



New vessels bring MHO-Co closer to net zero emission

In the wake of the ground-breaking innovation with the world's first hybrid power CTVs, Danish shipping company MHO-Co now sets out on the next voyage towards zero emission. With a targeted course towards a fleet with net zero emissions, an order has now been placed for two new, state of the art, hybrid vessels.



a gain, as the diesel engines are constantly running in the optimal 'green field' and are turned off for many more hours during the day. This aspect we hope to optimize even more on the next generation.'

The new vessels are expected to be delivered at the end of 2023, going into operation around February 2024. Like the first generation, the order has been placed with the AFAI Southern Shipyard in Guangzhou, China, representing a total investment a bit north of 17 million euros.

'The industry is booming, and offshore wind activities are moving further and further from land. We invest to maintain a strong momentum and secure our leading position,' adds Mik.

The new hybrid vessels now have four electrical motors. This represents a double-up on electrification compared to the proud ships MHO Asgaard and MHO Apollo of the first generation, where propulsion takes place with the help of two electrical and two diesel motors. Thus, all propulsion of the new vessels is carried along with electric motors.

The capacity of the battery pack is now three times higher than the first generation of the hybrid driveline. Even more impressive, the usable range of the batteries has now improved five times. Combined with four electrical motors in the all-new propulsion system the result is a unique stand by time of a whole 36 hours with zero emissions on site.

Not far away on the horizon awaits the next step in the development process, which is supported by EUDP-funding due to the strong innovation. 'A Ballard fuel cell system is ready for installation, awaiting only final approval from the authorities. Flexibility is a key factor in our design and thus the driveline is fully prepared for future technologies,' says Mik.

'Furthermore, we have optimized the hull lines by three to five percent. This will add to the overall reduction in fuel consumption and emissions besides an improvement in zero speed performance.'

Speaking of performance, the new vessel will benefit from the design in 'wave ability' performing stable operation in conditions exceeding two-meter significant wave height. Industrial Personnel and crew will experience a more stable and reliable vessel in high sea with even better maneuverability. This is thanks to another innovation on board, jet bow thrusters currently under development for installation in the new vessels. The components of this novelty consist of two 50 KW thrusters with DESMI pumps and Danfoss PM electric motors.

The comfortable surroundings on the upcoming vessels are a pleasant chapter in itself. Both crew and Industrial Personnel will enjoy captain class comfort in every aspect of everyday life on board. Among other

The course is set and although it is still some way off, the destination is clearly in sight: A full fleet of flexible, capable, comfortable, and least but not least, sustainable CTVs with net zero emissions.

This is the guiding star for Esbjerg-based Danish shipping company MHO-Co and background for the ordering of two upcoming vessels of completely new standards.

'It's a natural next step for us and a large move for the entire sector. Our goal is always to set new industry standards for each generation of vessels, and now we raise the bar once again,' says CEO and founder of MHO-Co, Mik Henriksen.

A strong imprint has already been left in the wake of the world's first hybrid vessel; two significant innovations launched by the shipping company in 2021. In line with the first generation, the upcoming vessels are also designed by Mik, a reputable figure with

a long and broad international experience in the industry.

The sum of skills from both him and his crews, combined with the experience gained from operating the first generation of hybrid vessels, is now being built into the two new flagships.

'We expect a CO₂ reduction of up to 30% and we consider that a realistic scenario. Our first generation performed twice as well as expected, with a 20% reduction in bunker consumption against the expected 10%. In general, we estimate conservatively, and we have experienced some bonuses in hybrid consumption we didn't see coming beforehand,' Mik Henriksen explains.

'Theoretically, the energy loss when converting from mechanical to electrical and from electrical to storage, and then back from storage to mechanical, would be around 6 to 9%. In practice though, it has turned into



things, access to the hull has been changed to reduce noise. Accommodation has been further designed and developed to ensure maximum tranquility for the crew in the completely enclosed crew quarters.

This will ensure absolutely no disturbance to the crew's rest and thus a more relaxed trip for the Industrial Personnel as well. The idea behind this design is simple and efficient: With a completely separate area for the crew, neither party needs to consider each other.

In addition, there will be an even better sea view from the salon where industrial

personnel can enjoy bright and spacious surroundings. This applies to the eight cabins as well, which all have direct access to a spacy bathroom.

According to Mik, this focus and prioritization of welfare facilities will ensure a higher level of safety and an easier recruitment of the most competent crews. 'The best technology is not enough; the human aspect is an equally important piece to achieve our future goals,' he adds.

MHO-Co stays on course towards a future free of emissions. Although it is a

complicated and challenging journey.

'We have a clear ambition to stay at the front of this fantastic and ever challenging industry,' 'Captain Mik' enthusiastically points out. 'Go green or go home, you could add, and we go nowhere but to the front. Obviously, in every part of the industry we should take our own medicine as contributors to the green transition, and the answer from MHO-Co is loud and clear: Challenge accepted!'

<https://mho-co.dk/>

Words from the crew of MHO Asgard

Jurelevicius Valdemaras, engineer

Compared with other CTVs, the MHO Asgard has a big advantage above all others with the batteries of the vessel. This means that laying in the field or in port we can go full electric. Sweet silence and saving of fuel and running hours on the generators.

Tobias Danser, master

It is my first time sailing with a IPS (integrated propulsion system) driven vessel and I must admit it sometimes makes me feel like a child again. The steering is amazing, easy and light to handle and all in one joystick.

Viktoras Soponar, chief officer

Working in this industry for 10 years, this CTV is the best yet. Better cabins, better maneuvers, more stability on the waves. I like this vessel!

Principal particulars

LENGTH OVERALL:	35.9 m
TONNAGE, GT / NT:	411 / 123
LOAD LINE LENGTH:	33.08 m
LENGTH WATERLINE:	35.00 m
BEAM MOULDED:	11.00 m
DRAFT:	1.70 m (typical)
SERVICE SPEED:	18-25 knots
MAX DEADWEIGHT:	80 t (subject to final lightship)
DAY FUEL CAPACITY:	2 x 1485 litres
CARGO FUEL:	90000 litres (6 tanks)
FRESH WATER:	2500 litres
SULLAGE:	2500 litres
CONSTRUCTION:	Aluminium
SURVEY:	DNV +1A HSLC Crew Windfarm R1 Battery Power
Personnel Capacity:	24 technicians + 6 crew
Foredeck Cargo Area:	142 m ² with 2 t/m ² load capacity