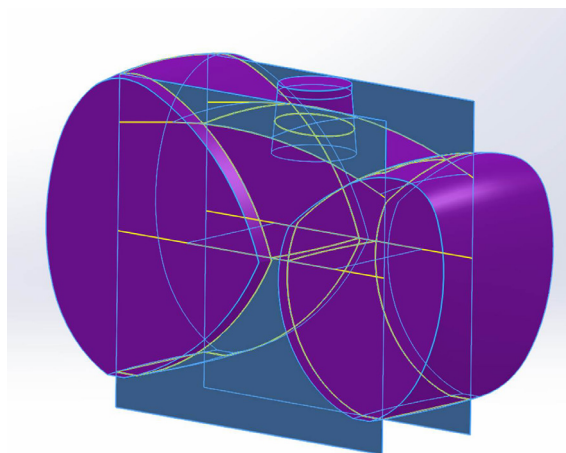
SOLIDWORKS Professional software has also helped the Vitro Cosmos Plant improve its mold development operation, resulting in a 20 to 30 percent reduction in scrap and rework. Using SOLIDWORKS mold development tools such as draft, wall thickness, and parting line analysis, the company can more quickly and accurately create production molds from the original 3D geometry.

"When we develop a mold, making sure that the glass will release from the mold cleanly is critically important," Ortiz explains. "For example, on a recent bottle for a client's perfume line, the customer wanted a very organic shape with a shiny, flawless, pristine surface configuration. During design, we learned that the parting line got in the way, so we had to use a special, irregular parting line. We are constantly using SOLIDWORKS mold development tools to resolve these types of issues without incurring unnecessary costs during production."

## BETTER DESIGN VISUALIZATION DRIVES COMMUNICATION

With SOLIDWORKS PhotoView 360 photorealistic rendering and eDrawings® communication tools, Vitro has streamlined and improved communication with its customers. Even though the company continues to complete at least two prototype trials, improved visualization and communication has shortened the amount of time required to reach that stage.

"When our customers see their bottle geometries in a 3D rendering or eDrawings file, they have a better understanding of what they are actually going to get," Ortiz says. "This makes it easier for us to meet customer expectations and facilitates customer reviews and approvals."



With SolidWorks Professional mold development and analysis tools, including draft, wall thickness, and parting line analysis, Vitro can more quickly and accurately create production molds from the original 3D design geometry.

**Focus on Vitro, S.A.B. de C.V.**  
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