



SUPERYACHT
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Ghost Yachts present the G180 Hybrid superyacht

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Nearly a year after the presentation of Ghost Yachts' Ghost G180, the team of Ghost Yachts and the Italian design studio Gloss Design joined forces with Imtech Marine & Offshore on the development of the Ghost G180H, the first full hybrid superyacht. The G180H is the company's next step towards more sustainable, innovative and efficient superyachts.



A solid foundation

Ghost Yachts used its Ghost G180 platform for the hybrid yacht. Its Fast Displacement Hull Form (FDHF) by Van Oossanen & Associates offers the required efficiency to operate a large yacht with a relatively modest propulsion power. Imtech's smart Hybrid system combined with Van Oossanen's revolutionary FDHF have proven to be a perfect combination for a sustainable and efficient yacht.

During the development of the system, Imtech managed to unravel the initial complexity of the Hybrid system and shaped it into a compact and sensible unit. Ghost Yachts reduced the required technical space by dividing the Hybrid's technical space in two levels. The silent parts of the hybrid system like the Power Electronics Panels, batteries, and main switchboard are located on the lower deck while the four Volvo Penta D16G generators are located in an insulated engine bay underneath the electronics room.

The Ghost G180H is propelled by two completely new electric Voith Inline Propulsors (VIP) of 750kw each. These high efficiency hubless steerable pods have an integrated electric motor and eliminate the need for propeller shafts and rudders. The Voith VIP's and Imtech's Hybrid system result in an extremely silent and vibration free propulsion system. The Hybrid system operates in seven different modes ranging from battery only to full hybrid operation. Each mode is specifically designed to ensure an optimal efficiency in every situation. The system is controlled by Imtech's new IMAS variable frequency drives control system, with interfacing and remote control via the FT NavVision IPMS system.



Smart interior

The G180H has been thoroughly reviewed to learn about the power consumption in navigation and at anchor. The prime consumers have been reviewed to see how much power could potentially be saved. To reduce the power requirement for the chillers and fancoils the G180H's windows are coated with a ceramic film that blocks out up to 80% of the sun's heat producing infrared light.

The HVAC system is assisted by a cold water storage to extend the operational time of the system during battery only operation. The interior of the yacht is also designed to require less energy from the HVAC system. The main salon and dining room, for example, are equipped with four generous lateral sliding doors which provide access for a natural breeze that flows through the superstructure.

The layout will create a more natural and balanced climate inside this large space by virtually connecting it to the outside areas. Van Berge Henegouwen reworked the AV and communications systems to optimise power consumption. A thorough review of the systems' components and the extensive use of LED lighting guaranteed a lower energy consumption.



Remarkable results

Ghost Yachts has compared the G180H to a number of modern displacement yachts with a comparable length and volume. The overall fuel consumption was reduced by a vast 30% while the fuel consumption for hotel operation showed savings of up to 50%. The performance of the yacht is perfectly in line with today's superyachts offering a cruising speed of 15.5 knots with a range of over 4500nm at a 13 knots passage speed.

"Developing the G180H was very rewarding." Björn Moonen of Ghost Yachts explains. "In the beginning I approached the project with suspicion rather than enthusiasm. I was convinced that a hybrid system would be too complicated, too big and too expensive to build." he continues. "The Imtech engineers were clearly not sharing my opinion. They developed the hybrid system's layout with my concerns as starting point. When I saw the first technical layout and reviewed the space requirements, the enthusiasm started to grow, especially when we reviewed the overall efficiency data. It was impossible not to be excited by the enormous potential of the system."

"All pieces of the Hybrid puzzle came together on the G180H" Imtech's Sales Manager Marien van der Deijl explains. "Diesel Electric propulsion systems often require a lot of concessions in terms of performance and interior space on a yacht of this size. This time we were dealing with a combination of an optimal hull shape and a pair of Voith Rimdrives that matched perfectly with the available power of the DE hybrid system".



On the horizon

Parallel to the development of the G180H, Ghost Yachts also finalised the technical development of their most popular yachts, the G180L and the <500GT G180V. These models also shared from the benefits of the hybrid's development, confirming the need for efficiency to create speed. The G180V offers a 32knots cruising speed and a 36knots top speed. An updated centre boost unit gives the G180V a top speed of nearly 50 knots. The efficiency of the yacht is probably best displayed with a range of 4750nm at a passage speed of 15 knots. Ghost Yachts continues with the development of the Ghost G180K, their first sailing yacht which is expected to be presented next spring.

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General description

Four deck, Diesel Electric Hybrid motor yacht with Fast Displacement Hull Form designed for worldwide service.

Classification: Lloyds Register + 100A1 SSC Mono G6 Yacht(P) + LMC UMS

Regulations: MCA LY2

Flag: Cayman Islands

Hull material: High tensile steel

Superstructure: Aluminium

Mast and hardtop: Composites

Naval Architecture

Van Oossanen & Associates

Design

Gloss Design

Main dimensions

Length over all: 55,00 m / 180ft

Breadth: 9,20 m / 30ft

Draught (fully loaded): 3,00 m / 9,84ft

Displacement: app. 755 tons

Gross tonnage: app. 670GT

Fuel tank capacity: 74.000 l / 19.500 gal

Fresh water: 18.000 l / 4750 gal

Cruising speed: app. 15.5 knots

Range: app. 4.500 nm @ 13 knots

Power Generation

Generators: 4x Volvo Penta D16 MG

450kW @ 1.500 rpm / 500kW @ 1.800 rpm each

Power storage: Valance U27-12XP batteries

Propulsion

Propulsion: 2x Voith Turbo Inline Propulsors of 750kW each

Bowthruster: Voith Turbo retractable Inline thruster of 200KW

Interior layout

Guest accommodations - 12

Crew accommodations - 12+Captain