

SANJEL CORPORATION

Accelerating the development of innovative oilfield solutions with SolidWorks software



Using SolidWorks design and simulation software, Sanjel designed and manufactured this specialized redundant cementing skid in a fraction of the time and at lower cost.

Meeting the equipment needs of today's fast-paced oil and gas industry demands responsiveness, innovation, and accuracy. As the largest privately owned oilfield services company in Canada, with international operations stretching around the globe, Sanjel Corporation embraces the use of design technology to promptly deliver better performing, more reliable products to gas- and petroleum-producing customers.

Sanjel engineers had used 2D design tools until 2004, when the rapidly accelerating pace of oil and gas exploration, drilling, and production compelled the company to evaluate 3D CAD solutions to speed development, control costs, and boost quality. The energy services company decided to investigate a variety of 3D solutions, including an evaluation copy of SolidWorks® software. According to Senior Mechanical Designer Kris Sato, "SolidWorks software passed our tests with flying colors, and we evaluated the SolidWorks software environment as our standard design solution."

Sanjel standardized on the SolidWorks 3D CAD software because it is easy to learn and use, helps engineers overcome design challenges and create innovative concepts, and provides access to the integrated SolidWorks eDrawings® communications and SolidWorks Simulation analysis applications. The company's designers believed SolidWorks software was better suited to help them achieve their goal of responding more quickly to market demands for innovative, high-quality equipment.

"A big part of our decision to move to SolidWorks software was the ability to do a lot of prototyping in 3D, combining structural simulation and CFD (computational fluid dynamics) analysis as part of our design work," explains Jeff Spence, manager – engineering.

Challenge:

Improve responsiveness to the equipment needs of oil and gas exploration and production customers through increased quality, better flexibility, and faster delivery.

Solution:

Adopt the SolidWorks 3D CAD software development platform and leverage integrated structural and fluid-flow simulation technologies.

Results:

- Reduced design time by 40 percent
- Cut development costs by 25 percent
- Decreased scrap by 50 percent
- Improved design communications with field personnel

Slashing development time

The move to SolidWorks software has enabled Sanjel to dramatically compress its development cycles. For example, an oil-drilling customer in the Middle East needed a specialized redundant cementing skid. Sanjel engineers designed and manufactured the equipment, which uses the company's new SCM (Sanjel Cyclonic Mixer) cement mixing technology, in a fraction of the time it would have taken without SolidWorks software.

The company not only slashed development time for the SCM cementing skid—a mobile unit that provides cementing services for oil wells—from two years to six months, but also realized a 40 percent reduction in design time across the board. "SolidWorks software helped us deliver quickly on an important product that could easily have taken two years to build," Sato notes. "SolidWorks software gave everyone involved a clear picture of what we were working on and working toward—and kept us moving fast."

Spence attributes the efficiency improvements to the combination of design reuse and virtual prototyping. "SolidWorks software enables us to develop equipment rapidly, which gives us a definite advantage," Spence says.

Simulation improves quality, reduces costs

Sanjel uses SolidWorks Simulation to eliminate design errors, cut development costs, and improve product performance. The company utilizes SolidWorks Simulation to ensure that its equipment is rugged enough to withstand oilfield conditions, and SolidWorks Flow Simulation to make sure that fluids ranging from cement to oil flow smoothly through piping, flanges, elbows, valves, and other fittings. With SolidWorks Simulation, Sato estimates that Sanjel has cut its prototyping costs by 25 percent, and reduced scrap by 50 percent.

"What we used to achieve by modifying a physical prototype, we can now do in software. That saves time and money because we use less material," Sato stresses.

Spence adds, "Now, we can spend more time developing and simulating new technology. Our R&D effort is critical to ensuring that we provide our customers with the best-performing equipment, so they can do their jobs better."

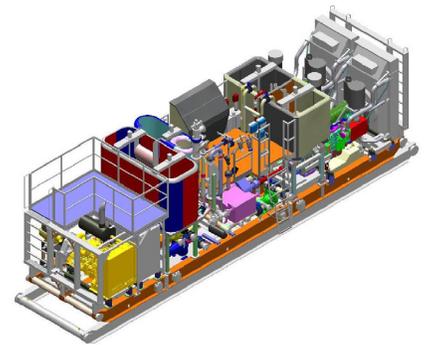
Better communication in the field

SolidWorks eDrawings helps Sanjel engineers communicate design information to customers and field service personnel. "We use eDrawings files extensively to email information to our operations personnel," Spence says. "eDrawings software is a very powerful tool because it better equips our people in the field.

"They can use an eDrawings file to rotate the model, and we can provide them with as much information as necessary. We can also control access to the information depending on the need—such as the ability to do cutaways, apply transparency, or hide components—which makes our field operations more agile and flexible," Spence notes.

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Jeff Spence
Manager – Engineering



With SolidWorks Simulation and SolidWorks Flow Simulation, Sanjel can validate the performance of components, such as flanges, elbows, and valves, reducing prototyping costs in the process.



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