HIDRAULIKA KURELJA D.O.O.
ADVANCING HYDRAULICS DEVELOPMENT WITH SOLIDWORKS SOLUTIONS

With the greater accuracy and improved visualization of SOLIDWORKS 3D design solutions, Hidraulika Kurelja has energized its new product development effort to create innovative hydraulic systems, such as the Ambulift, an ascending and descending platform to help the handicapped, the disabled, and people with limited mobility board and depart aircraft.
**Challenge:**
Streamline and accelerate design cycles to spark the development of new hydraulic products to satisfy a range of specialized trucking applications.

**Solution:**
Upgrade from 2D design tools to the SOLIDWORKS 3D product development platform by implementing SOLIDWORKS Premium design and analysis, SOLIDWORKS Simulation Premium analysis, SOLIDWORKS Electrical Schematic Professional design, SOLIDWORKS Electrical 3D design, SOLIDWORKS PDM CAD Editor product data management, and SOLIDWORKS PDM Viewer product data management software solutions.

**Benefits:**
- Sparked greater new product development
- Reduced prototyping requirements by 30 percent
- Increased complexity of new hydraulic system designs
- Improved design accuracy and product quality

Hidraulika Kurelja d.o.o. is the leading Croatian manufacturer of hydraulic systems and equipment. Founded in 1993, the company has expanded from its initial focus on servicing existing hydraulic systems to designing and producing its own line of products, including the development of hydraulic systems for specialty trucks, such as dump trucks, garbage trucks, and aerial work platforms.

To satisfy growing demand for hydraulic systems—in industries ranging from energy, construction, and road maintenance to railways, water, and forestry—Hidraulika Kurelja needed to accelerate new product development as well as implement the quality control processes required by its ISO 9001: 2008 and CE certifications. Achieving these ambitious goals led the hydraulic systems company to migrate from the 2D design tools that it initially used to an integrated 3D development platform, according to Design Engineer Matija Žegrec.

“In developing our products, we utilize design information related to the trucks that we buy and then create hydraulic system designs and modify the trucks to include our systems,” Žegrec explains. “Until recently, 95 percent of that design data was 2D DXF or DWG. Now, more and more of the truck models that we start with are 3D. While most of our engineers have worked in 2D, a few of us, including me, have been exposed to 3D CAD during our university education. We understood the advantages of 3D modeling, and management made the decision in 2016 to upgrade to a 3D CAD system to streamline design, expand development, improve quality, and increase the complexity and capabilities of our systems.”

Hidraulika Kurelja evaluated 3D design applications before deciding to standardize on SOLIDWORKS® solutions, implementing SOLIDWORKS Premium design and analysis, SOLIDWORKS Simulation Premium analysis, SOLIDWORKS Electrical Schematic Professional design, SOLIDWORKS Electrical 3D design, SOLIDWORKS PDM CAD Editor, and SOLIDWORKS PDM Viewer software. The company chose SOLIDWORKS because it’s easier to use and more affordable, and provides access to additional integrated solutions.

“The biggest advantage with SOLIDWORKS was that we already had two or three experienced users, who provided a valuable resource for training colleagues,” Žegrec says.

**“It’s much easier to see the kinematics and motion in SOLIDWORKS, as well as how to run the hydraulic tubing and electrical wiring.”**

— Matija Žegrec, Design Engineer

**VISUALIZATION KEY TO NEW PRODUCT DEVELOPMENT**

Upon implementing SOLIDWORKS, Hidraulika Kurelja quickly realized the advantages of 3D modeling in terms of design accuracy and visualization, leading to greater new-product-development throughput and more complex hydraulic designs. For example, during the development of the Ambulift, an ascending and descending platform to help the handicapped, the disabled, and people with limited mobility board and depart aircraft, improved visualization helped the company’s designers resolve many design challenges that may have gone undetected in 2D.

“It’s much easier to see the kinematics and motion in SOLIDWORKS, as well as how to run the hydraulic tubing and electrical wiring,” Žegrec stresses. “We try to do as much of our design work as possible in 3D because it helps us resolve problems during design that would have required rework in 2D. We can use the interference checking capabilities to resolve potential collision and clearance issues. It’s also important to be able to show a product to a customer for approval instead of trying to visualize a 2D drawing.”
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**REDUCING PROTOTYPING WITH SIMULATION**

Using SOLIDWORKS simulation tools, Hidraulika Kurelja is improving the quality and performance of new products while simultaneously reducing prototyping requirements by 30 percent. “With 2D, there were frequently issues that we couldn’t see in 2D that we would discover in prototyping, compelling us to produce additional prototypes,” Žegrec notes.

“With SOLIDWORKS simulation tools, we run linear static stress analysis with bigger safety factors to detect problems prior to prototyping, which eliminates roughly 30 percent of the prototypes required,” Žegrec adds. “With SOLIDWORKS Simulation Premium software, we plan to leverage its nonlinear analysis capabilities to look more closely at torsional stresses and the use of nonlinear materials.”

**AUTOMATING DESIGN VIA PDM, CONFIGURATIONS**

The move to the SOLIDWORKS 3D design platform has also enabled Hidraulika Kurelja to leverage automation to a greater degree. With the SOLIDWORKS PDM system — including both Editor and Viewer licenses — the company has automated its workflows, supporting greater design standardization and reuse. Hidraulika Kurelja designers also utilize SOLIDWORKS design configurations to eliminate redundant work.

“We’re automating our processes as much as possible with SOLIDWORKS,” Žegrec says. “For example, we routinely create configurations for our designs so that if a customer wants a dimension changed from 3,500 mm to 3,600 mm, the design is ready to go. It’s also much easier to make changes to designs with SOLIDWORKS.”

Focus on Hidraulika Kurelja d.o.o.

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