Construction RV *Adriaen Coenen*

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The RV *Adriaen Coenen* is a new shipbuilding project for the Dutch national research fleet. The fleet is owned and operated by the National Marine Facilities (NMF), a department of the Royal Netherlands Institute for Sea Research (NIOZ). The NMF fleet consists of three vessels capable of conducting research from the shallow coastal waters out into the open ocean.

The RV *Adriaen Coenen* is intended to replace the Wadden Sea research vessel RV *Stern*, and with its shallow draught of 1 meter it is specifically designed for day trips for research in the Wadden Sea or the Zealand delta.

With a permanent crew of one, the RV *Adriaen Coenen* will offer state-of-the-art daytime facilities for a maximum of 12 passengers, and is equipped with rudimentary dry and wet lab facilities. The deck will also facilitate all of the research activities that an A- and a J-frame can offer.

The RV *Adriaen Coenen* is being built by Next Generation Shipyards in Lauwersoog, and will be delivered in mid-2022.

Superstructure

With just a few months to go until delivery, the finished hull of the RV *Adriaen Coenen* is beginning to take shape. Several pipelines were installed last month, cable ducts and cables have been fitted in position, and most of the insulation is complete.

7 km cables

The total length of cabling aboard the vessel is approx. 7 km. That might seem like a lot for such a relatively small ship like the RV *Adriaen Coenen*. There are two reasons behind the total cable length of 7 km:

A tangle of cables in every size running everywhere throughout the RV Adriaen Coenen.

First, the RV *Adriaen Coenen* is operated by a crew of one - the skipper. That means the engine room and all equipment must be 'manned' electronically, and therefore fitted with alarm systems. The skipper can also control and monitor the propulsion and a variety of installations and equipment from the wheelhouse. So the vessel needs a lot of cables to operate and monitor systems and report malfunctions from the helm.

Secondly, the technology on board the RV *Adriaen Coenen* is state-of-the-art, including the hydrojet propulsion system, the energy management system and the scientific equipment. That all requires a wide variety of cables running through every compartment.

Insulation

Plastic sheet insulation waiting for installation in the engine room (left), and future skipper Wimjan Boon inspecting the aluminium film insulation in the forecastle (right).

One of the guiding principles in the design was energy efficiency, and that starts with good insulation. So the hull is fitted with insulation wherever possible.

The insulation in the engine room is made from durable plastic sheeting. The other compartments use aluminium film insulation behind the bulkheads to retain as much warmth as possible.

The fitting of insulation in the hull is almost complete now.

In the compartments above deck, such as the wheelhouse, passenger cabin and dry lab, noise insulation was also a high priority.

Noise insulation mainly involves dampening vibrations from the engines and hydrojets being transmitted through the aluminium hull to the rest of the vessel.

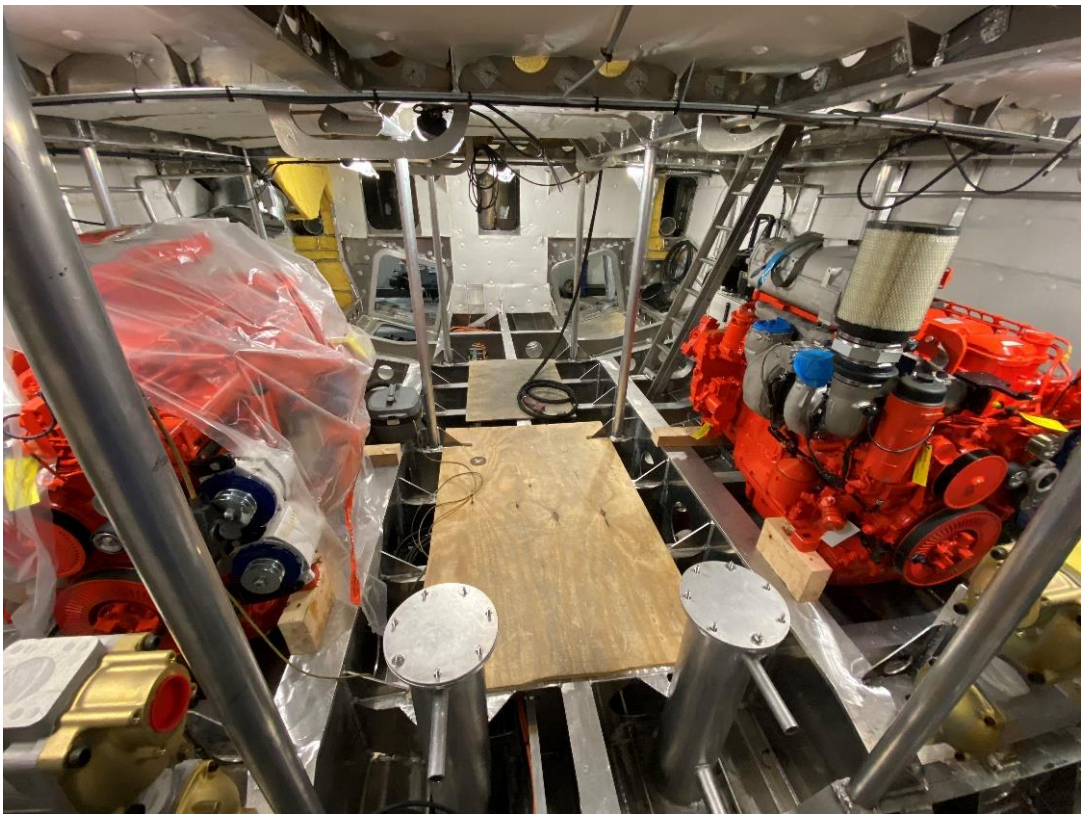
Bulkheads showing noise-insulating panels in the wheelhouse, which will be covered with a layer of thermal insulation as well.

Noise insulation is achieved by fitting small aluminium panels to the aluminium structure under the thermal insulation layer. The panels vibrate independently and interact with each other to interfere with the vibrations in the hull plating, which in turn reduces the noise level.

The wheelhouse is also equipped with a 'floating deck' to provide extra insulation against vibration and noise.

Propulsion

The RV *Adriaen Coenen* is equipped with two hydrojets for propulsion. Hydrojets are actually large pumps that take in sea water and then spray it out at high velocity to move the vessel. That means the RV *Adriaen Coenen* doesn't have propellers. The hydrojets can rotate in any direction, so the vessel is extremely manoeuvrable and doesn't need a conventional rudder.



Engine room with two red Scania diesel engines for hydrojet propulsion.

Each of the hydrojets is powered by its own Scania diesel engine with a carbon composite drive shaft. These engines' low emissions and fuel consumption make them the cleanest marine diesels available on the market today, and can run on both biodiesel and synthetic fuel (HVO). The Scania diesels have been delivered and workers have begun installing them in the vessel. The hydrojets will be delivered within the next few months by the manufacturer in New Zealand.

For more information, please visit: www.NewResearchFleet.nl.