OSWALD ELEKTROMOTOREN

GENERATING GROWTH IN ELECTRONIC PROPULSION

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Generating GROWTH in electronic propulsion

With over 100 years of history, OSWALD Elektromotoren GmbH is a veteran manufacturer of electric motors and generators. Now in its fourth generation of family ownership, the company remains at the head of its industry through a relentless focus on innovation and its industry-leading custom fabrication service. Richard Hagan reports.

OSWALD Elektromotoren GmbH, based in Miltenberg, Germany, develops and produces customer-specific water and air-cooled electric motors ranging from 15kW to 2,500kW for a variety of industries and tasks.

Its range includes high torque motors, synchronous motors, asynchronous motors, generators, linear motors and magnetic field coils. Its focus is on developing customised solutions and products that are best suited for each client's particular application. As a manufacturer of customer-specific motors, OSWALD is able to produce individual quantities, but is particularly interested in series production, such as projects with 20 to 100 identical motors per year and even up to 500.

Historically, OSWALD has derived the majority of its work for clients in fields requiring container handling, shredder machinery, automotive test stands, winch systems, plastics machinery and hydropower plants. But more recently, the business has seen significant growth in the marine market for both electric propulsion units and marine generators.

Motoring into marine

One reason for this surge in marine propulsion projects is OSWALD's partnership with system integrator Hybrid Ship Propulsion BV in Rotterdam, which manufactures and delivers equipment for Concordia Damen shipbuilders in Werkendam, as well as for other shipyards in the Netherlands.

"In the initial projects we supplied permanent magnet motors for a hybrid tugboat named Telstar, and a hybrid pusher boat

named Cygnus," explained Thomas Bachmann, Sales Engineer at OSWALD.

But that's just the tip of OSWALD's exciting, growing involvement in the marine space. Mr Bachmann was keen to highlight another project it's currently involved with.

An especially big milestone for OSWALD was its appointment in early 2021, via its relationship with Hybrid Ship Propulsion, to supply the main propulsion motors for Project Parsifal. This project involves the construction of a series of 40 inland navigation tankers in the Netherlands. The vessels boast an environmentally friendly design and have been specifically engineered to be able to continue motoring even when water levels on the Rhine are low.

Each ship built within Project Parsifal will be equipped with two PM 500kW motors, equating to a total order volume of 80 motors. OSWALD delivers up to four motors per month to the yard and, as of early 2022, OSWALD had delivered more than 20 motors in total.

OSWALD has designed and engineered these motors specifically for Project Parsifal; a fact that Mr Bachmann was especially proud of.

"This project was an opportunity to really redevelop and modify our existing motor design that we planned to use for the contract. We conducted a complete review of the motor, reviewing all of the components within it.

"Besides the technical optimisation, we wanted to ensure that in the end, the motor looks like something new, fancy and modern," he continued. "That was part of the strategy for us. We specifically didn't want to just take an existing design off the shelf and put a new box around it. Consequently, we invested several months into the development work for the new motor. The end result was quite amazing and the test bench results were perfect."

Project Parsifal is the largest project that OSWALD has undertaken in the marine industry, but it's perfectly within the company's strategic vision as it involves manufacturing a large volume of identical motors. "It has significantly strengthened our position as one of the leading manufacturers for this kind of special machinery," Mr Bachmann confirmed.

As part of the program, all of the motors receive Lloyds approval for Inland Shipping and meet the project-related marine requirements.

Fishing from the start

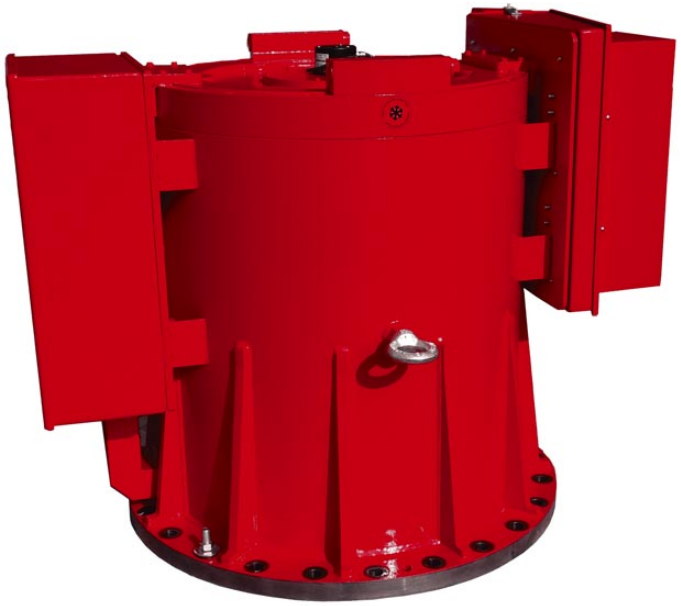
OSWALD really began its foray into the maritime sector in about 2015 when it was approached by a long-standing client with a project in the Netherlands, to equip a fishing vessel with electric propulsion.

"The client knew us from previous work we'd done in other applications such as test rig motors," said Mr Bachmann. "They wanted a hybrid system on the fishing vessel with a high-torque motor, which is something we were already doing for other sectors. The client knew us as a reliable partner in many other industry applications in which we'd worked together, and therefore appointed us for the fishing vessel project.

Prior to the fishing vessel project, OSWALD had built only a few motors for marine applications, but the fishing vessel marked an unexpected turning point.

Mr Bachmann explained: "One of the impacts of this project was that everyone in the marine industry in the Netherlands knew about this fishing vessel because it was new technology and a complete new design by the shipyards involved. The market is closed and very small, the project was in the newspapers and in the media, plus the client marketed it very well.

"It wasn't immediately obvious to most people that our motor was in there," he added. "But it helped that this ship was using our technology because it became a great demonstration of our motor that proved that it works and that it's reliable.



A sea of opportunity

The company's successful implementation of the fishing vessel project led to additional, similar opportunities in which OSWALD was contracted to manufacture propulsion systems for other vessels. With a portfolio of vessels on the water proving that OSWALD's equipment is robust and capable, new enquiries began pouring in.

"By this stage, the market was open to this new technology," Mr Bachmann pointed out. "We could prove that we could build the machines that clients required, starting from the white paper all the way to the finished product. It was a very successful story for us in the end."

OSWALD's permanent magnet generators have become a second significant growth path for the company and it is one that the team was keen to discuss. For the last couple of years, OSWALD has been developing and building marine generator systems (gensets) for clients across Europe. These units typically have a power range of between 300 and 1500kW.

"It's a new area for us," said Mr Bachmann. "End users are increasingly demanding high-speed permanent magnet gensets instead of the conventional systems."

To anyone in the industry, those end users he's referring to will be completely unsurprising: they're superyachts. And it makes sense, since permanent magnet generators are a more expensive solution versus conventional gensets. But as Mr Bachmann pointed out, their advantages justify the price.

"Our engineers have been tasked for the last three years with redesigning permanent magnet systems for marine use. They are extremely efficient and reliable and it's something that the superyacht shipyards are increasingly recognising."

By 2022, OSWALD had delivered a dozen of these new systems to superyachts, and it has further PM generators on order.

"This growth is perhaps driven by the amount of capital in the superyacht industry," Mr Bachmann noted. "They want all the new, fancy technologies but it's good for us because it's helping us to get into the market as well!"

Assets and investments

OSWALD's headquarters is located in Miltenberg, Germany, in the north of Bavaria. It is the company's only facility. It employs 200 people working in several buildings on the property.

In 2020, the business invested in a new testbed building that doubled its testing capacity from 1MW to 2MW motors, with a voltage flexibility ranging from 400 to 690 volt systems.

Meanwhile, a new high-tech, fully automated stockroom building is under construction and when complete, is expected to significantly speed up the process required for staff to draw project parts and consumables. With only a single employee operating a terminal, the system will automatically pull stock at a high speed, significantly speeding up internal logistics.

In closing, Mr Bachmann emphasised the company's adaptability: "We are flexible, willing and able to deliver customised solutions. We're not afraid of a challenge. We're specialists in working with partners and customers to develop and successfully deliver solutions that are perfect for their applications." ■

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