

HARTNESS INTERNATIONAL

Innovative packaging equipment manufacturer quickly retools designs in 3D



The DYNAC intelligently regulates the flow of products during packaging and packing.

Packaging equipment manufacturers have traditionally needed as long as two years to perfect their designs. Once introduced, equipment would typically continue to meet customer requirements for up to a decade. Today, the packaging industry is on a faster track. Even state-of-the-art equipment has a life expectancy of only a few years before being superseded by something better. Hartness International of Greenville, South Carolina, has kept pace by introducing packaging equipment with exceptional versatility and exciting options, such as high-tech diagnostics and a unique finger grid system that facilitates quick repair during production.

Delivering new models to customers faster

Hartness had committed to delivering a specific model of its dynamic accumulating conveyor system (DYNAC) to a customer within four months. Two months into the project the customer changed the specifications of the containers it expected the equipment to handle. "The machine we had intended to install in their plant was no longer suitable," recalls CEO Bern McPheely. "But the customer still expected us to meet their delivery date." With the target date looming, engineers began scrambling to find product design software that would help them redesign quickly. "We didn't have time to make any mistakes," comments McPheely. "We had to see the machine before going to metal."

Hartness engineers determined that SolidWorks® 3D CAD software was the way to go. McPheely admits to being skeptical at first. The concept of installing a new tool, training the engineers, and then producing a machine in a much shorter time frame than they could with traditional design methods seemed too good to be true. "SolidWorks software was easier to use than we thought it would be," recalls Product Manager Olivier Duterte. The software was so intuitive that engineers were up and running in a matter of weeks. "We decided to go with SolidWorks software," he explains. "We had formal training for two days, and started making parts on the third. Two months later the machine was delivered on time!"

Results:

- Lowered number of prototypes needed by 50 percent
- Cut an entire month from product development cycle
- Saved 5 percent in development costs
- Reduced number of design errors

Handling complex assemblies with ease

Hartness had been an AutoCAD® shop for over 10 years. But engineers found that laying out a spiraling configuration like the DYNAC was difficult in a 2D format. "It helps to have a 3D package design tool like SolidWorks software because you can put all the parts together and see how they fit," says Duterte.

"Unlike working with 2D drawings, SolidWorks software lets you see the parts and the assemblies in 3D," explains Duterte. "It's much easier for managers to evaluate how the project is evolving. Our traditional method would never have allowed us to work in assemblies as we do in SolidWorks software." According to Duterte, if Hartness engineers had attempted to design the project with 2D CAD software, it would have taken longer and cost more.

SolidWorks software enables Hartness to approach the design of its machines, some of which total more than 2,000 parts, through the design of several subassemblies that are brought together as the final machine, according to Dwight Crotty, engineering manager. "We use the collision detection feature in SolidWorks software to make sure we don't have any interference issues. This feature is valuable for us, particularly on the design of some complex mechanisms, because we can simulate how moving parts will fit and interact," Crotty says. "Using SolidWorks software, we have clearly experienced a reduction in design errors, which means fewer modifications need to be made."

"We can easily define intelligence between entities, and change parts and configurations from within an assembly," Duterte adds. "We can assemble the whole machine and not have any surprises."

"We use configurations to create modular designs offering different options, such as different container types and capacities, from the base machine," notes Crotty. "Instead of designing entire machines to meet changing customer needs, we use configurations to adapt existing designs quickly to meet a particular need."

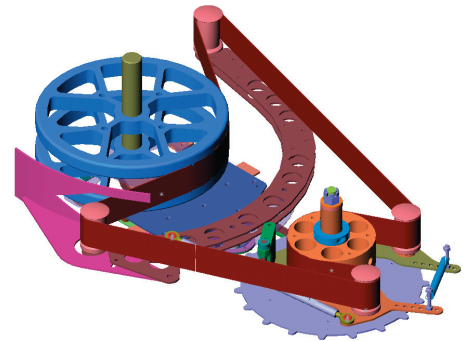
Duterte predicts Hartness could ultimately save as much as 5 percent on machine costs since SolidWorks software allows the user to perform functional analyses and help engineers redesign parts for easier manufacturing and assembly.

Beating the competition to the marketplace

As pressure accelerates to deliver innovative products to market, McPheely projects that 3D modeling will become an even more critical tool to help Hartness maintain its leading edge. "It's not often a company like us has a chance to bring a revolutionary product into the marketplace," states McPheely. "When we have an idea like the DYNAC, it's important that we get it to market as quickly as possible."

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Engineering Manager



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