PMD relies on SOLIDWORKS design, simulation, and product data management solutions to accelerate development and delivery of custom factory automation systems for some of the world's biggest, most technologically advanced, and successful manufacturing companies.
Progressive Machine & Design (PMD) builds custom factory automation systems for some of the world’s biggest, most technologically advanced, and successful manufacturing companies. By providing creative and cost-effective automation solutions for automotive, transportation, life sciences, consumer products, energy, and glass/ceramics manufacturing, the company has become a key integration partner for its clients, developing turnkey custom manufacturing solutions that enable them to focus on their core business.

Until 2003, PMD utilized 2D design tools. However, increasing customer demand for faster delivery times and more complex, sophisticated automation machinery prompted management to transition to a 3D development environment, according to David Cooley, chief engineer, Applications Engineering. “We work in a very creative, fast-paced, hands-on environment, and believed a 3D design platform would enable us to more quickly and accurately develop quotes and layouts for our systems,” Cooley recalls. “Initially, we used other 3D software, but as more and more of our customers came to us with SOLIDWORKS® files for the products that they wanted to manufacture, we decided to revisit our 3D solution.”

“Your decision to evaluate SOLIDWORKS solutions was initially customer-driven,” Cooley explains. “More customers were demanding that we work with SOLIDWORKS files, and when we took a look at the software, we found it to be easier to use and more capable. In our business, we never build the same thing twice. We anticipated that SOLIDWORKS would help us become more efficient and grow as a custom [OEM] equipment manufacturer, which it has.”

PMD chose SOLIDWORKS CAD software because it is easy to use and facilitates machine design. The company has also implemented additional SOLIDWORKS solutions, including SOLIDWORKS Premium design, SOLIDWORKS Simulation analysis, SOLIDWORKS Enterprise PDM (EPDM) product data management, and DraftSight® 2D layout software. “With SOLIDWORKS solutions, development is faster, designs are more accurate, and communication has improved dramatically,” Cooley notes.

**FASTER, MORE ACCURATE QUOTING, DESIGN, AND MANUFACTURING**

Since implementing SOLIDWORKS software, PMD has realized time savings in several areas. The company has cut machine development time by 35 percent and has reduced the time required to transition from design to manufacturing by 40 to 60 percent. These productivity gains have enabled PMD to cut customer delivery time nearly in half. SOLIDWORKS also helps the factory automation provider accelerate the development and improve the accuracy of quotes.

“We compete on concept development and ingenuity, and SOLIDWORKS helps us more quickly conceptualize and deliver innovative, cost-effective solutions,” Cooley stresses. “SOLIDWORKS improves communication substantially, which saves time at almost every step. Our proposals are more clearly defined and better communicated. It takes less time to validate a design concept, and it’s much faster to get parts machined using SOLIDWORKS models.”

**VALIDATING MONSTER WELDMENT**

SOLIDWORKS Simulation software helps PMD solve difficult challenges and allows the company to live up to its commitment to never ship a machine until it performs to the user requirements specification. For example, on a piece of equipment that produces automotive steering columns, an assembly had to be extremely strong and able to withstand a 400,000-pound steel load.
“The machine holds two-inch pipe between metal jaws, and a forming head rams into it to flare one end,” Cooley explains. “We knew the assembly would deflect under a force equivalent to 400,000 pounds of steel, but we couldn’t take the risk of it cracking while also trying to make it as lightweight as possible. SOLIDWORKS Simulation allowed us to validate a design that utilized a real monster of a weldment, giving us confidence that the design would perform well.”

**EPDM DRIVES PROCESS MANUFACTURING DATABASE**

With the implementation of SOLIDWORKS EPDM software, the company developed its own web-based Process Management Database (PMDB) application that integrates PDM design data with its Encompex® enterprise resource planning (ERP) system. The application drives manufacturing processes and provides an unprecedented level of seamless integration and control across the entire organization. For example, using the system, sales professionals and project managers can remotely call up SOLIDWORKS eDrawings® files on a tablet and provide customers with real-time information on project status.

“EPDM gave us the information that we needed to create the PMDB system,” Cooley says. “It takes all of the repetitive tasks out of our processes, allows projects to flow faster, and gives us more time for focusing on creativity, innovation, and customer challenges.”