

## Fuchs Lubricants sees upgrades from PCS 7

Fuchs Lubricants UK says it has seen cost and operational efficiency improvements at its Stoke-on-Trent plant since migrating to Siemens' PCS 7 distributed control system (DCS) and Simatic Batch system.

The company also says it managed the migration from an obsolete system without disruption, and is now achieving high plant availability, reduced cycle times and waste, as well as improved production visibility and flexibility.

Steve Hallam, engineering manager at Fuchs, explains that the decision to move to PCS 7 followed a site trial, involving Fuchs working with Siemens to install the system on its petroleum jelly production line. That success – which saw enhanced performance, including vastly reduced plant downtime – convinced production managers to extend Siemens DCS into other areas of manufacturing at the plant.

Making that work, and specifically avoiding production interruptions, meant



a staged migration and a feat of scheduling, according to Hallam – who says that the migration involved more than 5,000 I/Os, 1,000 valves, 90 raw material tanks, a large number of finished product tanks and 38 blending vessels.

“Since the expansion of the PCS 7 system, we have been able to see real progress in a number of key areas,” states Hallam. “We are achieving a significant first-time pass rate for finished products, which has increased from 85% to 97%,” he continues.

“This means a drop in failure rates to

just 3% and that adds up to significantly lower levels of waste ... and substantial cost savings, in terms of raw materials.

“In addition, our knowledge of the process is now far more in-depth, as the data we can extract from the control system informs us exactly of the type of ... information we require to ensure product consistency and drive improvements to our efficiencies. This allows us to plan our production scheduling far more accurately.”

Fuchs also comments on the fact that PCS 7 allows its engineering team to undertake a continuous improvement programme around the system, which helps to step up production efficiency.

“I believe we are currently only utilising a part of the full functionality we could from PCS 7, and the great thing is that it allows us the flexibility to continue to gauge how we are running the production process and to seek to improve matters,” explains Hallam.

## Ocean energy rig gets programmable power

A laboratory scale rig at the Hydraulics and Maritime Research Centre (HMRC), University College Cork, is now capable of emulating the power testing required at sea, thanks to new control equipment.

Project manager Dara O'Sullivan explains that, with a requirement for flexibility, programmability, safety and robustness, Emerson Control Techniques and Leroy-Somer were the only firms prepared to provide an appropriate drive, motor and generator combination.

“[Control Techniques] were most helpful in advising on how to make an easily reconfigurable electrical control system and were the most competitively priced, too,” he confirms.

O'Sullivan explains that R&D has focused on the control and performance of electrical components in the power train – including generators, power converters and grid interface equipment.

But assessing design performance for these components under conditions experienced in an ocean system is an expensive and difficult process, he says – and hence the laboratory scale test rig.



The university researchers had a demanding list of specifications, including regeneration capability and flexibility. So any supplier had to provide matching motors and drives, custom options (two shafts and a through-hole resolver, for instance) and a wound-rotor induction machine – unusual at this power level.

Control Techniques' Drive Centre at Newbridge was able to match these requirements, so Leroy-Somer's motor specialists and Control Techniques' design and software engineers were brought in to support the project.

The test rig now comprises a multi-contactor set-up that allows for several

generator, power converter and grid emulator configurations, selected via a graphical PC interface. Multiple time series input formats, prime mover models and control algorithms can be loaded into the PLC, using the same HMI.

As a result, says O'Sullivan, the rig is capable of recreating the dynamic response exhibited by a prime mover onto a motor-generator set, while measuring power and quality.

Additionally, the prime mover can simulate – from real or modelled time series data – any varying source, such as a wind turbine, a hydraulic motor or a wave energy turbine.

Three drives have been installed – all Control Techniques' Unidrive SP ac units. One controls the prime mover, while the others, connected back-to-back, control the generator and, in regenerative mode, convert power from the control frequency that maintains generator speed to 50 Hz.

Selection of a Leroy-Somer wound rotor-generator, along with multi-contactor configuration, gives this system its flexibility, in terms of generator type.