

# Modular Services Company

INNOVATING A NEW MEDICAL PUMP DELIVERY SYSTEM WITH SOLIDWORKS



SolidWorks software provided the complete set of tools Modular Services Company needed to take the PumpStar pump transport system from concept through production.

- Accelerated time-to-market on exclusive PumpStar product
- Dramatically improved handling of assemblies
- Reduced time to convert 2D sheet-metal flat patterns to 3D by 99 percent
- Enhanced design visualization and communication

Modular Services Company designs, fabricates, and manufactures headwall systems for use in patient-care areas and clinical environments. Although the company has a range of standard products, the increased customization of headwall systems and accessories, the greater interaction with customers and architects, and the need to develop more innovative and technologically advanced products prompted the company to move its design platform from AutoCAD® 2D software to the Autodesk Inventor® 3D system in 2004. However, when the company established a product development and special projects effort that operates in parallel with the company's traditional R&D group in 2005, the new product development engineer determined that Inventor software was insufficient for helping him meet the company's ambitious new product development goals.

"I tried to use Inventor for about a week, before throwing up my hands and asking for a better tool," says Marcus Brown, project development engineer. "I had used SolidWorks® 3D CAD software in a previous job and knew it to be superior to Inventor. While the two pieces of software look very similar on paper, SolidWorks is much more efficient and intuitive at every step of the product development process."

In addition to replacing Inventor with SolidWorks for product development, Modular Services Company also added three network licenses of SolidWorks Professional software for its manufacturing and fabrication engineers. Brown says the manufacturing group wanted to move to a 3D-based platform, so it could use 3D data to drive computer-aided manufacturing (CAM) on its CNC lathe and mill. In addition, the group wanted a 3D CAD system that could produce 2D design data for use with two CNC sheet-metal lasers and a CNC sheet-metal brake.

Modular Services Company chose SolidWorks software for new product development and manufacturing because of its ease of use, compatibility with other 3D technologies, manufacturing flexibility, and sheet-metal and large-assembly capabilities.

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Marcus Brown,  
Project Development Engineer



With SolidWorks software, Modular Services Company accelerated time-to-market on its innovative PumpStar pump transport system for intensive care units and operating rooms.

## Accelerating innovative product development

Using SolidWorks 3D CAD software enabled Modular Services Company to accelerate time-to-market on the development of its PumpStar pump transport system for intensive care unit (ICU) and operating room environments, a strategic new product designed to expand the traditional headwall market. The PumpStar replaces the clutter and inconvenience of separate pump and IV stands with a single, organized mobile pump medication delivery system.

“Before we implemented SolidWorks, we were working on a PumpStar assembly in Inventor and kept getting error messages when we tried to mate up the parts,” Brown recalls. “Once we installed SolidWorks, we dramatically improved our ability to handle assemblies and completed the entire project, including fit and finish, more efficiently in SolidWorks, enabling us to accelerate the introduction of the PumpStar.”

Brown adds that SolidWorks configuration capabilities provide greater flexibility and agility for modifying or customizing existing products to meet emerging customer requirements. “In many cases, we need to make modifications to existing products, such as moving services, changing sizes, adding special functionality, and increasing strength. SolidWorks enables us to respond more quickly and cost-effectively to the needs of our customers,” he says.

## Improving manufacturing efficiencies

By implementing SolidWorks, Modular Services Company also has realized efficiencies in its manufacturing and sheet-metal fabrication operations. “In addition to using SolidWorks software to design products, we use 3D data and 2D data to drive our manufacturing processes,” Brown explains. “SolidWorks integrates well with CAM for some functions and also produces the 2D data we need for sheet-metal fabrication.

“Due to the complexity and number of different parts we produce, SolidWorks sheet-metal and configuration capabilities are critically important for helping us drive toward higher quality and throughput in manufacturing,” he notes.

For example, Brown says that converting a 2D sheet-metal flat pattern to a 3D feature and bend-up took Modular Services Company personnel up to four hours in Inventor software, depending on the drawing. Using SolidWorks software, a designer can complete the same task in two minutes, a reduction of 99 percent.

## Greater flexibility for communicating designs

SolidWorks software provides Modular Services Company with better tools for communicating design concepts, both internally and externally. The company has utilized SolidWorks eDrawings® files to communicate design concepts to customers and to the anesthesiologist who worked on the development of the PumpStar. Brown also has used SolidWorks animation capabilities to illustrate how the moving parts in the PumpStar function and work together, and has employed SolidWorks photorealistic rendering tools to produce an illustration of a power-strip box for use in the PumpStar marketing brochure.

“SolidWorks software provides simple, easy-to-use tools not only for taking a product from concept through production, but also for demonstrating and communicating product concepts to customers, partners, and prospects,” Brown says.



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