

CASE STUDY: MINIMISE EMISSIONS WITH THE LATEST TECHNOLOGY



Foto: Francisco Martinez

PROJECT:
Hybrid superyacht "Artefact"

LOCATION:
Nobiskrug Shipyard
Rendsburg, Germany

COMPLETION:
2020

APPLICATION:
Potable water
Waste water
Technical water

PRODUCTS:
aquatherm green pipe
aquatherm blue pipe

HYBRID SUPERYACHT "ARTEFACT" RELIES ON SOLAR MODULES, INNOVATIVE PROPULSION SYSTEM AND CORROSION-FREE PIPING SYSTEMS

That the "Artefact" is something special is already suggested by her name: The 80-metre hybrid superyacht, built by Nobiskrug shipyard in Rendsburg, which specialises in the construction of customised luxury yachts, aims to be an object of cultural and historical interest created by human hands – an artefact. The aim of the planning and construction was to realise an unprecedented yachting experience with the highest guest comfort while minimising the impact on fragile ecosystems. This has been achieved: "Artefact," with its leading eco-friendly features, is one of the first yachts built under the new IMO Tier III regulations to minimise emissions and environmental impact.

With a gross tonnage of 2999, the "Artefact" is currently the highest volume superyacht in the world. As an engineer and savvy entrepreneur, the owner had the ambition to minimise emissions and the impact on the environment. Therefore, the challenge was to push the limits of engineering by using the latest technologies to promote cleaner seas and significantly improved fuel efficiency. Among other things, solar panels as well as a battery storage system mean that the yacht can operate without combustion engines for a limited time. An innovative propulsion system - consisting of a DC bus, batteries and a diesel-electric ABB Azipod drive - combined with an advanced dynamic positioning system, allows the yacht to hold position without dropping anchor.

THE CHALLENGE

Highest quality in all areas - this should also apply to the piping systems used on the hybrid superyacht "Artefact" for drinking water, waste water and technical water.

THE SOLUTION

Products from aquatherm are not only corrosion-resistant, but were also ideal in the context of the new construction of the "Artefact" for, among other things, their insulating effect and secure connection technology.



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This protects the sensitive seabed. Customised six-blade propellers minimise noise and vibration while maximising performance and efficiency, and an advanced wastewater recycling system serves to reuse the water in the technical area.

In order not to have to compromise on quality in the piping systems of the "Artefact," Nobiskrug Werft also used products from aquatherm. aquatherm green pipe was used for the drinking water piping. The odourless and tasteless piping system, which is made of the plastic polypropylene, is particularly suitable for drinking water applications due to its ecological properties, as it is completely free of heavy metals and toxic chemicals.

Another advantage is its corrosion resistance, which is of utmost importance especially in maritime applications with their salty environment. Compared to metal systems, aquatherm green pipe considerably extends the service life of the drinking water system.

In addition, aquatherm green pipe was used in the technical water system of the "Artefact." Due to its very good thermal insulation properties, it requires significantly less insulation against heat/cold loss or condensate formation when the temperature falls below the dew point compared to metal pipes – a very big advantage when piping for technical purposes in shipbuilding (e.g., in the context of turbine washing.)

MAXIMUM SAFETY AND SERVICE LIFE

Another corrosion-free aquatherm product was used for the piping of the yacht's modern wastewater recycling system: aquatherm blue pipe. Thanks to its physical properties, aquatherm blue pipe is ideally suited for various industrial applications. Just like aquatherm green pipe, it features safe connection technology: aquatherm pipes and fittings are physically joined into one piece by heating the material. This prevents any kind of chemical or physical weak point at the

connection, so that a maximum of safety and durability is achieved. In addition, the connection times are very short, for example only eight seconds for pipe with an outer diameter of 20 mm. After fusion, aquatherm connections can be put into operation immediately, so there are no waiting times.

"In my opinion, the advantages of aquatherm products are the corrosion resistance, the insulating effect and of course the price compared to metallic materials,"

explains Reik Brinker, Master Craftsman Pipefitting at Nobiskrug Werft.



aquatherm green pipe and aquatherm blue pipe



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