

Construction RV *Wim Wolff*



Progress report #20: September 2022

The RV *Wim Wolff* 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.

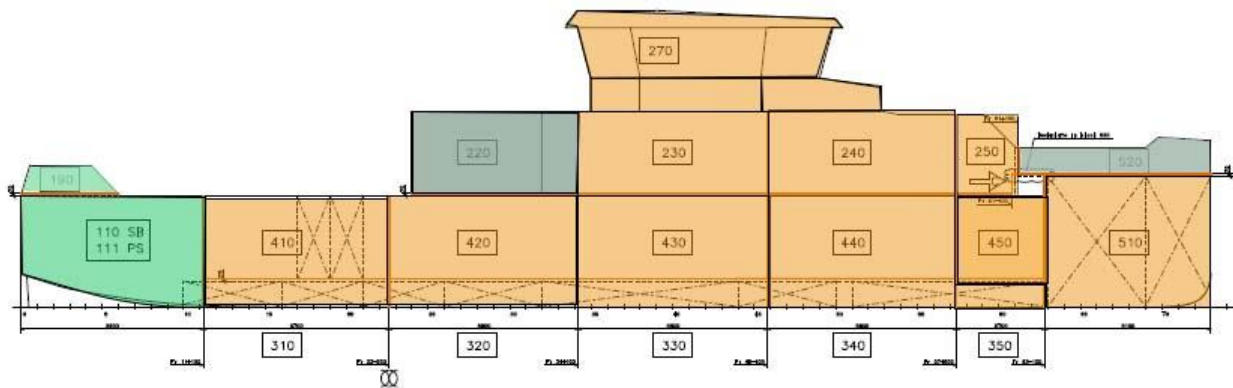
The RV *Wim Wolff* is intended to replace the Wadden Sea research vessel RV *Navicula*, and with its shallow draught of 1 meter it is specifically designed for overnight voyages for research in the Wadden Sea, the Zeeland delta or the coastal zone.

With a permanent crew of four, the RV *Wim Wolff* will offer state-of-the-art facilities for a maximum of 12 passengers, and is equipped with onboard dry and wet lab facilities. The vessel also has room for two customised lab containers on the working deck.

The RV *Wim Wolff* will be built by Thecla Bodewes Shipyards (TBSY) in Harlingen, and is scheduled for delivery in the 2nd quarter of 2023.

Hull construction

The hull of the RV *Wim Wolff* is composed of several sections, which are being built at different locations by three Frisian shipbuilders. The individual sections will then be joined together by N. Dijkstra in Harlingen.



State of affairs in late September. The RV Wim Wolff's hull sections, with the fully assembled sections shown in orange, the separate completed sections shown in dark green and the sections still under construction in light green. ©FH

With the exception of the aft and fore sections (110/111/190 and 520), all of the hull sections have been joined together and the hull fills the entire production facility at N. Dijkstra in Harlingen.

The joining of sections 110/111 is a high-precision task: the stern tubes for the propulsion must be aligned and installed with very small tolerances.

The hull is scheduled to be transported to TBSY in Harlingen for de further construction in November 2022.

Finishing work

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The finishing work on the hull is a complex and complicated process. The vessel's desired functionality is described in the design brief, and will be achieved by connecting a wide range of components together, varying from engines and deck cranes to seating, galley appliances and plumbing.

Some components can be purchased off-the shelf, such as the propulsion engines and the generators. Other components must be designed and built especially for the RV *Wim Wolff*, such as the A-frame, the J-frame and the deck cranes.

It can be quite a puzzle to find the optimal location for every component. The RV *Wim Wolff* also has a maximum draught of 1 meter, so the builders must keep a sharp eye on the total displacement.

The finishing work can be divided into the following two categories:

- [1] installation of the components;
- [2] connecting and integrating the components into a functioning system.

The components

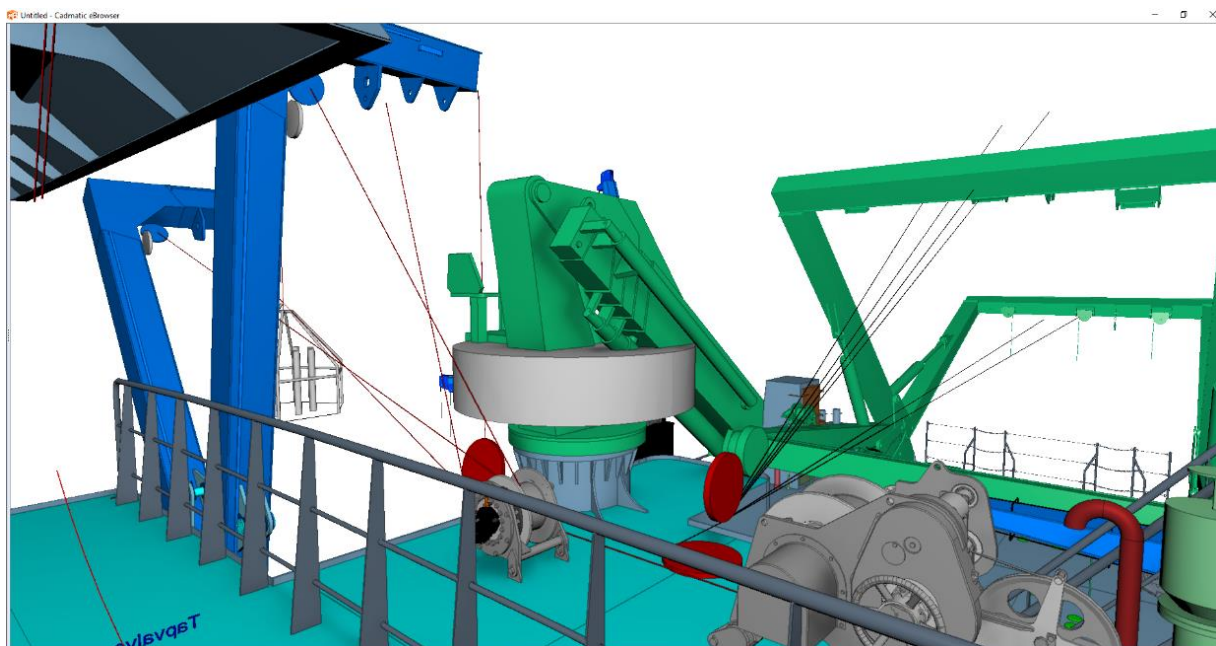
The components often have long lead times between ordering and delivery. The first off-the-shelf components have already been delivered. The Scania main engines and generators have arrived at the dealer, and have even completed their required Factory Acceptance Test (FAT) endurance tests.

The FAT for both the generators and auxiliary generators were conducted at Sandfirden in den Oever, with representatives present from Bureau Veritas (on behalf of the classification society), the shipyard and NIOZ.



Scania generators on the test stand

Other components are being developed specifically for the RV *Wim Wolff*. The A-frame, J-frame and deck cranes must be able to handle a wide range of equipment flexibly, and the many steel cables must be able to move freely under all circumstances and angles. The design and engineering must ensure that the maximum permitted load on the structures, windlasses and blocks is not exceeded when performing all of the tasks specified in the design brief. This puzzle will eventually result in a unique functional design.



Animation of the windlasses in various work positions, to check whether the lines can move freely under all circumstances. ©TBSY

Another important component is the vessel's carpentry work, which must be both functional and have a contemporary appearance, while taking weight restrictions into consideration. This is another complex job.

The majority of the components have now been approved and ordered.

Connecting and integrating the components

The RV *Wim Wolff* features two groups of systems:

[1] systems containing fluids, of which the most important are:

- the fuel system
- the drinking water system
- the heating system

[2] systems without fluids, of which the most important are:

- the electrical system
- the lighting system
- the information or computer system.

The fluid systems require a network of pipes on board. The shipyard installed as much of this 'hot work' of pipes and connections to tanks, and the foundations for the equipment, as possible during the construction of the hull.

To provide a healthy climate inside the cabin, a robust air conditioning system will also be installed aboard the vessel. This system includes ventilators, piping systems and heat exchangers to heat or cool the air before it enters the cabin and other parts of the vessel. All of this equipment takes up considerable space in a separate hold forward of the wheelhouse.



Hold for the air conditioning system.



Front view of the RV Wim Wolff, with the pipe tunnel visible behind the ladder.

The most important pipes will run through the pipe tunnel running from bow to stern along the keel line. This pipe tunnel will be accessible for inspections of the tanks and pipelines.

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