

EcoShip60: ZIM network for environmentally friendly propulsion systems for small ships at the start

German shipyards and suppliers rely on special markets: high-tech products for a safer and cleaner drive. The newly founded ZIM network EcoShip60 has chosen such a niche as well. The eleven companies and research institutes want to develop economic and ecological propulsion and energy systems for ships of up to 60 metres in length. ZIM stands for the "Central Innovation Programme for SMEs", the promotional programme of the Federal Ministry of Economics and Technology. The Technical Advisory Board meets for the first time on 16 May in Hamburg. The members are central maritime players: ABEKING & RASMUSSEN, Meyer Werft, RINA Germany, BG Verkehr, LKN.SH and Maritimes Cluster Norddeutschland. They support the network with their expertise and experience.

The reduction of Germany's CO₂ emissions by 40 per cent by 2020 is a goal to which the German government has committed itself with approaches such as the energy concept for the expansion and integration of renewable energies and the mobility and fuel strategy to promote the electrification of transport using fuel cells. The automotive industry is already responding to this political requirement with a large number of R&D projects in the field of drive systems. Alternatives to conventional diesel and gasoline engines are also becoming increasingly attractive for ship operators due to the limitation of permissible exhaust emissions in certain waters, the finite nature of fossil fuels and the resulting increase in oil prices.

In Focus: Ship Types up to 60 Meters

In shipbuilding, the majority of research is currently concentrated on alternative propulsion systems for larger ship types with an output of approx. 4,000 kW or more. "For smaller types of ships with a maximum length of up to 60 metres, there are no systematic, holistic or sustainable approaches to developing alternative propulsion systems," Dipl.-Ing. Knut-Michael Buchalle, Managing Director at S.M.I.L.E. Engineering points out. "This is exactly the gap the EcoShip60 network wants to help close".

High performance- long range

"The aim of the EcoShip60 network is to develop more environmentally friendly alternative propulsion systems for these types of ships, allowing users to drive at low cost with high performance and long range," explains Ralf Duckert, Managing Director of DSN Connecting Knowledge and EcoShip60 Network Manager. Existing technical solutions are transferred towards new holistic solutions in a large number of R&D projects of the network partners in order to achieve an optimization of the overall ship plus propulsion system and a significant reduction in environmental pollution (CO₂ and noise). "Such integrated technical solutions at competitive prices still do not exist today." says Ralf Duckert.

17 partners – from the shipyard to the engineering office

As a first step, in 2018 the ZIM network will develop a technological roadmap and R&D projects from the following technological sub-areas of a drive system: Power generator, gearbox, electric motor, control unit, propeller, energy collector, tank and ship operation. A total of 17 partners from all over northern Germany have joined forces to contribute their knowledge to the EcoShip60 network. Visit www.ecoship60.de for more information on the project.

Regular network partners

The **ARMATUREN-WOLFF Friedrich H. Wolff GmbH & Co. KG** is based in Hamburg and manufactures industrial valves and system technologies, which are sold throughout the world via representatives and dealers. In addition to the broad catalogue of standard products, the company develops individual technical solutions.

The **Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM**, headquartered in Bremen, Germany, offers, within its core competencies, surface technology, electrical components, fiber-reinforced composites and other component studies as well as materials and product development. The institute supports the network with its know-how in materials research.

Friedrich Marx GmbH & Co KG is an independent premium supplier for customer-specific marine and industrial propulsion solutions as well as for personnel data acquisition systems. As a solution provider, MARX accompanies its projects from the idea to development, production, installation and qualified after-sales service. MARX marine propulsion solutions can be found in both recreational and commercial vessels.

Lübeck Yacht Trave Schiff GmbH is a shipyard specializing in the construction of yachts and special ships. The company builds new and renovates motor and sailing yachts, aluminium boats and professional ships and relies on innovative custom-made products.

By participating in research and development projects, the **maritime centre of the Flensburg University of Applied Sciences** contributes to the further development of shipping, shipping technologies and the maritime economy in the region. The Ship Technology Department contributes to the network in the development of technological sub-areas.

The **Otto Piening GmbH** from Glückstadt develops and produces propellers and shaft systems. The company offers individual solutions that require a high degree of flexibility, innovation and cooperation.

S.M.I.L.E. Engineering GmbH operates in shipbuilding. The Heikendorf-based company is in charge of the creation of 3D designs as well as the coordination, integration and completion of shipbuilding tasks. S.M.I.L.E. also provides technical specialists for development, design and logistics.

SDT - Schiffsdieseltechnik Kiel GmbH, headquartered in Rendsburg, Germany, has its core competencies in the field of plant engineering and supports engines, transmissions and aggregates, especially on workboats. Within these technological focal points, the company accompanies projects from the determination of requirements to commissioning and thereupon offers service and repair work.

TIC Technical Innovation Consult GmbH is based in Kiel and focuses on heating and air conditioning technology as well as energy supply. Based on a new innovative fiber technology, products and applications in the scope of battery management, heating and cooling, antifouling and as shielding material are developed. The use in other key technologies is currently being prepared. Details can be found in the patent descriptions.

TRIK-Pumpen GmbH, located in Kiel, specialises in the design, construction and maintenance of pumps in shipbuilding and industry designed for pumping liquids and their installation in various drive systems such as e.g. electric motors.

Headquartered in Altenholz, Weihe GmbH focuses on innovative solutions in the exhaust gas (silencers and exhaust gas aftertreatment systems) and coolant areas or ship coolers. The portfolio is supplemented by various application modules (e.g. fuel supply). In these product areas, the company is system- and solution-oriented.

Associated Partners

The EcoShip60 network is supported by the following six associated partners through technical know-how and consulting: ABEKING & RASMUSSEN Schiffs- und Yachtwerft SE, BG Verkehr, Landesbetrieb für Küstenschutz, Nationalpark und Meeresschutz Schleswig-Holstein (LKN.SH), Maritime Cluster Norddeutschland e. V., Meyer Werft GmbH & Co. KG and RINA Germany GmbH.

Network Management

DSN Connecting Knowledge develops strategy and network projects and supports business, science and administration in all phases: from planning, funding and project management to evaluation of success.

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