

IBEX: Bosch Engineering presents new plug-and-play complete solution for electrified drive systems

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- ▶ Complete solution electric drive for marine applications (EDM), featuring an electric inboard motor as its core
- ▶ High power density of around 0.7 kW/kg sets a new performance class benchmark
- ▶ Compact dimensions and design simplify integration into an existing hull design or a drive retrofit
- ▶ High product quality thanks to the use of automotive components

The integration of an electric inboard motor into recreational boats or commercial vessels involves considerable engineering effort and requires a high level of understanding of the overall system. With a new complete system, the electric drive for marine applications (EDM), Bosch Engineering now allows shipbuilders, system integrators, and naval architects to quickly and easily implement the high-voltage electrification of boats and small ships. "The EDM is designed as a plug-and-play solution, for which we supply the complete electric inboard motor and additional system components from a single source. We thus provide a simple and efficient means of electrification using a clean, quiet, yet powerful drive," explains Philipp Kurek, who is responsible for off-highway, rail and maritime solutions at Bosch Engineering.

Bosch Engineering delivers the EDM as a ready-to-install inboard motor, which combines the electric motor with gearbox, the inverter, the on-board charger, the heat exchanger, an E-box with control unit, and the necessary cooling pumps in a single compact unit. The scope of delivery of the system also includes the high- and low-voltage cabling, a charger inlet along with a display and control elements for the ship's cockpit. The EDM produces 160 hp (continuous) and weighs only around 180 kg. With the resulting high power density of around 0.7 kW/kg, it sets the benchmark for electric inboard motors in this performance class.

The installation dimensions of the compact EDM unit are comparable to those of an inboard combustion engine with the same power output and offers great

flexibility for mechanical integration. This enables easy integration into an existing hull design or replacement of the drive as a retrofit solution.

As well as cooling the integrated drive components, the thermal management of the EDM also ensures effective temperature control of the high-voltage battery. The high-voltage battery is not included in the scope of delivery. Instead, Bosch Engineering will recommend suitable solutions, and the customer is free to choose according to their individual requirements and the available installation space. The standardized communication interface of the EDM ensures software compatibility with the various high-voltage batteries available on the market. This provides great flexibility in selecting the optimum configuration of the overall system. The battery is charged via the EDM's integrated charger. This greatly simplifies the integration of the charging function into the ship's E/E architecture. The EDM also provides drive-related information and travel data for visualization on the supplied display. Other safety-relevant and time-efficient features of the EDM include intelligent system responses to unplanned failures or faults, guided troubleshooting using a diagnostic device.

Bosch Engineering supports EDM customers from the initial installation concept to the eventual commissioning of the drive. In doing so, the company combines its extensive, long-standing expertise in automotive electrification and the motorization of marine applications. The system components of the EDM are sourced from Bosch's production for the automotive sector and satisfy the high quality standards of the passenger car and commercial vehicle segments.

In addition to the EDM, Bosch Engineering also offers the electric drive system platform (EDSP) for the electrification of maritime applications. The EDSP is a modular solution with which the various drive components, such as the electric motor, gearbox, inverter, and control unit, can be individually combined to suit specific requirements. The components can also be supplied as separate modules for shipbuilders who wish to perform the electrification themselves.

The electric drive for marine applications (EDM) will be presented for the first time in the US at **IBEX, in Hall 1, Booth 308.**

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About Bosch Engineering GmbH

Bosch Engineering GmbH is a wholly owned subsidiary of Robert Bosch GmbH and is headquartered in Abstatt, Germany. As a systems development partner to the automotive industry since 1999, the company offers development services for powertrains, safety and convenience systems, and electrical and electronic systems – from the original concept to series production. Specialized in electronics and software, it draws on Bosch's proven large-scale series production technology to develop tailored solutions for a wide variety of applications in passenger cars, commercial vehicles, off-highway and recreational vehicles, and in rail applications, ships, and industry. Bosch Engineering GmbH also coordinates all the Bosch Group's motorsports activities.

Additional information can be accessed at www.bosch-engineering.com.

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