SIEMENS
Ingenuity for life

Industrial machinery

Criotec

Custom refrigeration equipment manufacturer designs products 50 percent faster using Solid Edge and Simcenter Femap

Products

Solid Edge, Simcenter

Business challenges

Reduce response and customization time for each project

Speed up new design development and simplify changes to existing products

Increase new product development capacity by 30 percent

Keys to success

Modeling parts and complete assemblies

Enabling engineers to design new products more rapidly

Helping customers visualize parts via exploded views

Using finite element analysis to improve product performance

Results

New product development time reduced by 50 percent

Dramatically faster digital design validation; no need for physical validation

Capacity for new product development increased by 30 percent annually

New product development capacity increased by 30 percent

Developing cool new products faster and more efficiently

Based in Mexico, Criotec has been manufacturing commercial refrigeration equipment for more than 25 years. Located in Santa Catarina, Nuevo Leon (the Monterrey Metropolitan area), the company designs and builds 250,000 products annually. Criotec works closely with customers to meet their cooling needs and custom-builds products to fit a wide variety of applications, including equipment for keeping food and beverages cool, as well as freezers and cold rooms. Criotec has more than 800 skilled employees, including a team of engineers and technicians trained in design, development and manufacturing.

Criotec competes in the commercial refrigeration industry by tailoring its cooling systems to meet the needs of every customer. To this end, in 2009, company engineers decided it was necessary to adopt a more agile and better-equipped product development system. The goal: increase development capacity by 30 percent.

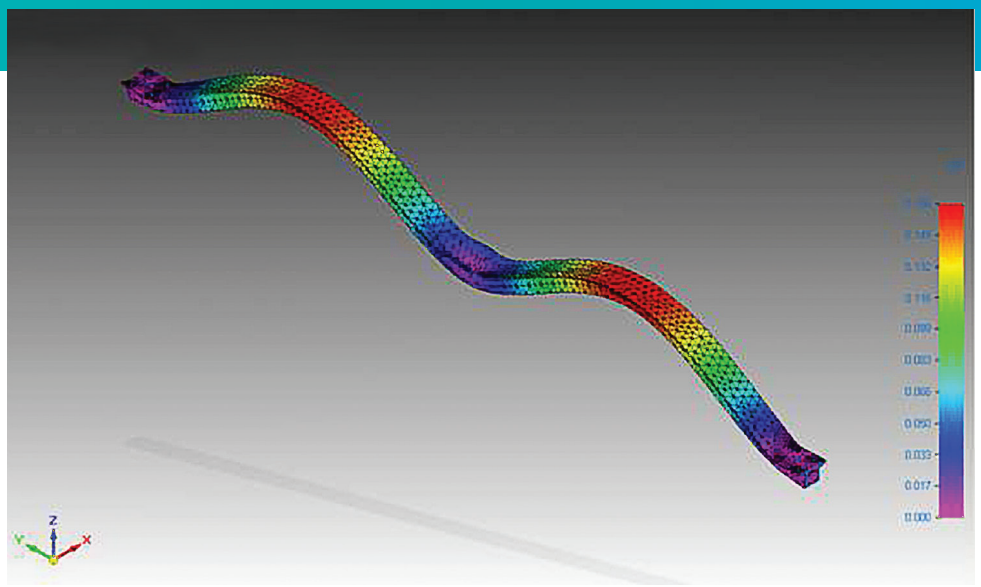
To address this challenge, the new product development area, lead by Eduin Villanueva, engineering manager at Criotec, decided to seek a product lifecycle management (PLM) system that would allow the company to streamline its processes and reduce development time. “The challenge we face daily is to shorten response times for each design and its customization for each client, allowing us to quickly develop custom-made products for our customers,” says Villanueva.

Projects completed 50 percent faster

The choice of Siemens Digital Industries Software’s Solid Edge® software and Simcenter™ Femap software for product development has proven to help the design team more easily manipulate data as well as deliver more complete visualizations of product designs.

"The versatility we have with these software systems for parts modeling and the ability to visualize a new design in a very practical manner and with great precision has benefited us greatly, especially with regards to validation time and material savings."

Eduin Villanueva
Engineering Manager
Criotec



Depending on the complexity of the product, with the previous system it took from eight to 10 months, and sometimes as long as a year, to finish a design. Now, using Solid Edge, the design of a new product typically can be completed in four to five months.

That 50 percent faster turnaround in developing customized refrigeration and freezing equipment is primarily made possible using the 3D part modeling, assembly, data management and sheet metal part design capabilities of Solid Edge. Also, with synchronous technology, modeling is faster and easier, reducing steps in the design process. "In the process of designing a part, you first start with the sketch. However, by using synchronous technology, once you have created the solid product, you can make changes directly to it without having to go back to the sketch, considerably benefiting the response time," says Villanueva.

Criotec also uses the finite element structural analysis functionality of Simcenter Femap. "The versatility we have with these software systems for parts modeling and the ability to visualize a new design in a very practical manner and with great precision has benefited us greatly, especially with regards to validation time and material savings, which accounts for approximately 30 percent savings," says Villanueva.

Using PLM technology, the company has saved, on average, 30 percent in materials and 50 percent in manual labor.

Validating designs digitally saves time and costs

The combination of using Solid Edge and Simcenter Femap for development is quite productive throughout the product lifecycle at Criotec. Using PLM technology has made a great difference for Criotec. In doing so, the company has saved, on average, 30 percent in materials and 50 percent in manual labor.

Villanueva notes that the simulation and finite element analysis (FEA) capabilities of Simcenter Femap are fostering exceptional process efficiencies. For example, the speed at which Criotec users can now simulate loads to determine the best designs has resulted in significant time savings. Villanueva explains, "In reducing

Solutions/Services

Solid Edge
solidedge.siemens.com

Simcenter Femap
siemens.com/simcenter-femap

Customer's primary business

Criotec manufactures commercial refrigeration equipment used in the food and beverage industry throughout the world.
www.criotec.com.mx

Customer location

Santa Catarina, Nuevo Leon
Mexico

"In reducing time, we save costs by making more rapid digital validations. This has been a big change, because before we had to conduct physical validations."

"One of the benefits of Solid Edge is that if you make a change, it is automatically reflected in the entire design. In the process, many improvements are made during product assembly."

Eduin Villanueva
Engineering Manager
Criotec

time, we save costs by making more rapid digital validations. This has been a big change, because before we had to conduct physical validations to ensure the customer's requirements were met."

The validation process has come a long way through the use of Solid Edge and Simcenter Femap. Previously, due to the complexity and poor resolution of designs, the main parts of the design were first sent to manufacture and, based on these results, the assembly took place. Today, the complete design is done digitally, including sub-assemblies. After this process is complete, the pieces are sent to manufacturing, considerably reducing any design flaws. In addition, using Solid Edge to quickly show an exploded view of all parts in a product assembly helps the company highlight which parts will need to be replaced periodically. This helps customers understand product maintenance requirements. "One of the benefits of Solid Edge is that if you make a change, it is automatically reflected in the entire design," says Villanueva. "In the process, many improvements are made during product assembly." He emphasizes, "Solid Edge automatically makes all the changes."

A growing company

The challenges for the coming years are formidable for Criotec as the company is in a growth phase, positioning itself as a leading manufacturer of refrigeration equipment not only in Mexico, but also internationally. In addition, Criotec emphasizes its environmental responsibility. The company continuously seeks to reduce its products' energy consumption, complies with applicable regulations and addresses special client requests. Villanueva points out that by using Solid Edge and Simcenter Femap, Criotec is confident its development team is well prepared to provide greater product innovation, better service to more customers and demonstrate measurable improvements in sustainable design.

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Engineering Manager
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