

Construction RV *Wim Wolff*



Progress report #2: March 2021

The RV *Wim Wolff* is a new construction project of the Dutch national research fleet. This fleet is managed and run by the National Marine Facilities (NMF), a department of the Royal Netherlands Institute for Sea Research (NIOZ). The NMF fleet consists of three ships that support research in all kinds of waters, from shallow coastal waters to the open ocean.

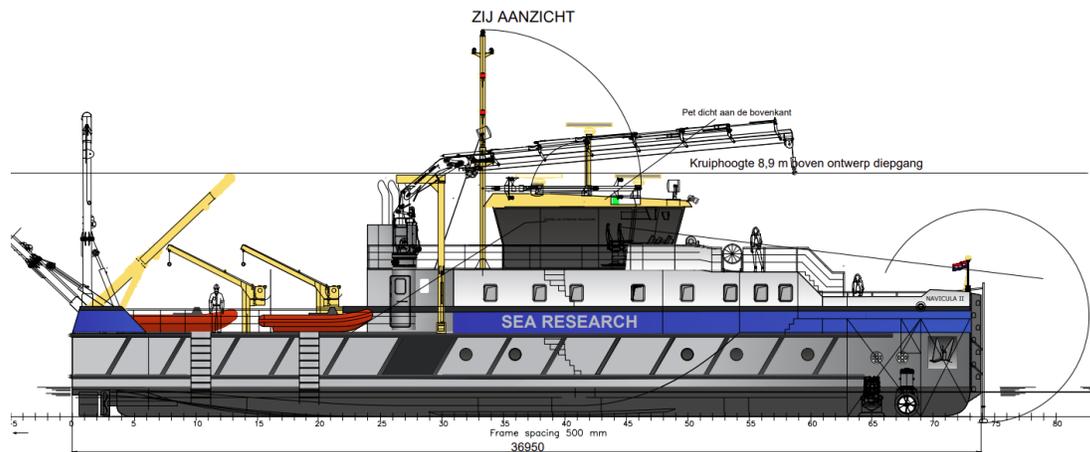
The RV *Wim Wolff* is the intended replacement of the current Wadden Sea vessel RV *Navicula*, and with its small draft of 1 metre, it is specifically designed for research trips of several days in the Wadden Sea, the Zeeland delta and coastal areas.

The RV *Wim Wolff*, with a crew of 4 people, offers state-of-the-art facilities to 12 passengers and is equipped with its own wet and dry lab facilities. In addition, there is deck space for two customised lab containers.

The RV *Wim Wolff* will be constructed in about two years by Thecla Bodewes Shipyards (TB Shipyards) in Harlingen and delivered at the start of 2023.

The shipyard: Thecla Bodewes Shipyards.

Thecla Bodewes stands at the helm of TB Shipyards. After studying shipbuilding and then working for six years at Bureau Veritas, she took over the family company G & H Bodewes brothers in Hasselt, a shipyard for the repair and constructions of inland waterway vessels. The company has since changed its name to Thecla Bodewes Shipyards and has expanded its operations to four shipyards in Stroobos, Kampen, Meppel and Harlingen with 120 employees.



For TB Shipyards, the construction of the modern and sustainable research vessel is a special project which adds nicely to the shipyard's credentials, as stated in the press release of 26-01-2021 (see <https://tbshipyards.com/>). TB Shipyards is specialised in challenging construction projects and always aims to realise a design in a sustainable and innovative manner: "The philosophy of the ship - with the development of a sustainable diesel-electric power management system from D&A Electric with a lithium-free battery pack ensures that the ship will have a minimum emission when it is delivered. Furthermore, without the need for major reconstruction, the ship can be simply adapted to new technologies and energy sources. Both the functionality of the research vessel and the environmentally friendly and sustainable approach are principles that fit us like a glove", says Thecla Bodewes.

For the project management, TB Shipyard has appointed a project team that will consult with the client (NWO-NIOZ-NMF) every one or two weeks.



Thecla Bodewes Shipyards in Harlingen, where the construction and fitting out of the RV Wim Wolff will take place (Photo: TB Shipyards).

Quality guarantee during the construction

All ships must satisfy technical and other requirements. Several requirements are general and internationally agreed upon. In addition to these, there are several national requirements in the country where the ship is registered (the so-called flag state).

The RV Wim Wolff will sail under the Dutch flag, and it will therefore be constructed and sail under the Dutch classification requirements. This means that the requirements for construction, fitting out, crew and ship maintenance need to be satisfied.



These compulsory requirements have advantages for several parties:

- for the builder, it is clear which conditions need to be met during the construction;
- insurers have certainty about the state and fitting out of the ship and about the quality and training of the crew;
- by sailing in a certified vessel, NIOZ-NMF as operator/owner satisfies the requirements of being a good employer for both the crew and passengers;
- for the passengers sailing under category provides certainty with respect to the state and equipment of the ship as well as the quality and training of the crew.

The requirements for seagoing vessels and inland waterway vessels are different. For seagoing vessels, the general international structural engineering requirements are established by the IMO (International Maritime Organisation) in London, and for inland waterway vessels within Europe, the European standard ES-TRIN and the Dutch Inland Navigation Act apply.

The most important differences between a seagoing vessel and an inland waterways vessel are that a seagoing vessel should have more autonomy and should be able to sail through high waves, which requires a stronger construction than sailing on inland waters. Requirements for the strength of the hull, stability and fire safety for seagoing vessels are therefore more demanding than for inland water vessels.

In the Netherlands, the Human Environment and Transport Inspectorate (ILT) supervises the Dutch commercial shipping fleet and therefore compliance with national and international legislation during the construction and subsequent sailing of the RV Wim Wolff.

Dit betreft controles van o.a.:

- strength of the hull;
- stability of the ship;
- machine installations and electrical installations;
- protection against fire;
- life-saving equipment, such as lifebuoys;
- communication equipment;
- navigation.

Whether these requirements have or are being met will be assessed via examinations and inspections before and during the construction. ILT does not carry out all of the examinations and inspections for maritime shipping, but it has authorised several so-called classification societies.

For the RV Wim Wolff, Bureau Veritas will act as the classification society under the supervision of ILT. At the end of the construction, the ship will be measured up (the measurement letter), and if the ship satisfies all requirements, a series of certificates will be issued.

For more information, please see: <https://www.rijksoverheid.nl/onderwerpen/scheepvaart-en-havens/veiligheid-binnenvaart-en-zeevaart> [in Dutch]

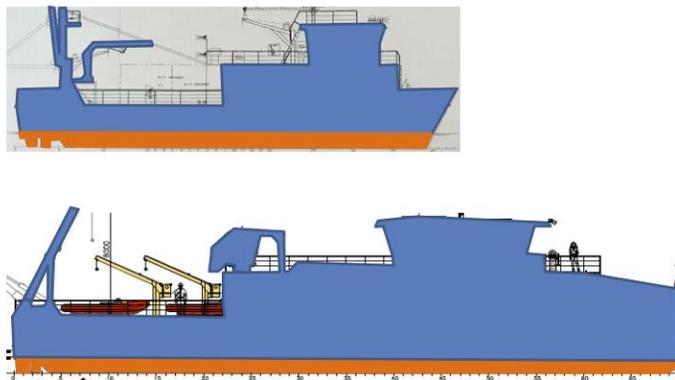
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The construction process

For the RV Wim Wolff, the first step is determining the final design. The shipyard (TB Shipyards) is currently devoting a lot of time and attention to optimising the hull with the addition of 1 m in breadth and 0.5 m in length compared to the original basic design. The aim of this is to achieve the most optimum compromise for the hull for sailing in deep water in the coastal zone as well as shallow water in the Wadden Sea.

A comparison of the current RV Navicula with the new RV Wim Wolff, especially the ratio between the part of the ship above and below the waterline, has revealed that the sailing characteristics in shallow water are critical, especially the handling characteristics and drifting leeward in the case of strong crosswinds.



Comparison of the current RV Navicula (top) with the new RV Wim Wolff (bottom). Blue: ship above the waterline; orange: ship under the waterline.

This means that as soon as TB Shipyards has established a final design, the sailing properties will first of all be tested at MARIN in Wageningen. Both towing tank and model tests will be carried out to establish whether the seaway and manoeuvrability of the design satisfy the starting points described in the design drawings. Only then can the ship design be submitted to Bureau Veritas for approval. After approval, the construction of the hull can be started. The coming months have been reserved for this process.

More information can be found at www.NewResearchFleet.nl

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