

Dyco, Inc.

ACCELERATING CONTAINER-HANDLING SYSTEM DESIGN WITH SOLIDWORKS



Using SolidWorks 3D design capabilities, Dyco has realized productivity gains in the development of its large, customized, container-handling systems.

→ Dyco, Inc., is a leading innovator, designer, and installer of specialized systems for handling plastic containers. Based in Bloomsburg, Pennsylvania, the company began solving the complex handling tasks created by the application of blow-molded containers to an ever-increasing number of products in 1973. Since then, Dyco has remained focused on the manufacture and integration of turnkey container-handling systems. The company has developed a full line of container-handling equipment, including semiautomatic through fully automatic bagging machines, manual through fully automatic debagging machines, robotics integration equipment, annealing systems, and palletizing machines. Dyco also offers conveyor solutions, such as spiral accumulators, as well as cable, tabletop, mat-top, and pallet conveyors.

Dyco, Inc. is a leading manufacturer and integrator of turnkey container-handling systems. The company had historically utilized AutoCAD® 2D design tools to develop its customized machines, many of which comprise assemblies of 6,000 individual components, not counting an even larger number of nuts, bolts, washers, and fasteners. Dyco's engineers transitioned to the Autodesk Inventor® 3D CAD system in 2000, partly to implement modular 3D design methods and partly to take advantage of attractive upgrade pricing. But after using Inventor software for nearly six years, they became dissatisfied with the CAD system's performance, according to Engineering Manager Doug Gordner.

"We experienced performance issues and were not able to add hardware to our models," Gordner recalls. "Some of our assemblies were actually multiplying the number of parts; and in other instances, our engineers had to split large assembly files into two or three subassemblies to avoid system crashes, freezes, and other performance problems. We were never able to add hardware like bolts and lock washers because of the slowdown in performance. In 2005, we decided to reassess our 3D CAD solution."

Over a six-month period, Dyco conducted thorough evaluations of the Inventor, Pro/ENGINEER®, and SolidWorks® 3D CAD systems. Following that assessment, the company acquired a trial seat of SolidWorks software and used it for two months to confirm its findings that SolidWorks provided the superior solution. Dyco chose to transition all of its product development work to the SolidWorks 3D CAD system – implementing nine seats of SolidWorks Office Professional and one seat of SolidWorks Office Premium software – because of the system's ease of use, large-assembly performance, sheet-metal design tools, integrated COSMOSWorks® Designer analysis capabilities, eDrawings® communications tools, and PDMWorks® Workgroup product data management (PDM) solution.

Faster design, easier design changes

Since implementing SolidWorks software, Dyco has cut some of its CAD modeling time in half and compressed its product development cycles by 25 to 50 percent. Gordner attributes these productivity gains to an easier-to-use, better-performing CAD system and to the use of assembly configurations in SolidWorks, which makes it faster and easier to implement design changes.

"We have experienced substantial improvement in assembly performance," Gordner notes. "We are close to twice as fast at modeling on some of our systems in SolidWorks, and can more efficiently handle even our largest machines and assemblies, and feel we should be able to include all of the associated hardware."

"It is also a lot faster and simpler to make design changes in SolidWorks because we use design configurations," Gordner adds. "Whenever we need to customize an order, such as changing a debagging machine to handle a 12-inch rather than a 10-inch bottle, or designing the bottle discharge for the left side instead of the right side, we can use configurations to customize and change things more quickly."



- Cut CAD modeling time in half
- Shortened product development cycles by 25 to 50 percent
- Reduced the number of design errors
- Improved design data management and communication

- Dyco, Inc. is a leading manufacturer and integrator of turnkey container-handling systems. The company had used AutoCAD 2D design tools until 2000, when it switched to Autodesk Inventor 3D CAD software. After using the Inventor package for nearly six years, Dyco became dissatisfied with its performance and decided to reassess its 3D CAD solution.
- The company moved its product development work to the SolidWorks 3D CAD system because of the software's ease of use, large-assembly performance, sheet-metal design tools, integrated COSMOSWorks Designer analysis capabilities, eDrawings communication tools, and PDMWorks Workgroup PDM solution. By deploying SolidWorks, Dyco cut its CAD modeling time in half, shortened its product development cycles by 25 to 50 percent, reduced its number of design errors, and improved its design data management and communication capabilities.

Advancing design quality

By moving to SolidWorks, Dyco has reduced the number of errors in its system designs. The company's engineers use COSMOSWorks Designer software to validate the structural performance of components, sheet-metal design tools to reduce the potential for fabrication errors, design configurations to heighten the accuracy of design modifications, and 3DContentCentral.com to download accurate, manufacturer-certified models of commonly used components.

"Some of our machines are 90 percent sheet metal, and it is a lot easier and more accurate to use SolidWorks for sheet-metal design," explains Gordner. "We also reduce the potential for errors by using design configurations to make design changes. Now when we need to make a change, such as using a different motor, gearbox, or hole-mounting pattern, instead of increasing the chances for error by making changes to so many different assembly versions, we only need to change the SolidWorks configuration."

Improved design data management, communication

By transitioning to SolidWorks software, Dyco has realized improvements in the management and communication of design data. Rather than using Windows® Explorer folders to manage design data, Dyco uses integrated PDMWorks software to improve the handling, security, and administration of product design data. The company is also using eDrawings files to drive machine assembly and support user documentation.

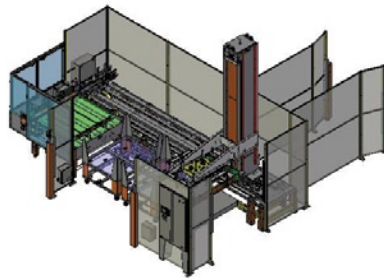
"We used to give our assembly personnel a 3D print, but now we have five computer stations on our assembly line and use eDrawings files to provide detailed instructions for building our machines," Gordner points out. "We have also started putting eDrawings on CD and into our user manuals to improve the communication of maintenance, repair, and service information to our customers."



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With SolidWorks software, Dyco has reduced the number of errors in its system designs as well as during fabrication.

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