

# Propulsion delivered for Finnish Navy Corvette

The Aker Arctic delivery of shaftlines and propellers for the Finnish Navy's first Pohjanmaa-class multirole Corvette was successfully completed at the end of 2024.

The construction of Pohjanmaa-class multirole Corvettes under the Finnish Navy's Squadron 2020-project is progressing at Rauma Marine Construction's shipyard. Aker Arctic has completed the delivery of shaftlines, including controllable pitch propellers, bearings, shaft seals, and the shaft torque monitoring system, for the first vessel.

Initial operational capability of the first Corvette will be reached in 2027, and full operational capability as Squadron, in 2029.

## Ten years of development

Aker Arctic's scope of delivery encompasses the design, material supply, and commissioning of ice-strengthened controllable pitch propellers and shaftlines for all four corvettes. The company has also developed the hull shape and ice strengthening for the vessel, tailored for all Baltic Sea conditions. The shipyard has finalised the vessel's design to reflect the final specifications.

Since 2015, Aker Arctic has collaborated closely with the Finnish Defence Forces to develop a propulsion line that ensures the new multirole Corvettes meet rigorous operational performance requirements. A critical element of this development process has been the optimisation of the propeller and hull interaction to achieve high open water speed, ice-going capabilities, and low underwater noise levels.

## Unique collaborative model

Kari Laukia, head of Aker Arctic's equipment and special projects, highlights the company's distinctive collaborative business model, which has been instrumental in supporting the Finnish Defence Forces to achieve their objectives.

"Our approach involves close collaboration with our clients to ensure their goals are met," Laukia says. "It is a step-by-step process that begins with establishing the customer's specific needs and evolves into a final product through continuous dialogue. This method enables us to address and resolve design challenges that inevitable arise in every project."

## Hull and propulsion interaction

Aker Arctic's core expertise lies in developing ship designs that are excellent in ice conditions while maintaining their open-water performance. All design phases are managed in-house, ensuring seamless integration of capabilities.

"Our understanding of how the hull form interacts with propulsion in both ice and open water forms the basis for our development work," Laukia notes. "Additionally, the know-how of integrating the shaftline interface with the ship hull, including appendages, to optimise the hydrodynamics of the ship's stern is critical in seasonally freezing waters."

## Designed for Finnish weather

Finland's challenging weather conditions have necessitated developing a vessel design capable of navigating various ice conditions and harsh maritime environments.

The Northern Baltic Sea frequently experiences gale-force winds, with wave heights exceeding six metres.

Icy conditions, snow, sleet, rain, and fog – often resulting from temperature fluctuations – pose further challenges to vessel operations and the performance of surveillance and weapon systems.

During a typical winter, Finnish harbours and the archipelago freeze, while much of the Baltic Sea remains unfrozen. Wind pressure on the ice cover can create ice ridges, which are difficult for vessels to penetrate.

With these advanced Corvettes, the Finnish Defence Forces will be able to conduct year-round surveillance, safeguard maritime connections vital to Finland, and ensure Finland's territorial integrity more effectively.

Aker Arctic has been chosen to supply the state-of-the-art ARC ILMS ice load monitoring, measurement and analysis system for the four Pohjanmaa-class multi-role Corvettes.