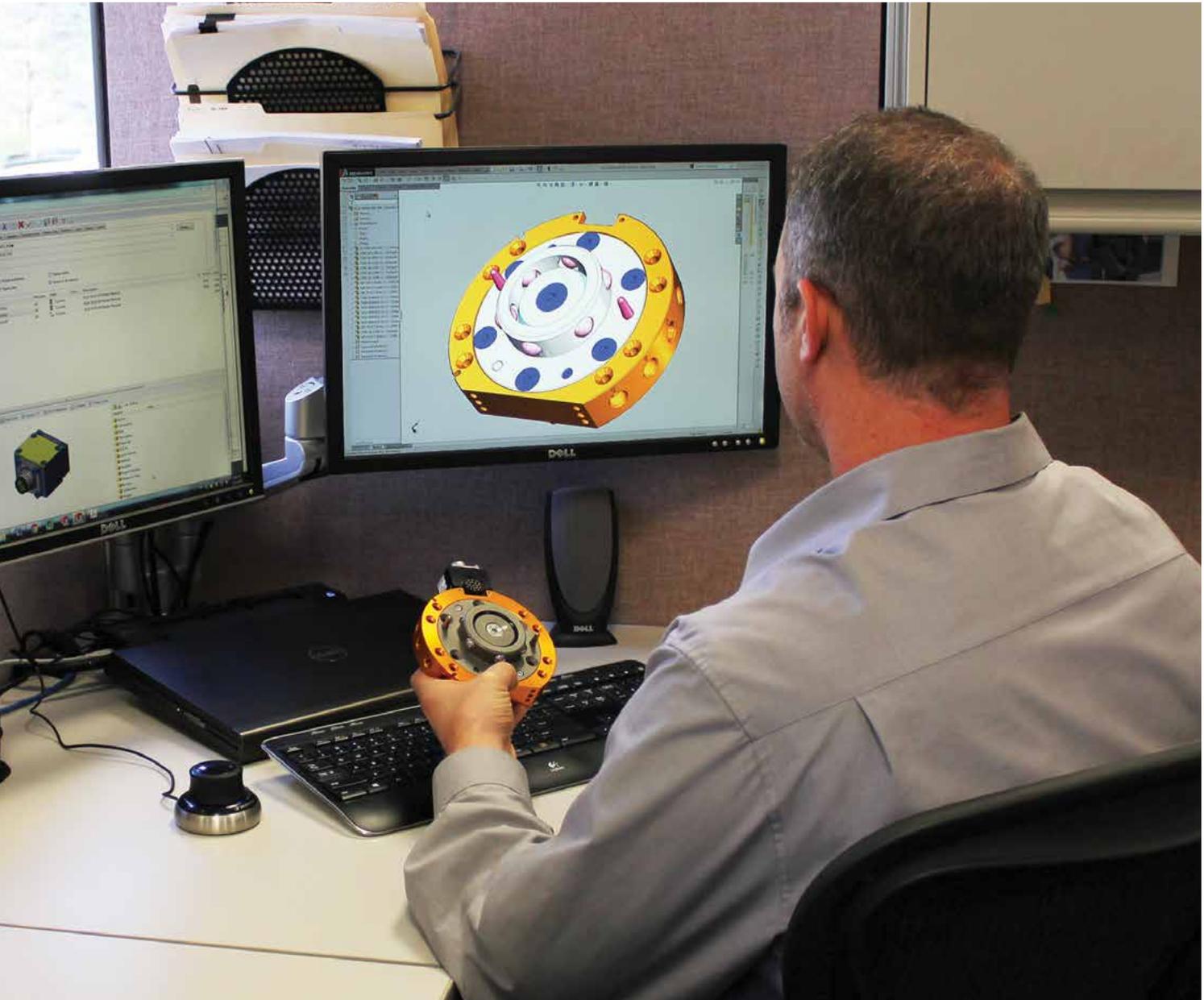


ATI INDUSTRIAL AUTOMATION, INC.

ADVANCING ROBOTIC TOOLING SYSTEM DEVELOPMENT
WITH SOLIDWORKS SOLUTIONS



ATI Industrial Automation leverages SOLIDWORKS design, simulation, product data management, and technical communication solutions to shorten delivery lead-times while improving the quality and complexity of its robotic tooling products.

Challenge:

Continually improve project turnaround times, reduce development cycles, shorten delivery lead-times while improving product quality and complexity, and the visuals used in documentation materials.

Solution:

Implement SOLIDWORKS Standard, SOLIDWORKS Professional, SOLIDWORKS Premium design, SOLIDWORKS Simulation Premium, SOLIDWORKS Simulation Professional analysis, SOLIDWORKS PDM Professional product data management, and SOLIDWORKS Composer technical communication software solutions.

Benefits:

- Shortened development and delivery lead-times
- Cut prototyping requirements in half
- Reduced ECO process from one week to one day
- Decreased documentation visuals development from days to minutes

ATI Industrial Automation, Inc. is the leading engineering-based manufacturer of robotic accessories and robot-arm tooling, including automatic tool changers, multi-axis force/torque sensing systems, utility couplers, robotic deburring tools, robotic collision sensors, manual tool changers, and compliance devices. Customers utilize the company's robotic tooling products in thousands of successful applications worldwide, and ATI has created cost-effective, state-of-the-art robotic tooling solutions since 1989. Most of the company's products are used in aerospace, automotive, and industrial manufacturing applications.

The robotic tooling manufacturer adopted 3D design in 1999 when ATI migrated from AutoCAD® 2D tools to the SOLIDWORKS® 3D design platform. "We initially moved from 2D to 3D to speed up development cycles, improve quality, and enhance visualization," recalls Senior Mechanical Engineer Ryan Chambers.

"We have a standard product line that represents roughly 70 percent of our business, with the remaining 30 percent made up of custom work," Chambers continues. "Maintaining shorter development and delivery lead-times has been a very critical part of our success and the reason why we constantly look for new methods to improve our design process."

Part of ATI's continuous improvement effort involves evaluating how additional integrated SOLIDWORKS solutions can benefit the company's operations. ATI migrated from 2D to SOLIDWORKS 3D design in 1999—implementing SOLIDWORKS Standard, SOLIDWORKS Professional, and SOLIDWORKS Premium design software—because the applications are easy to use and support important productivity gains. The company added the SOLIDWORKS PDM Professional (formerly EPDM) system in 2009 to tighten revision controls, streamline workflows, and increase collaboration with manufacturing; SOLIDWORKS Composer technical communication software in 2013 to automate the development of visuals for product manuals and assembly instructions; and SOLIDWORKS Simulation Premium and SOLIDWORKS Simulation Professional analysis software in 2014 to reduce prototyping.



"Our tools are designed to last millions of cycles, so we use SOLIDWORKS Simulation Premium software to run a variety of sophisticated analyses, including vibration and fatigue/lifecycle analyses, as well as structural analyses involving nonlinear materials. We've found SOLIDWORKS Simulation Premium results to be very accurate."

— Ryan Chambers, Senior Mechanical Engineer

EXCEEDING CUSTOMER REQUIREMENTS

Since standardizing on SOLIDWORKS, ATI has consistently exceeded customer expectations regarding development and delivery lead-times, product quality and reliability, and tooling capabilities and innovation. "Satisfying customer expectations extends beyond the time it takes to develop and deliver robotic tooling systems," stresses Mechanical Designer John Winterroth.

"It also involves expanding the range of our capabilities and maintaining high levels of quality," Winterroth says. "Leveraging SOLIDWORKS tools has helped us to be fast, innovative, and accurate. The complexity of our products has certainly increased, and we've eliminated design errors related to revision controls with the addition of SOLIDWORKS PDM."



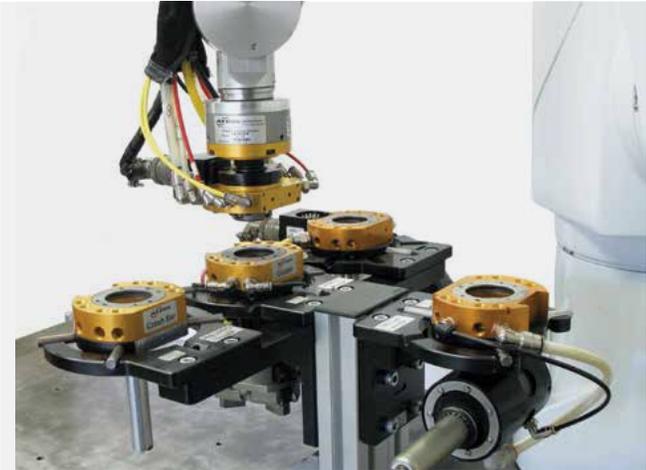
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— John Winterroth, Mechanical Designer

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Using SOLIDWORKS product development tools, ATI Industrial Automation has cut prototyping requirements, introduced a paperless engineering change order process, and improved documentation development for its robotic tooling solutions.

DESIGNED TO LAST MILLIONS OF CYCLES

ATI has also maintained quality while cutting prototyping requirements in half—eliminating additional time from the process—through the use of SOLIDWORKS Simulation Premium and SOLIDWORKS Simulation Professional analysis software. All ATI designers have access to a floating seat of SOLIDWORKS Simulation Professional software for use during conceptual design, and a dedicated resource utilizes SOLIDWORKS Simulation Premium software to conduct more complex analyses involving nonlinearities.

“Our tools are designed to last millions of cycles, so we use SOLIDWORKS Simulation Premium software to run a variety of sophisticated analyses, including vibration and fatigue/lifecycle analyses, as well as structural analyses involving nonlinear materials,” Chambers explains. “We’ve found SOLIDWORKS Simulation Premium results to be very accurate. For example, we ran a fatigue/lifecycle analysis that predicted failure after more than a million cycles. We then conducted physical tests to verify those findings. The simulation results were off by only 20 cycles, which is extremely close when considering a million cycles.”

“With this type of simulation accuracy, we’ve reduced the number of design cycles required as well as prototyping requirements,” Chambers adds. “This has allowed us to reduce by half the number of prototype parts that we cut.”

PAPERLESS ECOS, IMPROVED DOCUMENTATION AND ASSEMBLY INSTRUCTIONS

The implementation of SOLIDWORKS PDM Professional software has enabled ATI to eliminate paper from its engineering change order (ECO) process—shortening the process from a week to a day. The addition of SOLIDWORKS Composer software has cut the time required to create visuals for product manuals and manufacturing assembly work instructions from days to minutes.

“We use SOLIDWORKS Composer software to create images and animations for use in product documentation and assembly work instructions,” Winterroth notes. “Combined with SOLIDWORKS PDM, this creates paperless ECO and assembly processes on the shop floor. Manufacturing personnel each have a workstation monitor that they can use to pull up drawings, animations that show where something goes, and images with arrows and visual instructions. This approach results in faster, clearer, and better communication with manufacturing, whether it involves ECO or standard assembly instructions.”

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