

ALL HAIL



HERCULES!

Following the success of the original HERCULES project, goliath maritime engine manufacturing and R&D groups MAN Diesel & Turbo and Wärtsilä are set to collaborate once again on another part EU-funded engine research project. But for this second HERCULES project, another leader has been added to the pack - Winterthur Gas and Diesel.

This project represents the follow-up phase of the HERCULES R&D programme for large engine technologies, which was originally conceived in 2004 by MAN Diesel & Turbo and Wärtsilä. The complete project name reads I.P. HERCULES (Integrated Project High Efficiency R&D on Combustion with Ultra Low Emissions for Ships).

The overall aim of the initial HERCULES project was to encourage increased engine efficiency and thus reduce fuel consumption, CO₂ emissions, gaseous and particulate emissions, and to increase

engine reliability.

Furthermore, the specific stated aims of the initial HERCULES project, which ran its course between 2004 and 2014, were fourfold, namely to develop a fuel-flexible engine, a near zero emissions engine, and an adaptive powerplant for lifetime performance, as well as to investigate new materials for engine applications.

This new HERCULES-2 project has a mighty predecessor to live up to. The initial Hercules project combined a total of 11 years of studies with financial resourcing of €76m. It was truly a whole industry research project which pushed boundaries of engine developments to increase efficiency and meet legislation requirements with the view for new sustainable and safe energy production.

Now, the three-year HERCULES-2 project will look to develop basic technologies for use in two- and four-stroke marine engines and is aimed at fostering environmentally sustainable and more efficient shipping.

The R&D efforts of this project will

focus on four key areas; the application of alternative fuels and the optimisation of fuel flexibility to facilitate seamless switching between different fuels; the development of new materials to support high-temperature component applications; the development of adaptive control methodologies to significantly improve an engine's performance throughout its life span; and to achieve near-zero emissions via combined, integrated, after-treatment of exhaust gases.

Although MAN Diesel & Turbo, Wärtsilä and Winterthur Gas and Diesel are leading the project, they will be joined by 32 other marine industry partners from 11 different companies, 16 universities, and five research organisations. The consortium split is 30% industrial companies and 70% are universities and research institutes and the budget is to be divided between industry and the universities on a 63% - 37% basis respectively. The organisation with the responsibility of coordinating the project is the National Technical University of Athens.

DEMAND INCREASES FOR ENGINE MONITORING SYSTEMS

Growing ship owner focus on vessel performance issues, with accurate bunkering and fuel management reporting, has prompted an upsurge in interest in marine engine monitoring systems.

Diesel engine supply, service, and repair company Royston says that there has been an increase in demand for its Enginei marine engine monitoring system.

The company has also reported that notably ship operators in Nigeria have shown considerable interest.

Royston says that the Enginei system boasts an expanded onboard flowmeter and sensor system and can acquire comprehensive real-time engine and vessel performance measurements beyond the usual RPM, GPS and fuel inputs to take in a wide range of other engine control unit outputs.

To ensure accurate bunkering, the installation of the system onboard vessels

also includes tamper proof armoured cable and a unique tamper prevention tape for flanges and electrical cabinets – which are also locked and robustly secured.

Enginei records the fuel consumption data which is presented onboard via touchscreen monitors installed on the bridge and in engine control rooms. In addition, the system remotely sends the information from ship to shore where it can be accessed through



a simple web dashboard with computer generated graphs and Google mapping to show an operational profile of a vessel.

Shore staff can then access live and historical data in order to analyse the performance of their vessels. Importantly, the new data options include the measurement of fuel consumption by individual engines to enable operators to more accurately determine actual engine load for the scheduling of service and overhaul requirements.

In addition, specific fuel burn data can be provided for different vessel operational modes, as well as consumption measurements per passage and by different captains. This increased scope means the onboard monitoring system can be configured to meet precise operator requirements.

All data collected by the Enginei system can be automatically incorporated into daily reports and vessel energy efficiency plans in a range of formats. The powerful data collection features and web platform are expandable, allowing additional user requirements to be incorporated as needs change.