

SITUATION

Based in Le Havre, France, Sidel produces 300 blow molding machines every year for a range of customers around the globe. Truly a market leader, Sidel machines generate about 60% of all PET (Poly Ethylene Terephthalate) bottles produced in the world.

The company has built its reputation on its ability to tailor each machine to meet its customers' specific requirements for production capacity and bottle shape, requiring its engineers to perform a tremendous amount of "customerization," particularly in the mold design area. To maintain its leadership role, Sidel management launched an effort to improve the company's ability to continually meet the customers' demands—both for distinctive molds and faster delivery times.

OBJECTIVE

✓ Cut the cycle time for producing the molds. Sidel focused its process improvement efforts in this area because the typical machine incorporates 10 molds (though this number can vary from one to 40). On average, the molds account for 10 percent of the value of a machine. Approximately 120 people are engaged in mold design and manufacture. They handle about 35 mold designs a month. As a result, any improvement in this area would bring significant return on investment.

PROCESS VISION

- ✓ Migrate from the company's current 2D CAD system to an integrated CAD/CAM/CAE solution that would not only support the mold design process but also improve communication of part geometry among Sidel designers, engineers, mold fabricators, and machinists.
- ✓ Standardize, as much as possible, the mold design process by leveraging the similarities that exist among the mold designs, to significantly simplify and speed the development process.

Sidel Bottles Success With Automated 3D

"Customers want their machines as soon as possible. Once an order is signed and sealed, we need to be able to complete the customer-specific components with the minimum of delay. I-DEAS enabled us to cut our mold design time in half."

- Patrick Petre
Manager
Mold Engineering
Department
Sidel



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Sidel Bottles Success With Automated 3D

ACTIONS

- ✓ Sidel and SDRC engineers worked together to analyze previous mold designs. They divided the bottles into families, categorized the components, and then stored them in an I-DEAS® library in a parameterized form.
- ✓ SDRC developed screen graphics to lead the designer through the sequence of information required to enable I-DEAS to automatically dimension and assemble a complete set of mold components from this library.
- ✓ Once this was done, a set of detailed engineering drawings for each of the components was automatically prepared. These were then used by the mold fabrication department to develop production processes and NC machining programs.
- ✓ Sidel designers passed 3D data directly to the mold design department. In this way the complex mathematical surface definition which gives each bottle its unique shape, could be used to develop the mold cavity directly.

RESULTS

- ✓ Eighty percent of Sidel mold design activity has been incorporated in the I-DEAS library.
- ✓ After introducing I-DEAS software, Sidel cut mold design time by 50%, reducing it from six days to three.
- ✓ For each new bottle design, only 10 items of data have to be entered by the designer.
- ✓ Sidel cut more than 20% off the average fabrication time. What had taken eight-to-nine weeks, now takes only six-to-seven weeks.
- ✓ Standardization of part designs has made it possible to make some parts for stock in anticipation of incoming orders. The buffer stock is only 80% machined, the remaining 20% is customer-specific machined once orders are confirmed.

PLANS

- ✓ Sidel is installing additional I-DEAS workstations so that all bottle design can now be done in 3D.
- ✓ I-DEAS finite element analysis software is also being applied to bottle design to allow calculations of the bottle's resistance to different internal pressures and external forces.

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