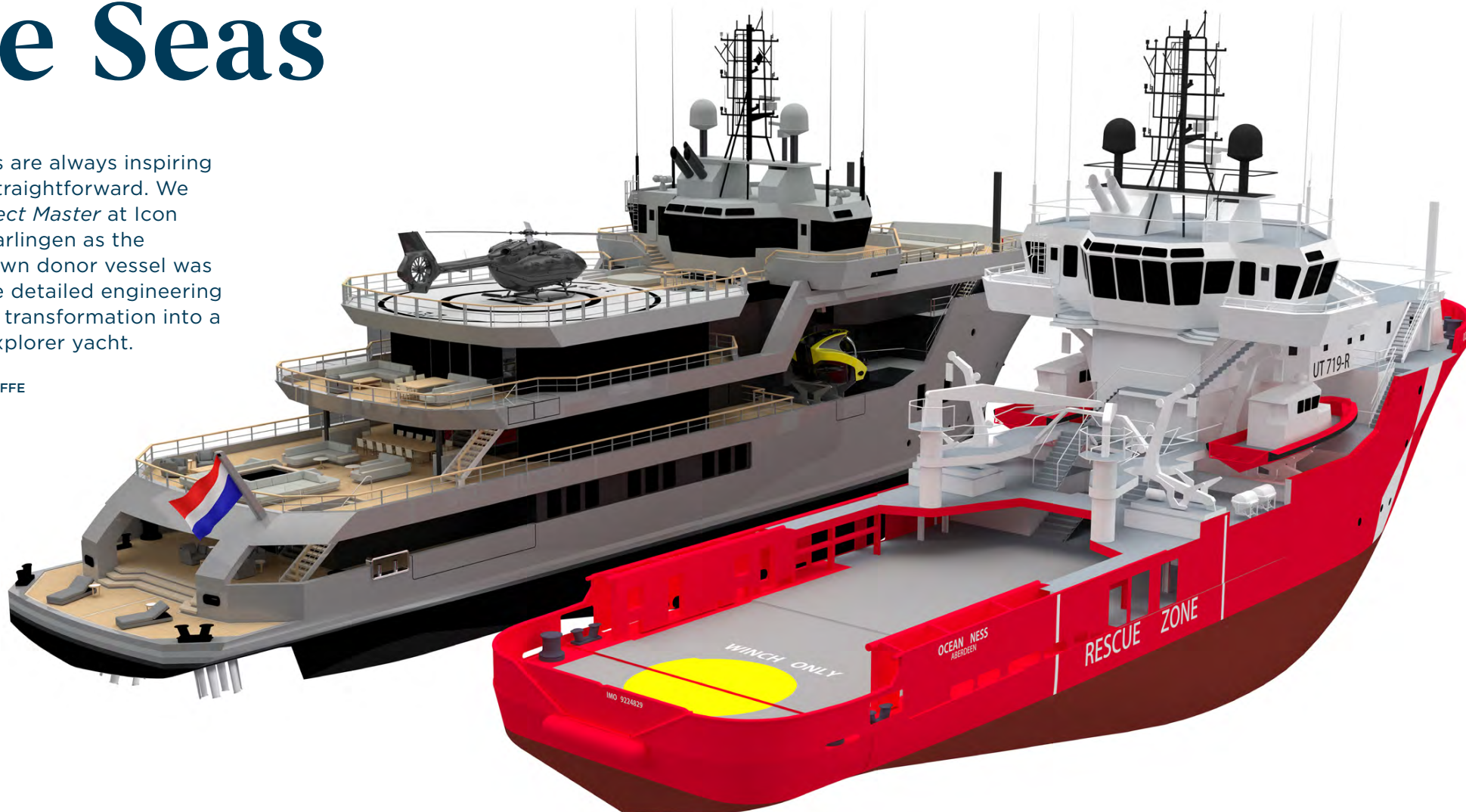


Master of the Seas

Conversions are always inspiring but rarely straightforward. We visited *Project Master* at Icon Yachts in Harlingen as the stripped-down donor vessel was entering the detailed engineering phase of its transformation into a 70-metre explorer yacht.

BY JUSTIN R. TCLIFFE



“It’s vital to select the right donor vessel for the needs of the client,” says Sikke Jan Wynia, Chief Operating Officer at Icon Yachts. “Does he want an old platform where you remove more, or a newer one that you can upgrade? We basically filter the knowledge we have of the market against the client’s set of the requirements and then advise based on a detailed feasibility study. It can be a selection process over multiple vessels and many discussions before a decision is reached.”

In the case of *Project Master* the shipyard opted for *Ocean Ness*, a 66-metre offshore rescue and supply vessel built in 2001 by Kleven Werft (the same yard that delivered the explorer yachts 107-metre *ndromeda* and 116-metre *Ulysses*) as *Havila Tigris* for Havila Shipping in Norway. Tough and seaworthy, offshore supply vessels (OSVs) make ideal candidates for conversion into explorer yachts as they are usually between 40 and 80 metres in length and generally available for a fraction of their original build value. Some OSVs are ice-classed, as in the case of *Sanaborg* that was converted into the 68-metre explorer yacht *Ragnar* and relaunched by Icon in 2020. *Ocean Ness*, however, was built to operate in the North Sea between Norway and the UK, which is inhospitable but not ice-strewn.

Only after the donor platform had been identified and a preliminary general arrangement developed in-house was Espen Oeino contracted to create a new exterior profile for his first conversion project and what Icon calls a ‘luxury expedition vessel’. The shipyard prefers not to bring in designers earlier as they are sometimes tempted to redesign more than is strictly necessary, which can prove both wasteful in terms of time and cost.

“The magic moment is always when the owner sees the donor vessel for the first time,” says Marek Hasenkopf from Icon’s Project Development team. “It’s always a very special moment because it’s the first opportunity to get an idea of the scale of the vessel. That’s when the project really comes to life and becomes tangible with the client’s enthusiasm clear to see.”



ICON YACHTS



GUY FLEURY

Right: render of what *Project Master* will look like when her conversion is complete.

Below: The stern has been cut off and will be rebuilt to make way for a beach club, swim platform and new Voith L-drives.

THE VY MET L

At the time of our visit, *Project Master* had been stripped down to bare metal and received a coat of protective primer. During the feasibility study it was discovered that the original green paintwork of *Havila Tigris* before she was repainted red contained hexavalent chromium or chromium 6, which was once added to coatings for corrosion protection but poses health risks when removed by abrasive blasting. Icon solved the issue by removing the old paint with robotic waterjets. A square patch of the hull in the bow has been finished with light grey top coat to have an idea of what the final colour will look like, although it has not yet been decided whether the yacht will have a commercial finish or be partially faired.

“The vessel spent many years in the North Sea and had clearly taken a few beatings,” says Sikke Jan Wynia. “We’ve fixed some of the bigger dents, but there’s no point in adding tons of filler to an explorer yacht like this just

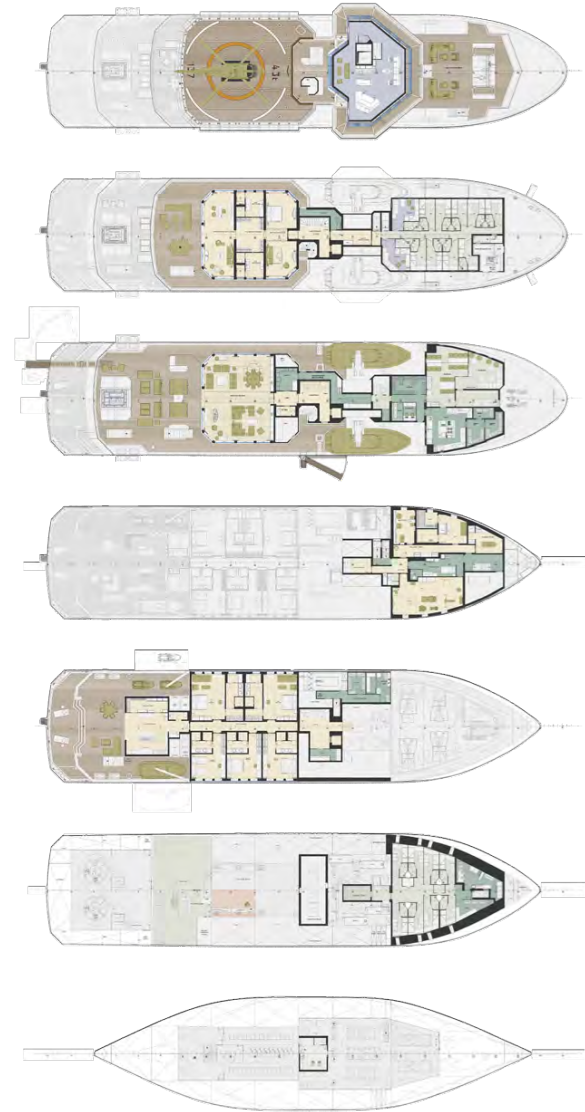
to make it look nice. Practically is key and the decking will be synthetic, for example.”

The crew, service and technical spaces were all originally in the forward half of the vessel where the rather complex split-level layout and original bulkheads remain largely intact, but the functionality is being thoroughly repurposed. For example, as a rescue vessel *Ocean Ness* was able to accommodate up to 200 survivors in a space below the foredeck, which was used for helicopter winching operations. This area has been completely stripped out and will be turned into a wellness deck with gym, massage room, sauna and steam room, along with a medical treatment room.

The open main aft deck, on the other hand, is due to be completely transformed by adding a new steel superstructure comprising five large guest suites on main deck and an owner’s deck with a 135-square-metre master stateroom and fully certified helideck for a twin-engine helicopter on top. Further, an eight-metre section of the hull is being rebuilt by nearby Talsma Shipyards to include a four-metre swim platform. Besides increasing the overall length to 70 metres, these various additions will raise the interior volume from 1950GT to around 2800GT. To ensure stability would not be an issue, the yard carried out an inclining test to determine the lightship weight and centre of gravity of the donor vessel as a final part of the feasibility study. Freshwater ballast can be added to the double bottom sections (as opposed to dischargeable seawater ballast and all the extra management rules that entails) in case additions to the envisaged design become desirable later. »



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FUTURE-PROOFED PROPULSION

Initially the idea was to also keep the original main engines, shafts and thrusters, but it soon became clear that a more fuel efficient and eco-friendly package would future-proof the vessel. *Ocean Ness* was powered by two enormous, air-started, nine-cylinder Bergen diesel engines producing over 5,000 horsepower each for powering through the roughest seas. These were connected via 26-metre long drive shafts – sources of considerable noise and vibration – to Kongsberg azimuthing pods. An explorer yacht requires only a fraction of that kind of installed power and, apart from anything else, very few yacht crews today are trained to operate such engines.

“The vessel was due for her fourth special survey and we started thinking it was smarter to do something completely different,” says Rob Pijper, says Rob Pijper, operational director with JMS Yachting and owner’s rep on *Project Master*. “The biggest challenge with these conversions is that you’re changing the ship type and that means you have to comply with current statutory rules. Instead of running inefficiently on those massive engines from anchorage to anchorage, why not have an IMO Tier-III compliant, hybrid diesel-electric system with battery banks for quiet, zero-emission manoeuvres so you can always run the generators at peak efficiency?”

At the same time as Pijper and the Icon team were making their deliberations, Voith Schneider came out with an all-electric version of its established L-Drive thruster (see sidebar). The great thing about the Voith propellers is that they offer excellent manoeuvrability as well as integrated hull stabilisation. This meant conventional fins were not needed and, ultimately, less maintenance is required because the two functions are combined in a single system (the new stern section has been reconfigured to account for the new thrusters).

Project Master’s diesel-electric system will comprise five gensets of 500kW each for a top speed of 14 knots and can draw on hybrid energy from up to 2MW of Li-ion battery banks. The batteries are housed low down on the tank deck in what was previously the pump room and a dispersion tank containing emulsifiers for dispersing oil spills.

“My advice to the client is that the yacht should be future-proofed for the next 20

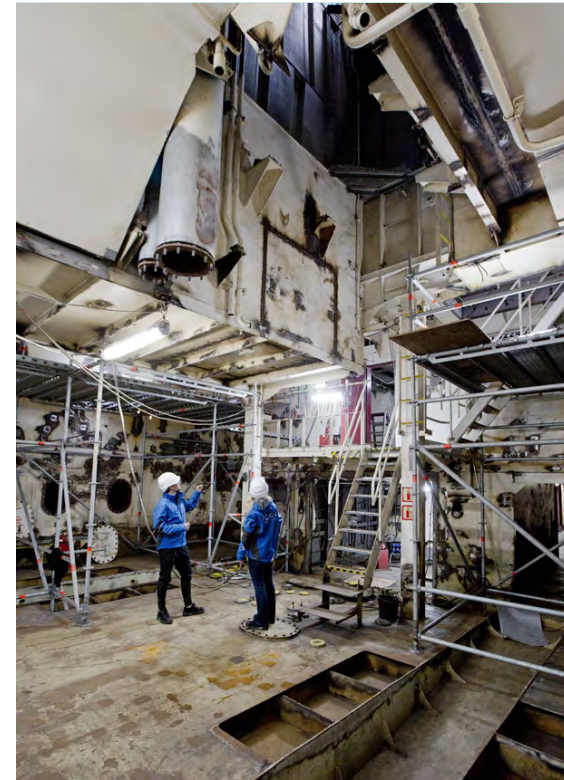
PROJECT MASTER SHORT SPECS

LOA	69.60m
BOA	18.20m
BWL	15.00m
Max draft	5m
Material	Steel
Propulsion	Diesel-electric 5 x 500kW + 2 x 1,100kW eVSP pods
Battery	2 x 1000 kW hour
Top speed	14 knots
Cruising speed	10 knots
Economic speed	9 knots
Range	>7200 nm
Gross tonnage	2,800GT
Exterior design	Espen Øino International
Interior design	Giorgio Marascalchi
Naval architecture	Conoship International B.V.
Owner’s rep	Rob Pijper - JMS Yachting
Shipyard	Icon Yachts

years,” says Pijper. “So I’d like her to be able to drive into Monaco on batteries, recharge overnight, and sail out again under batteries the next day. That’s my yardstick. There are ongoing discussions about making her future fuel-ready as we have such big tanks.”

Ocean Ness was designed to refuel platforms and other vessels and could carry a massive 800 cubic metres of fuel. That capacity has been reduced to around 600 cubic metres by repurposing some of the tanks, but the finished yacht will still have a huge range in excess of 20,000 nautical miles. The working vessel also had two bow thrusters, a retractable unit and a controllable pitch tunnel thruster, required for Dynamic Positioning redundancy in all sea conditions. Both have been removed with a view to reconditioning and the tunnel thruster will be replaced with a quieter, fixed-pitch electric model. »

above, right: The cavernous engine room has been stripped of all the old machinery to make way for a new diesel-electric propulsion system.



JUSTIN R. TCLIFFE

“The biggest challenge with these conversions is that you’re changing the ship type, and that means you have to comply with current statutory rules.”



VOITH SCHNEIDER

At the working end of *Project Master*’s diesel-electric propulsion are two electric Voith Schneider Propellers (eVSPs). The cycloidal propellers combine propulsion and steering in a single unit and, like many seemingly new solutions, were originally developed 90 years ago by Austrian engineer Ernst Schneider for a hydro-electric turbine. The first eVSP units with an integrated electric motor were delivered in 2021 and *Project Master* is the first time they have been used on a superyacht.

The propulsion units consist of a circular metal disc 2.10 metres in diameter, which is fitted with six movable and controllable 1.75-metre long blades installed at 90 degree angles to the disc’s perimeter. Each blade can rotate around its vertical axis and change the angle of attack in sync with the rotation of the plate, so that each blade can provide thrust in any direction. The magnitude of thrust is determined by the rotational speed of the disc, while the blade angle determines the direction of thrust. Both under Dynamic Positioning and when travelling at full speed, they can also counteract up to 90 percent of the rolling motion of a ship. Delivering high torque, fast response and precise manoeuvring without any gears even in adverse conditions, the 1100 kW electric PM motors ensure a more direct and almost loss-free conversion of the electrical drive power into thrust and

keep noise emissions to a minimum. Due to the

low maintenance

requirements,

operational costs are appreciably reduced.

Voith has also developed the rcVSP, which stands for ‘remote-controlled Voith Schneider Propeller’, a technology enabling ship assistance and manoeuvres to be carried out remotely.

REUSE, RECONDITION OR RECYCLE

From the start of *Project Master*, every effort has been made reuse, recondition or recycle as much of the original equipment aboard the donor vessel as possible.

The anchor windlass, bollards and cleats will remain, for example, and although the Bergen engines were removed they have already been serviced and sold to a shipping firm in Hamburg.

The original 12-metre 'daughter' boats, the fast support boats carried aboard rescue and supply vessels, are being refitted as yacht tenders by Jachthaven Bouwmeester in Amsterdam. Stowed on both sides of the upper deck amidships and designed to align with *Project Master's* interior design concept, one will be enclosed and the other open. New engines and control systems have been ordered, while their old engines are being reconditioned with a view to resale. At the time of writing, one of the hulls had been sandblasted and coated.

The MacGregor davits for launching and retrieving the daughter boats will also be reused, although their engineering will be simplified. Designed for long-term operation in severe conditions of up to sea-state 6 and SOLAS approved, the MacGregor davits are self-contained units with incorporated emergency back-up power systems for guaranteed operation even during deadship conditions.

"We believe that this commitment to sustainability ensures that the conversion of *Project Master* not only enhances its functionality but also contributes to a more responsible yachting industry," says Icon COO Sikke Jan Wynia.



GUY FLEURY



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JUSTIN R. TCLIFFE



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Left: *Project Master* viewed from under her bow in the dry dock. The square patch on the starboard side is a trial show coat.
Facing page, from top: The walk-around wheelhouse; the future wellness deck; the old fresh water tanks will become a storage area and science lab.

ROOM WITH VIEW

The walk-around wheelhouse with enclosed wing stations and views aft as well as forward is typical of OSVs. Only 88-metre *Olivia O* built by Ulstein Verft and 59-metre *Kula* recently launched by Rossinavi and reviewed in this issue of *How to Build It*, have anything like it. Designed for cold and stormy conditions, all the bridge windows will be replaced with modern glazing to provide solar protection in hot climates as well. Under the bridge is a technical space for walk-in maintenance access to the fully integrated electronics. An exterior gangway will be widened slightly to make movement for crew on watch more comfortable given the outward leaning windows.

Converting an existing and aging vessel necessarily requires a lot of reverse engineering, but this is all in a day's work for Icon Yachts. Placed somewhere between a commercial shipyard and superyacht builder, they have solid experience of pinpointing owners' requirements and matching donor vessels to their needs. Following on from *Legend* and *Ragnar*, *Project Master* is their most ambitious adventure to date. It also promises to be the most spectacular. ●