

in practice



capabilities to manage complex relationships between parameters as well as the compatibility of all the parts. It also uses CATIA's analysis functions to perform load analyses and clash simulation tests between the cavity of the bottle and the mold. "When the mold is pressed together and opened, we need to see if there is any interference between the glass and the mold and CATIA allows us to visualize this very clearly," said Hodul.

DESIGNING 50% FASTER

Anadolu Cam has halved its design process time since it began using CATIA. "Before we used to waste too much time when designing products that have complex surfaces or engravings but CATIA has reduced this time by 50%," said Hodul. "In the past, we couldn't manage complex surfacing features in our products but with CATIA no bottle is impossible."

Anadolu Cam has increased its business since it can take on more projects than before and complete them faster, thanks to CATIA. In the near future, the company wants to go even further by using templates and design methodologies, which it plans to develop with its solution provider, DS Business Partner ArGe Muhendislik Ltd, based in Turkey. The latter played an important role in getting Anadolu Cam designers up to speed with customized training, consulting and providing tips on how to best use CATIA in certain situations to increase productivity. And in line with Anadolu Cam's strategy for continuously improving the lifecycle management of its products, it is currently investigating the possibility of using 3DIA Composer and ENOVIA SmarTeam to create it documentation and manage all product data.

So next time you drink a soda or splash on your perfume, take a closer look at the bottle. It is more than just a container .]

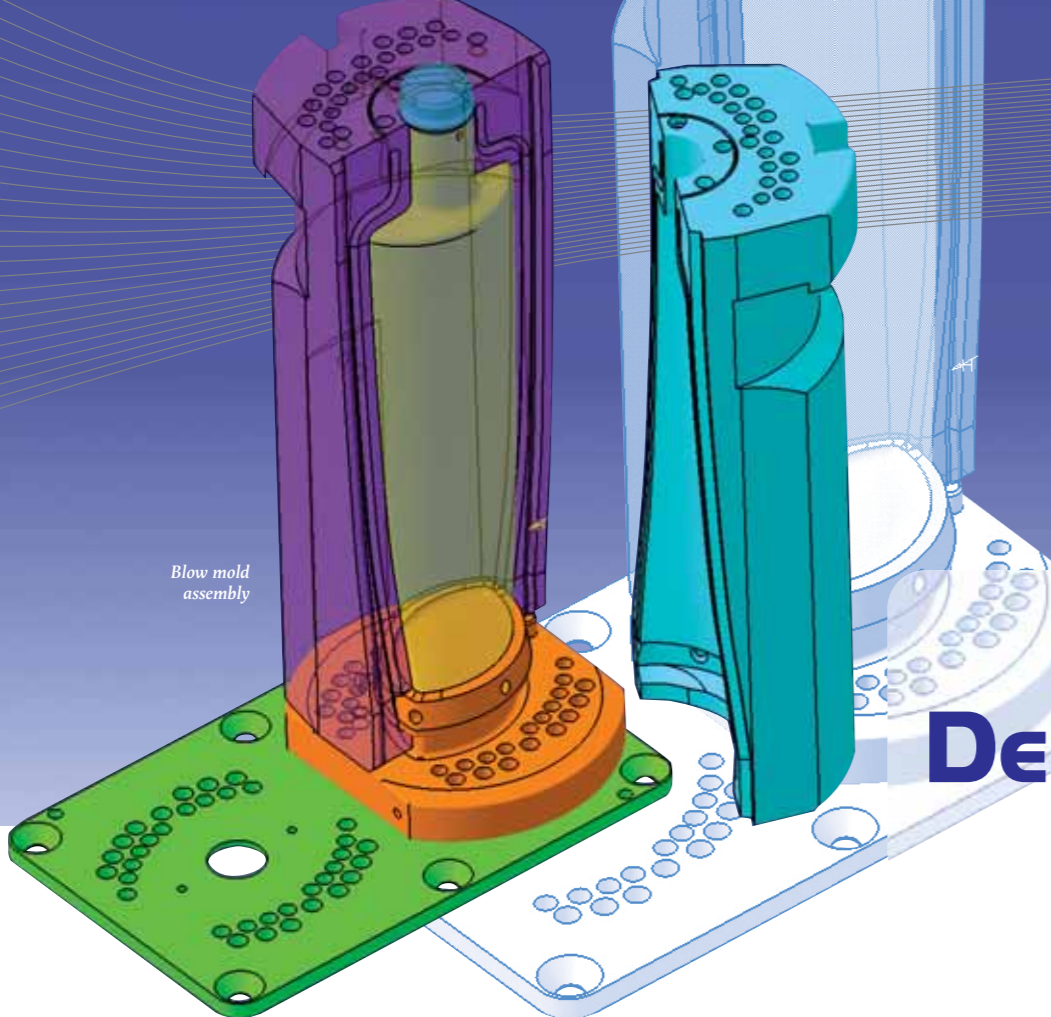
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Blank mold assembly



Product rendering after modeling



Blow mold assembly

Anadolu Cam Reduces Design Time by 50% with CATIA

By Dora Lainé



Ozgun Hodul,
Mold Design Engineer,
Sisecam Anadolu Cam

Anadolu Cam uses CATIA to design all its glass packaging as well as perform stress analyses and clash simulations on its products. Anadolu Cam has recorded a 50% reduction in design time, which has enabled it to take on more projects and consequently increase its overall business.

We have all used perfumes and cosmetics, had a soda or used pharmaceutical products that come in bottles of a variety of shapes, sizes and colors. In addition to their primary function as a container, these bottles must be robust enough to withstand being manipulated as well as support the weight of other bottles when stacked together. But bottles also vie for our attention on a store shelf through their stylishness and originality.

LEADERS IN GLASS PACKAGING

Anadolu Cam is the glass packaging division of Turkey's Sisecam Group. In addition to packaging, Sisecam Group also produces flat glass for building windows and cars and glass tableware such as plates and drinking glasses. The company is also present in the mining, chemical, paper packaging, mold and machinery manufacturing industries. One of Europe's leading glass packaging

manufacturers, Anadolu Cam exports to the Balkans and the Middle East and has nine production facilities in countries such as Turkey, Georgia and Russia.

Anadolu Cam's glass packaging comes in various volumes and colors, depending on the contents. Pharmaceutical products, cosmetics, food, water,

Blow mold bottle



milk, beer, wine and high alcoholic-content beverages each require bottles of different thicknesses, shapes and colors. For example, amber colored bottles are best suited for pharmaceutical products, beer and wine because they provide the best protection from the sun. Glass durability is also important especially for high pressure liquids like sodas.

PROVIDING QUALITY PRODUCTS IN A COMPETITIVE MARKET

The glass production sector is highly competitive and Anadolu Cam plans on maintaining its leading edge by delivering quality products to its customers before the competition. But high quality should not mean high costs. This is one of the reasons why Anadolu Cam opened a Design Center in 2006 and equipped its industrial design and advanced engineering departments with CATIA. Its objective: to introduce brand new packaging designs at an accelerated pace. "Our team consists of engineers, industrial designers and expert technical personnel who work together in each and every stage of packaging design," said Ozgun Hodul, Mold Design Engineer, Sisecam Anadolu Cam. "Expert designers in our design center produce creative and innovative designs with CATIA that take into consideration customer requirements for sturdiness, style and function."

A THREE-PHASE PROCESS

Anadolu Cam has a three-phase development process. The product design process begins with a customer design request. Designers create a conceptual design followed by a 3D model, which is presented to the customer for approval. After possible iterations with the customer, the design is approved, which leads to the second phase, the layout design process.

"3D makes it easy to demonstrate and visualize the product. Our design team works closely with the customer to design the desired bottle," said Ozgun Hodul. "Our 3D work sessions with our customers have been met with enthusiasm since we can implement their design requests in real-time and show them a virtual representation of the finished product before it's even manufactured," he said. In the layout design process all manufacturability concerns are taken into account to design the cavities of the container and the intermediate "parison" shape.

The final stage is the mold and accessories design process where Anadolu Cam designers model the mold of the glass package and various accessories. The resulting models are used by the mold manufacturer to manufacture the molds, which are then sent to the production plants to manufacture the bottles themselves. "Mold manufacturers can directly use the 3D data to process the mold," said Hodul. "This has not only shortened the overall manufacturing process, it has also prevented

possible errors, since 2D drawings can sometimes be misinterpreted."

DESIGN CONSISTENCY AND STYLE

"CATIA enables us to prepare robust and reliable models and implement revisions in record time thanks to its unique data model and strong parametric capabilities. I love CATIA's parametrics!" said Ozgun Hodul. In the company's latest project CATIA enables engineers to automatically update the 3D model when changes are made to the mold design. "When our designers change a figure, dimension or parameter, CATIA automatically updates the entire design. This ensures consistency of our data from design to production." Anadolu Cam also takes advantage of CATIA's impressive surfacing capabilities. "We can design the most complex and difficult surfaces, which enables our designers to create outstanding, stylish and original glass packaging," said Ozgun Hodul. Anadolu Cam uses CATIA's knowledgware

Bottle models

