

Precision positioner uses redundant drive

One of the world's most advanced survey vessels is now capable of positional accuracy down to one metre, thanks in part to thrusters powered by variable speed drives.

The Poseidon is the second vessel developed for seabed surveys by Neptune Survey Expedition, and has been equipped with a Norwegian Konsberg positioning system. That uses satellite navigation and a combination of the propellers, rudder, and variable speed and pitch thrusters.

Icelandic electrical contractor Rafeyri's technical manager David Hafsteinsson says that two Control Techniques Unidrive SP9432 drives, rated for heavy duty (450kW) motor output, control the bow and stern thrusters. The drives are controlled by a 4–20mA speed control signal from the Konsberg navigation PLC, he explains.

Each of the thrusters is tunnel-



mounted beneath the ship, with motors direct-mounted on top of the screws. There is no gearbox and the control system can decelerate the screws from full speed (1300rpm) in seconds, with pitch control similarly responsive.

Poseidon's current refit incorporates dual redundancy on most equipment, with the exception of the thrusters, because the drives each comprise four ac drive modules, providing built-in

redundant technology. "The Unidrive SP solution was both competitive and, being modular, gave a degree of redundancy," comments Hafsteinsson.

"The issue of support was also important and, as the ship is to be surveying near Greenland and St Petersburg, the nearby Control Techniques Drive Centre in Reykjavik and Russia was another contributing factor," he adds.

French dash for Crown Bevcan



Manufacturing group Crown Bevcan reports that Brammer came to its rescue recently, transporting equipment via taxi from France to its Leicester plant overnight, to keep it running.

Christie Weaving (pictured), who manages the industrial maintenance, repair and overhaul (MRO) firm's Leicester branch, received the urgent

call for bearings at her home. However, Crown Bevcan's shaft system also broke down that same evening, leaving the manufacturer with a potential crisis.

As well as arranging urgent supply of the required bearings, Weaving organised a taxi from the UK to meet a French taxi bringing a replacement shaft – made to order for the canning industry and so not readily available from another source – from Crown Bevcan's site at Custines, near Nancy in eastern France.

The two taxi drivers met at 3:00am local time in Calais. Meanwhile, Weaving remained in contact with the UK driver throughout the night by text to ensure the rendezvous worked. What could have been a major crisis was resolved in less than 12 hours, with all parts reaching Crown Bevcan's Braunstone plant by 8:30am.

"Once again, Brammer have pulled out all the stops to ensure that our line is up and running as quickly as possible," comments Paul Reeves, beverage mechanical engineer at Crown Bevcan.

Machines get hydraulic boost

Industrial mixers manufacturer Winkworth is reporting success with two new hydraulic drive systems – one for a 450 litre twin-blade waste and recycling mixer/extruder, the other for a hazardous fluid mixer/incorporator. Winkworth sales director Tim Simpson explains that the first unit was for a tough process, and that its machine needed increased power and efficiency to improve on earlier plant's productivity rates.

He selected Branch Hydraulic Systems for the project, not least because it was able to provide 66kW in the envelope available, via three 22kW motors. Branch also specified a Comer planetary gearbox from its sister division, Tractec, integrated with a hydraulic power unit based on Parker load-sensed, constant horsepower piston pumps and Sauer Danfoss proportional valves, for speed and torque control.

Meanwhile, the second drive was for a double Z blade mixer/incorporator, designed for hazardous fluids and powders. Being a compact mixer, Branch delivered an 11kW power supply, driving a single Comer foot-mounted planetary gearbox. Again, to optimise performance, the hydraulic power unit has a Parker load-sensed, constant horsepower piston pump and, in this case, a



Diplomatic proportional valve.

Says Simpson: "We wanted to work with a company that specialised in hydraulics, one that would be both responsive and helpful, whilst ultimately providing a cost effective and efficient result."

Asphalt plant cuts £25,000 off energy costs

More than £25,000 of energy costs per year are being saved by an asphalt production plant, following fitment of ABB variable speed drives.

Express Asphalt's plant at Darwen, near Blackburn, Lancashire, is the beneficiary – and the saving stems from upgrading its 90kW exhaust fan from fixed speed to variable.

Rick Harbour, works manager with Express, explains that the asphalt production process essentially involves a burner supplying heat to a rotating drum aggregate dryer. Steam and dust are then extracted via the exhaust fan, with the dust then captured in filter bags for reuse.

"The dryer exhaust fan creates a pressure to draw the steam and dust out, but, because the motor was running at 50Hz constantly, it was doing too much work," he says.

Rick Hinde of Invertech Solutions, which was contracted to look at ways of controlling the fan, says that the



solution started with a 110kW ABB standard drive. "The fan had its damper placed in the fully open position and dryer pressure was then controlled via a pressure transmitter feeding back to the drive," he explains.

Invertech also installed a 30kW ABB drive on the dryer. "We experimented with adjusting the speed of the drive to obtain optimum drying. The burner uses kerosene and we found that running the

drive at 55Hz gives the optimum drum rotation speed. This meant we used half a litre per tonne less kerosene, saving Express Asphalt £8,000 per annum in burner fuel costs," states Hinde.

Along with other ABB drives on the bitumen pump, the rotating dryer, the hot stone elevator, the mixer and the batch elevator – as well as other energy saving components, such as timers – the plant is saving a total of £1,500 a month on electrical energy. So, with the reduction in burner costs of more than £600 a month, total energy costs have fallen by £2,100 per month.

Other benefits cited by Harbour include a 5dB reduction in noise in the asphalt drying area, as well as reduced wear and tear. "Previously, we were getting a lot of breakdowns, because the dryer fan was working so hard. This was losing us up to 20 production days a year. But since the installation of the ABB drive, we have had no more than six lost days," he says.

Instant heating is flavour of the month



Fox's Biscuits in Preston, Lancashire, reports that its problem of hot water shortages has been solved since installing an EasiHeat engineered system, from Spirax Sarco.

Central services charge hand Graham Walker explains that the plant's previous system, which comprised two 1,000-litre calorifiers, couldn't keep up with demand from the site's cleaning operations, especially at weekends.

"Although we are often producing at the weekend, we don't usually have every line running – so that's when we wash absolutely everything," he says.

"The problem with calorifiers is that, if you take out 500 litres, you have to put 500 litres of cold water in and start heating that up again. It wasn't very efficient and we couldn't meet demand – causing delays in cleaning

and increasing our operating costs."

Fox's new EasiHeat system uses a compact steam-to-hot water plate heat exchanger to provide domestic hot water on demand. It was supplied skid-mounted and ready to connect to the site's utilities, and Walker believes it's clearly more energy efficient than the stored hot water system alone.

"Cost savings are definitely there, although I'm not in a position to say exactly how much we've saved," he further comments.

That's partly because, in Fox's case, the original calorifiers have been retained as hot water buffers, to match the site's operating schedule.

"We might have people cleaning until five or six o'clock on a Saturday, but having the buffer vessels means that we can turn off the boilers at three o'clock, if we've finished producing, which further improves energy efficiency," explains Walker.