Intertape Polymer Group

CONFIGURING A FAMILY OF AUTOMATED PACKAGING MACHINES WITH SOLIDWORKS

The Intertape Polymer Group
USA2024-SB Carton Sealer

- Shortened development time by 10 percent
- Lowered development costs by 35 percent
- Eliminated 50 percent of errors
- Reduced rework by 75 percent

As a recognized leader in the development and manufacture of specialized polyolefin plastic and paper packaging products and complementary packaging systems, Intertape Polymer Group (IPG) designs a wide range of automated machinery. The Interpack Machinery Division, based in Lachine, Quebec, is responsible for the development of a complete line of machines that are used for sealing boxes and cartons.

Recently, competitive pressures and the need to shorten its design cycles and accelerate product time-to-market resulted in a decision to upgrade the group's 2D AutoCAD® design software to a 3D parametric solid modeler, according to Christian Beaudry, Engineering and Production Manager. "There were multiple reasons why we wanted to upgrade to a 3D platform. But the main reason involved the problems we were encountering in getting product out the door quickly while designing in 2D," Beaudry explains. "Specifically, we wanted to be able to create standard parametric models for all of our systems, from which we could quickly produce customer machinery when necessary. Although we have a central product line, we design a number of custom-designed machines to satisfy unique customer needs."

IPG evaluated SolidWorks®, Pro/ENGINEER®, Solid Edge®, Autodesk Inventor®, and Mechanical Desktop® before choosing SolidWorks. Beaudry says IPG selected SolidWorks software because of its ease of use, large assembly capabilities, sheet-metal functionality, photorealistic graphics, and excellent customer service.

"We looked at all of the products, and SolidWorks stood out from the rest," Beaudry says. "We really liked the interference-checking feature because it enables us to check the fit and function of all the components prior to manufacture."

SolidWorks

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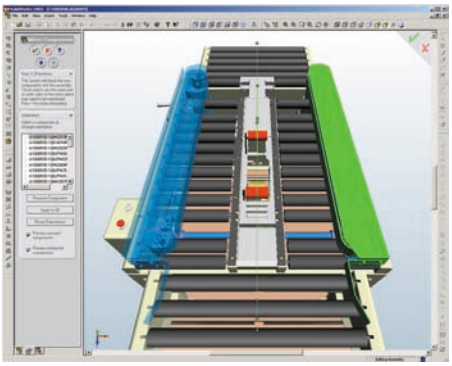

The mirror-imaging capabilities in SolidWorks software allowed IPG to eliminate 50 percent of design errors.

Improved handling of assemblies

SolidWorks software saves IPG a significant amount of time in the design of large assemblies, according to Pierre Bergeron, an IPG designer. "The ability to explode an assembly or separate an assembly into subassemblies is really powerful," Bergeron notes. "The final assembly of our machines is about 1,500 parts. With SolidWorks, we design subassemblies using a modular approach, such as the column assembly (10-15 parts) or the base assembly (50 parts). Most of our products are symmetrical so the mirror-imaging feature in SolidWorks is a big plus."

Beaudry adds that before implementing SolidWorks software, initial assembly design and design changes took a lot more time. "With SolidWorks, we make a modification once and it's done. Because SolidWorks is parametric and provides associativity among assemblies, parts, and drawings, everything updates automatically. We've been able to shorten our design cycle by 35 percent since switching to SolidWorks. We've also seen the number of errors we encounter drop by 50 percent."

Configurations more efficient

Much of the productivity gains IPG has realized can be attributed to using SolidWorks configurations to design a range of assemblies. Configurations allow IPG to take a single design and automatically create different sizes, capacities, and features, Bergeron says.

"Configurations is a key assembly feature for us because of our modular design approach. The base frame for all of our carton sealers is pretty much the same. Our machines can have two or four columns, which are fairly standard but are sometimes stretched to custom lengths. Other design variables that can change are the material used, the motion produced, the box/carton size that can be accommodated, the tape/sealer utilized, and the height of the machine from the floor," Bergeron says. "With configurations, we can make any combination of these design modifications automatically. In the past, we would have had to design each one separately."

"SolidWorks configurations provides us with greater flexibility for customization and for meeting the various demands and requirements of the packaging industry," Beaudry adds.

Enhanced design communications

Another benefit IPG has realized since implementing SolidWorks software is improved communication among design team members and with customers. "We have found that using PhotoWorks™ rendering software to create photorealistic images greatly improves our ability to present and share product ideas," Bergeron says. "The images are incredibly realistic and often help in eliminating or addressing design issues before we reach the prototype phase."

"We have three primary lines of machines," Beaudry notes. "When a customer has a unique or specialized need, we leverage the high-quality visuals produced in PhotoWorks to communicate with the customer and make sure we agree on the approach before building the machine."

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