

Maritime Holland

Special
Shiprepair
&-refit

Teus Visser
Engaged and
coaching engineer

Shipbreaking
awareness

Mærsk Connector
Charlock
Mangystau



The Blue World: Changing an industry's mind set

"I want to leave a clean environment to my children. I used to travel a lot and noticed a lot of waste outside the tourist areas, we almost start to think of that as normal. When visiting the Galapagos islands, it struck me how clean the island was, no waste whatsoever, which made me even more aware of the importance of preserving the environment", explains Patrick Hut, managing director of The Blue World, his motives to focus on sustainability.

The Blue World focusses on innovative concepts and ship designs with sustainability in mind. Sustainability is more than developing energy efficient vessels, according to Hut, it means the complete process from the development to the recycling of vessels, including reducing energy consumption, adapting sustainable energy and preventing waste. Hut comes from an inland shipping family and bought his own inland container vessel in 2001: "I have always been very interested in the logistics. Inland shipping is potentially an energy efficient industry, it just needs smart solutions. The run time in ports can be viscous, hinterland connections are important and the different processes in the industry have my interest. The Blue World wants to change the common mind set in the industry. It is the small things with which we as a consumer of a company can solve environmental problems and we look for these solutions."

Bit by bit more sustainable

One of the company's projects is the refit of the inland vessel *ms Borelli*. Hut: "We built several new vessels for third parties and we thoroughly looked at energy efficiency, especially the fuel consumption. Looking at the sailing profile is of the utmost importance." The 110 metre long and 11.45 metre wide *Borelli* with a maximum capacity of 3,228 ton (equivalent to 208 TEU) is one of these vessels, built in 2009. "Bit by bit, we try to make her more sustainable, reducing her CO₂ footprint", explains Hut. "We installed solar cells on the wheelhouse roof top and a battery pack to store electrical energy generated during sailing and to be used when moored, reducing the emissions during mooring to zero. A generator with a PM magnet crank replaced one of the two diesel generators and she has sensor-controlled LED lighting."

Artist impression of ms Borelli





The Blue World has been developing TwenteMax, the cargo vessel of the future specifically designed for the route between the Port of Rotterdam and the Port of Twente, together with CTT

Next up is the refit to become a hybrid vessel, realising at least an 18 per cent reduction of CO₂ emissions. "Borelli is equipped with a propulsion engine of 1,250 kW, fine for her former sailing area; nowadays however, she sails the route between the Port of Rotterdam and the Port of Twente in the eastern part of the Netherlands for Combi Terminal Twente, CTT. We work together with CTT, as we want to be more than only the transporter, together you can achieve more. We closely looked at the sailing profile, the different currents we encounter during the trip and the cargo and found that the vessel uses between 250 and 400 kW; therefore the current engine is too big to be efficient."

Refit

In April, the current engine will be replaced by one permanent magnet electric engine powered by two generators consisting of two Volvo Penta D13 engines that will both get an Emigreen after treatment system to obtain the emission standard Euro 5/6. The E-engine is built by Visedo and supplied by eL-Tec Elektrotechnologie, who will also be responsible for the electrical installation. EL-Tec will also supply the switchboards, controllers and other electrical components. The Blue World will use a DC-DC parallel hybrid system, instead of the AC system commonly used, and to get the right configuration cost about three years, according to Hut. On the aft ship an electric propulsion engine will be placed in the existing powertrain at the backend of the gearbox and the power demand and offer can be balanced using the battery pack (peak-shaving).

AS PARTNERS,
YOU
ACHIEVE MORE

Koedood Dieselservice will be responsible for the delivery and installation of the new propulsion system, the refit is done at their premises. The Province of Overijssel chose the refit of Borelli as one of the showcases to green the inland shipping industry and the project is executed in cooperation with the Inland Shipping Centre for Expertise and Innovation. "After the refit, we will do extensive testing and the data gathered will be useful for our own future steps, but also for the inland shipping and logistics industry, as we intend to share our findings", promises Hut.

Cargo vessel of the future

The Blue World intends to use the lessons learned in their other project to make the world more sustainable: the development of TwenteMax, part of The Blue World's Blue Line, specifically designed for the route between the Port of Rotterdam and the Port of Twente. Hut: "This vessel, which we have been developing together with our partner CTT, will have a higher level of hybridisation and an even lower fuel consumption, it should become the cargo vessel of the future. Borelli is doing well, but her sailing profile is still based on a wide sailing area. If you develop a vessel specifically for a sailing area, namely the route Rotterdam - Hengelo, you can be even more efficient. Also composing the vessel in a different way helps. TwenteMax will transport containers

and we have to take several restrictions into consideration: the height of the bridges, the currents, the draft and the locks. Therefore we have decided to make use of ballasting, which

means we can change the height of the vessel with 80 to 90 centimetres, as we want to be able to transport three layers of containers. To achieve this, the vessel has been made lighter as well, which we were able to do by using a different sort of steel. As in inland shipping it is not a man-wife business anymore, but often a crew of four to five who work together on the vessel, we have decided to save space and weight by creating an accommodation of 100 square metres and we have looked closely at the functionality. Making the accommodation a little bit smaller, it is possible to load 15 containers in one row instead of the usual 13, which means an increase of 14 per cent." The vessel will be built in the Netherlands, as The Blue World wants to stimulate the Dutch economy, and when all goes according to plan, TwenteMax will be operational by the end of 2016 or early 2017.

KNOWLEDGE SHARING, COOPERATION AND INNOVATION

In conjunction with the Climate Change Conference in Paris last December, the refit of Borelli was named as one of the transport initiatives on the forefront of global action on climate change of the platform Paris

Process on Mobility and Climate (PPMC). "Since the fact sheet about our project was published on the PPMC website, we have noticed that other parties are interested as well", Hut says proudly. "This climate top was different than the ones before I think, it created more awareness. Therefore we want to develop a complete line, supported by further development and improvement achieved by collecting data. We really want to make a difference. We have the earth on loan and pass it on to the next generation. It is strange that we let the next generation pay our bill although we know that we have the technology to make the world more sustainable."

Gail van den Hanenberg

The refit of Borelli was named as one of the transport initiatives on the forefront of global action on climate change of the platform Paris Process on Mobility and Climate.

