

# SPP Pumps Ltd. Installs Pro/ENGINEER® & Windchill® to Boost Success in Oil & Gas Industry



Virtual Prototypes and Intercontinental Collaboration Advance SPP's Design of Critical Pumps



SPP Pumps of Coleford, UK has been designing and manufacturing pumps and associated equipment for well over 100 years. The company has been supplying the Oil and Gas industry since 1970, when SPP pumps on the Argyll platform brought ashore the very first oil from the North Sea. Since then, SPP's experience in the North Sea has enabled the company to supply equipment to the most extreme environments around the world.



When one pump shaft costs \$10,000, any design mistake can be catastrophic. SPP Pumps has implemented PTC tools to minimize errors and maximize profit margin.

## The Challenge: Design Superior Pumps and Provide Extensive Documentation Required by the Oil & Gas Industry

Pumps are fairly simple machines. In fact, some current SPP pump designs go back as far as 60 years. However, instead of using the most modern 3D CAD (computer-aided design) tools for pump design and documentation, SPP had been doing all of its design work in 2D, and was tracking the exhaustive documentation—needed by its customers' insurance firms—manually with Excel® spreadsheets. The company was ready to raise the bar and use advanced technology for both design and documentation.

## The Solution: Transition to 3D Design with Pro/ENGINEER; Manage Documents and Contracts with Windchill® ProjectLink™

When a new engineering manager joined the company and was asked to evaluate the latest product development tools, technology at SPP Pumps quickly began to change. Both Pro/ENGINEER—the PTC 3D product design software solution, and Windchill ProjectLink—a comprehensive project management and collaboration solution, were put into place. With these new tools, design was upgraded to 3D, and all of the associated documentation and contract information was managed electronically to support customer requirements.

## Result: Reduced Lifecycle Costs, and Positive Cash Flow Impact

With Pro/ENGINEER in place, SPP Pumps anticipates it will reduce its Oil & Gas engineering and manufacturing costs. In addition, due to the efficiencies of Windchill ProjectLink, SPP believes it will be able to positively impact cash flow as a result of realizing financial incentives for timely and accurate documentation delivery. As SPP's Oil & Gas division gains these successes, it is likely that the PTC tools will be rolled out to other divisions throughout the company.

As a world leader in the design and manufacture of pumping equipment for both onshore and offshore oil and gas applications, SPP Pumps has been supplying equipment to many of the major international oil companies from Azerbaijan to Zimbabwe.

In 2008, SPP won the Manufacturer of the Year Award in its industry, and at the Coleford Manufacturing Plant increased revenue per employee by 50%, reduced stock by 10%, and reduced warranty costs as a percentage of revenue by 20%. How do advances like these come about for a company that has been building quality products for the past 100 years?

As a medium-sized business, SPP Pumps realized that implementing a technologically advanced product development system could help with both the design and documentation aspects of creating pumps and delivering all of the mandatory information needed by SPP's customers.

"As well as managing our designs, PTC's Windchill ProjectLink can look after the whole process of dealing with oil and gas contracts. At the moment, we are managing 24 contracts with about 500 documents in each one, so this solution is ideal for us."

Richard Parker,  
Engineering Manager,  
Oil & Gas / Waste & Water, SPP Pumps

## When is a Pump more than just a Pump?

Richard Parker, SPP's Engineering Manager for both the Oil & Gas and Waste & Water divisions, started with the company in 2006. Coming from a background of 3D design, Richard saw the opportunity to incorporate a technologically advanced product development system at SPP, which would lower lifecycle costs.

"A pump is a very simple object really," Richard explains. "But, in the Oil and Gas industry, we are using very exotic materials so that the equipment can withstand prolonged submersion in seawater and other extreme environmental conditions. Materials such as super duplex stainless steel, titanium, bronze and aluminum bronze are used, and as a result, the cost of a typical pump shaft can be \$10,000."

In addition, SPP's pumps are supported by a premium service in terms of the level of documentation and material test results behind each pump. This extensive documentation is required by the Oil & Gas industry for insurance purposes, and can include basic stress calculations, material traceability, non-destructive testing data, test plans and other documents. Consequently, SPP's pumps are very customer-focused products and these high-value pumps, shafts and the associated documentation command a price premium.

"The Oil & Gas industry is very heavily sewn up on insurance and inspections," Richard states. "In today's world, where just-in-time manufacturing means you build only days before a pump will be inspected, any problem has massive consequences. I realized SPP would greatly benefit from the ability to do virtual assembly in a 3D design package."

## Transition to 3D with Pro/ENGINEER

Richard started investigating a transition to 3D design. SPP's Indian parent company had been using PTC's Pro/ENGINEER and they recommended it to Richard. SPP worked with UK distributor Optima to implement not only Pro/ENGINEER, but also PTC's Windchill ProjectLink and Windchill PDMLink® for project management, data management and collaboration.

As the company's champion for the PTC solutions, Richard has been working with various groups within SPP to get them on board, train them, and demonstrate the benefits of the product development system. He believes that key business initiatives, such as improving collaboration and increasing the use of virtual prototypes, can be achieved with the tools from PTC.

With the implementation of Pro/ENGINEER and 3D design, SPP's engineering and manufacturing costs have been reduced.

"These tools have allowed us to cope with a real boom in the oil and gas business. I don't believe we would have been able to manage this kind of work—with our small engineering group of about 12 people—without the product development system from PTC."

Richard Parker,  
Engineering Manager,  
Oil & Gas / Waste & Water, SPP Pumps

## Windchill ProjectLink Enables Management of Entire Process

At the same time, Windchill has provided an opportunity to positively impact cash flow. This increased revenue would be realized by meeting deadlines for timely and accurate documentation delivery.

"Working in the industry of Oil & Gas, we are heavily burdened with documentation requirements," Richard continues. "Everything we make has to be very highly regulated. So you supply a pump, then you supply masses of paperwork with all of the documentation for every component in that part. Our customers aren't just buying a product; they are buying the supporting documentation as well. And, that was really a bit of a nightmare to manage."

Previously, SPP Pumps had tried to manage the documentation process with Excel documents, engineering drawings, Word® documents, and PDF files, all being emailed around the company and recorded in manual Excel spreadsheets. Unfortunately, this process sometimes led to missed deliverables for documentation, and revenue would be forfeited. Richard recalls, "When I saw Windchill and its lifecycle document management capabilities, I realized that, as well as managing our designs, we could allow it to look after the whole process of dealing with oil and gas contracts." This application of Windchill ProjectLink's capabilities enables SPP to add to its bottom line.

## Collaboration between UK and India

SPP works closely with a technical center in India. Before implementing the PTC product development system, engineers in the UK would have to prepare lots of documentation and try and email large files, which sometimes didn't make it through the firewall to their Indian colleagues.

With the new technologies, everyone simply accesses a central database. SPP in the UK can work more collaboratively with the technical center as well as with satellite companies in India, Dubai, the U.S., and South Africa, which is another way to ultimately lower lifecycle costs. Richard states, "It's really made working with offshore companies so easy."

He continues, "You have the benefits of concurrent engineering, where one person on a team can be working on a part in the assembly, and then anyone else can continue, and everyone automatically gets told when it's been updated. The technology has allowed me to make use of our experienced people around the world. Having our Indian colleagues onboard has enabled me to get projects moving and deliver what I've promised. Without them, it would have been very difficult."

## Looking forward

With the success of the PTC product development system within the Oil & Gas division, SPP Pumps is looking toward rolling out PTC solutions to other divisions in the company.

“Immediately on viewing the capabilities of Windchill, it was obvious that the benefits of it would be far further reaching than the confines of my engineering department and managing our engineering data,” Richard explains. “And now, I think the whole organization is starting to realize the vision of what Windchill delivers.”

Richard concludes, “These tools have allowed us to cope with a real boom in the oil and gas business. I don’t believe we would have been able to manage this kind of work—with our small engineering group of about 12 people—without the product development system from PTC.”