

# POWER

## emotion

### DC drives upgrade propels development

**During a major refurbishment programme that was recently undertaken at VT Shipbuildings cavitation tunnel, a new drive system was installed, automated control of tests and experiments.**



VT Shipbuilding is a major supplier to the Royal Navy and one of the world's leading exporters of naval vessels and technology. Naval vessels built by VT range from advanced surface warships including frigates, corvettes, fast attack craft and mine counter measure solutions to offshore patrol vessels and patrol craft. The company has a long history of design, development and testing in the field of ship hydrodynamics. VT uses a cavitation tunnel for tests on naval vessels' propellers. This facility is based in Portchester near Portsmouth.

Cavitation is the process where a void or bubble in a liquid rapidly collapses, producing a shock wave. Cavitation often occurs in propellers and can cause undesired noise, damage to components, vibrations, and a loss of efficiency. Propeller tests and the study of forces on rudders, fins, submerged bodies, hydrofoils and cable fairings are carried out in a cavitation tunnel. VT's cavitation tunnel, first commissioned in 1956, has since then been involved in extensive performance assessments of propellers for both in-house and consultancy work.

During a major refurbishment programme that was recently undertaken at VT's cavitation tunnel, a new

drive system was installed. Design, build and installation of the new control system was completed by Hemco Power and Control Systems Limited of Eastleigh, Hampshire. The specialists for electrical control systems used two 4-quadrant DC drives from Sprint Electric to replace the aging Ward Leonard control system that dated back to the 1970s. Using the original motors, one DC drive, PLX65 / 155Amp, now controls the tunnel drive system which operates a 4-bladed impeller to achieve water velocities up to 8m/s. The second drive, PLX40 / 99Amp, operates the Kempf and Remmers propeller dynamometer, which allows a test propeller to rotate up to 1800rpm whilst acquiring torque and thrust measurements. Integrated with new control and data acquisition software, the new PLX DC drives now allow for automated control of tests and experiments, bringing with it time savings as well as improved test accuracy and quality, vital for such demanding and sensitive applications as naval vessels.



Increase in accuracy and productivity, and lower energy consumption make DC drives ideal for retrofits when a more effective, modern drive system is required. DC drives from Sprint Electric cover a power range from 0.37 to 265kW.



we provide the solution, you take control

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