Riding a wave of green innovation

MHO-Co is on a mission towards a greener and more economically viable service to the offshore industry. And the future is already here. Right now, the Danish shipping company is building the world's first hybrid CTVs which are to be introduced in 2021. And they hope to take the technology even further with support from EU funds.

With eyes set on the future and a vision to create an environmentally friendly way of business MHO-Co has designed two new hybrid catamarans with modern electric motors reducing weight, space and emission for the benefit of the environment as well as fuel economy in the offshore wind industry.

'Designing and building hybrid crew transfer vessels is a huge step in the environmental direction, and I am proud that we have found partners who share our vision for sustainable development in the offshore industry. With these new vessels we offer the largest, most reliable, and sustainable CTVs in the world,' says CEO and founder of MHO-Co, Mik Henriksen.

Creating a ship that is the first in the world of its kind is a very special process. And of course, Mik Henriksen, who designed the twin vessels in cooperation with Incat Crowther, wants to follow every detail as the construction comes along. But building ships in the middle of a pandemic chances everything.

In June, MHO-Co signed a contract with AFAI Southern Shipyard in Guangzhou, China. The

largest shipyard in Asia specializing in the development, design and construction of high-performance aluminum vessels. Due to international traveling restrictions, the signing ceremony was performed online, and since then Mik Henriksen has followed the construction directly from his desk in Esbjerg, Denmark.

Every day he is in close contact with the shipyard and the local agent in Guangzhou. On a normal day they exchange more than 30 e-mails discussing the progress and technical details. And Mik Henriksen also follows the construction on site through six fixed position web cameras placed round the vessels in the shipyard, and one mobile camera to do inspections up close.

'In this way we are able to check how welds and constructions are done. It is a new way of doing supervision and it actually enables me to see more details and be closer to the construction, than I have ever been during a building process. It is exiting and works surprisingly – almost better than being present,' Mik Henriksen explains.



Mik Henriksen

In end of august, AFAI Southern Shipyard celebrated the construction of the two hybrid CTVs with a traditional keel laying ceremony. And of course, Mik Henriksen and the rest of MHO-Co joined the celebration via a video link.



Cargo on deck

Revolutionary propulsion

Expectations for the new hybrid vessels are clearly higher than ever. MHO-Co and Mik Henriksen have pulled together a series of strong business partners to make their green vision come true.

In the development and design of the two new vessels, they have partnered up with Incat Crowther, who have expert knowledge in catamarans. Combined with MHO-Co's insight and experience with CTVs, the result is two unique and state-of-the-art vessels. With a length of 35 meters, the catamarans will become some of the largest CTVs in the industry.

But size is not everything. It is the vessels' hybrid propulsion technology that makes them revolutionary in the marine industry.

MHO-Co has chosen to install Danfoss' Editron as the propulsion system on the catamarans. The permanently magnetized electric motor saves both weight and space on the CTV while consuming less fuel and giving higher efficiency.

'The electric motors will significantly reduce CO₂ emission, which is an important factor to us. In fact, with the new CTVs, it becomes possible to eliminate discharge of particles when idling. This propulsion line is a prototype from Volvo and Danfoss Editron and we cannot wait to see it all come together on our new vessels,' says Mik Henriksen.

Eager to see the hybrid CTVs in action, MHO-Co plan to introduce the two hybrid CTVs in June-July 2021, depending on transportation home from China.



MHO Gurli at work

'The pandemic gave us some concerns and challenges, but I am extremely pleased that both the development of the motor and the construction of the ships are on time so far. It is incredibly good work by all parties.'

Floating test platforms

The 35-meter CTVs are developed with hybrid propulsion packages. But even though they are some of the first hybrid vessels to be presented in the offshore industry, MHO-Co is not finished pushing for new and more sustainable solutions. The vessels are designed in a way which enables them at a later state to be adapted to future eco-friendly power generating methods such as hydrogen fuel cells or other technologies. Simply by replacing the diesel motor.

'No one knows which environmentally friendly technology will dominate the future. But rest assured that MHO-Co and our ships will be ready for it. Our two new vessels are built as floating test platforms. And since they are catamarans, we have four platforms which give us even better conditions for



MHO Gurli

testing and comparing different sustainable solutions. We want to be part of the solution,' Mik Henriksen adds.

And they want to play an active part. Which is why he has applied for EU Fonds to develop the vessels during the next three years, testing different new propulsion technologies. The dream is to retire fossil fuels completely and succeed in a CO, neutral driving force.

The ecosystem of the industry

Mik Henriksen and his crew are ambitious and insist on finding greener ways of supporting the offshore wind industry. The idea is that designing and testing new sustainable solutions not only benefits the environment and MHO-Co, it also makes a difference to the industry the shipping company relies on.

'Our idea is to be first movers and use innovative green technology. Because we like the attention? Sure! But we are also in it to be part of the ecosystem of the industry. Every day, our clients in the offshore wind industry produce environmentally friendly power, but they need solutions to store electricity. We believe that if we push on building hybrid vessels and testing new knowledge, the answer is right over the next wave.'

Pushing limits

Pushing boundaries to the limits lies in the DNA of MHO-Co. Every time they reach a goal, they immediately have eyes one a new one. Mik Henriksen wanted to design the world's largest CTV and make it both the most reliable and most fuel-efficient vessel in the industry.

In 2019, the shipping company introduced the twin vessels MHO Gurli and MHO Esbjerg. And with their length of 39 meters each they are consider the largest of their kind.

'We want to operate more days a year than anybody else. With Gurli and Esbjerg our goal was to conquer waves up to 2-meters Hs and still ensure high safety. A year into their service our crew have exceeded expectations and proved it possible without a doubt and still keeping the vessels economically viable. Next



MHO Gurli sunset

step is installing an offshore access system', declares the CEO revealing a new goal.

Right now, MHO Esbjerg is visiting Breskens in The Netherlands to have a Z-bridge BV Bring-to-Work system installed on the front deck. This fully motion compensated offshore access system will allow safe transfer of teams up to 6 persons and cargo, from the vessels deck to the offshore structure.

'Esbjerg is the first CTV to install the Z-bridge, and as always, the vessel exceeds our expectations. Fully functioning the system will give us even more days of operation, as we predict to reach higher than 2-meters Hs,' adds Mik Henriksen.

An extensive test period is planned for the Z-bridge, and if the tests are positive, the system will soon be in full use. This will eliminate climbing up and down boat landing ladders and will increase workability and improve the transfer time all in a safe manner.

And once again MHO-Co will have pushed the limits to service the offshore wind industry.



The new hybrid CTV

Facts about MHO-CO

MHO-Co is a Danish shipping company specializing in service and transport of crew in the offshore wind industry. The company was founded in Esbjerg, Denmark in 2015 by Mik Henriksen, who has many years of experience with catamarans and CTVs. The company has several offshore support vessels including the twin ships MHO Gurli and MHO Esbjerg, which with their 39 meters are the world's largest CTVs. The vessels have specially designed fenders that protect the turbines. Despite the size of the vessels, they only push on to the turbine tower with a max of 250 kilo newtons.

From day one, the ambition has been to serve the offshore industry with reliable vessels with high performance and safety, where the environment and fuel economy go hand in hand.

For further info: www.mho-co.dk

Facts about the hybrid CTVs

- Designed by Mik Henriksen, MHO-Co
- 35-meter catamaran
- 110 m² fore deck and 15m² aft deck
- Equipped with Danfoss' Editron PM-Electric motors driven by Volvo generators
- Fits 24 passengers
- Fitted with large lounge area and eight cabins
- The first year in service, they will service the Hornsea Project 2 Offshore Wind Farm for Ørsted based out of Grimsby, UK