Heat exchanger technology

A new technical brochure provides recommendations for the best heat exchanger option for an application

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In just a few years, electric and hybrid propulsion has gone from an industry in its infancy to being adopted as a mainstream propulsion option by many sectors of the marine industry.

While this increasing level of acceptance is often driven by emissions legislation in many parts of the world, there are also numerous operational benefits beyond the obvious environmental issues.

For example, water taxis as well as other watercraft used on lakes and inland waterways not only benefit from reduced CO_2 emissions, but also from reduced noise pollution. Likewise in sport fishing, where full power is required to get out to the fishing grounds but very low power is used during fishing techniques such as 'trolling', a hybrid drive system enables power to be switched from the main engine to electric propulsion. This enables the vessel to be operated much more efficiently.

As the marine industry has developed, it is encouraging to see that many early electric or hybrid propulsion concepts have become reality, as demand for these products gathers momentum. However, one issue that remains key to its success is cooling.

It is estimated that 70% of all vessels will require cooling for the electric motor and perhaps all vessels will require cooling for the batteries and associated electrical control equipment. The importance of cooling electrical components cannot be over-emphasised as a universal principle of electronics states that a 10°C (18°F) lower temperature will double the life expectancy of an electrical component.

During Electric & Hybrid Marine World Expo in June the level of interest in cooling was very high, and throughout the show Bowman's stand was kept busy with visitors looking for advice on cooling, not only for the electric motors and battery packs, but also for the ancillary equipment. That includes the AC-DC converters, DC-DC converters, onboard chargers, hybrid control units, combined electric motor/generator, engine powered generators and gearboxes.

Working with manufacturers, Bowman is able to offer a wide range of shell and tube heat exchangers. The collection of more than 40 solutions enables efficient cooling for most hybrid and electric propulsion systems

Essential reading

This has led Bowman to produce a brand-new technical brochure covering its range of shell and tube heat exchangers for cooling electric and hybrid systems. More than 40 heat exchangers are listed in the brochure, offering heat dissipation from 3kW up to 701kW – one of the most comprehensive ranges available. In addition to giving performance, specification and dimensional details, the brochure provides information on Bowman's own computer-aided product selection, which enables the company to recommend the most appropriate heat exchanger solution for a customer's requirements.

With more than 80 years' experience in providing advanced and efficient heat exchangers to the marine industry, Bowman is ideally placed to recommend the most effective cooling solutions for a wide range of electric and hybrid propulsion systems.

Copies of the brochure are freely available and can either be downloaded via the website or, if a printed copy is preferred, by contacting the company direct.