



# Arctic Aframax for transportation needs

Aker Arctic and Deltamarin have jointly developed a modern Aframax tanker design for arctic use. The combination of Deltamarin's expertise in low-cost, energy-efficient cargo vessels and Aker Arctic's expertise in arctic vessels has turned into a very attractive tanker concept. Apart from being ice-strengthened and equipped with other novel features, she also has a new modern look and will provide reliable, cost-effective tanker operations.

The newly developed arctic Aframax tanker is intended for transporting crude oil and oil products. She is planned to have a deadweight of 118,000 tonnes and will be strengthened to ice class PC5 (approximately equivalent to RMRS category ARC6).

"This means she can work and operate safely in arctic waters," says Project Manager Riku Kiili from Aker Arctic.

The vessel is capable of breaking over one metre of level ice continuously and

is intended to operate during the extended summer months on the Northern Sea route and, with assistance, can operate for even longer. During the winter months, she can also operate in other sub-arctic sea areas, such as the Baltic Sea or around Sakhalin.

Bow and hull shape have been optimised with the help of CFD tools to give the best balance of open water performance and icebreaking capabilities.

*Specially designed hull strengthening improves safety in operations, which is very important in arctic waters.*

*The hull of the vessel will also be equipped with an Ice Load Monitoring System.*

## New features

The vessel is equipped with two CP propellers and shaft lines connected to slow speed diesel engines providing redundancy and safety.

Optionally, the engines can also run on LNG fuel. The possibility of a shaft PTO/PTI system has also been considered.

"Specially designed hull strengthening improves safety in operations, which is very important in arctic waters," Mr Kiili adds. The hull of the vessel will be equipped with an ice load monitoring system. This system measures the ice load on the hull and provides online support to the officers, ensuring safety in operations. The system will also help ship owners in the longer term by analysing the data and creating information for optimal operations.

Winterisation for cold climates has also been emphasised in all aspects of the concept design. All the equipment should work regardless of the outside temperature.

### Improved bridge design

Developing an improved command bridge was a particular focus. Project Engineer Antero Jäppinen has been the designer in this area.

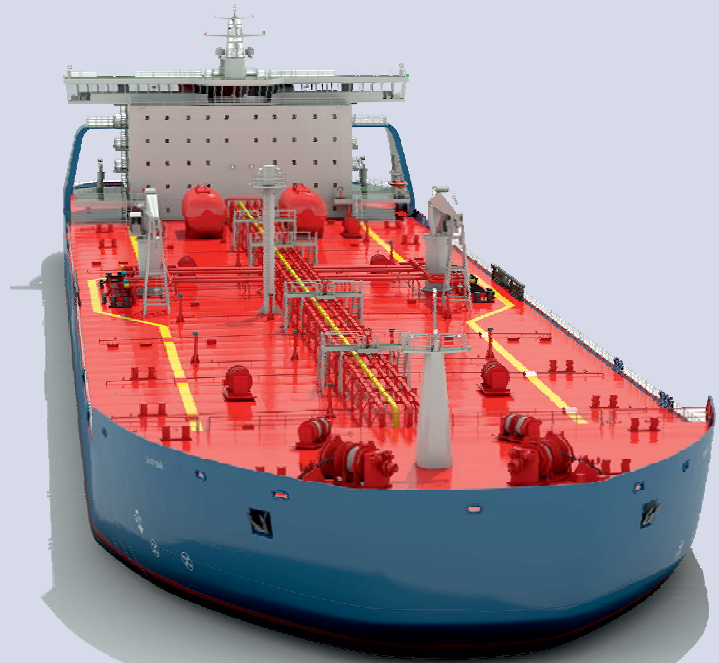
"The visibility from the new bridge we have developed is excellent in all directions. We have also prioritised ergonomics, including access and passages to command posts. The layout is one type of the standardised bridge layouts developed by Aker Arctic," Mr Jäppinen says.



### Competitive price and fuel-efficient operations

"The main emphasis has been on developing an arctic Aframax tanker which is affordable to build and cost-effective to use in order to offer improved transport economy. This concept development will be fine-tuned according to customers' wishes," Mr Kiili explains.

## Arctic Aframax 118,000 DWT Crude Oil Carrier



### Technical specifications

**Main Dimensions:**

Length over all: 266.0 m  
 Breadth: 46.0 m  
 Depth: 22.5 m  
 Draught design: 14.8 m

**Hull and Performance:**

Ice class: PC5/RMRS Arc6  
 Level icebreaking capability: 1 metre continuous  
 Economical open water speed: 13.5 knots

**Main Engine Particulars:**

2 x low speed MAN 6S60 SMCR,  
 11 000 kW each

**Auxiliary Engines:** Abt. 3 x 1 000 kW

**Propulsion Particulars:**

Two shaft lines,  
 7.6 m diameter controllable pitch (CP) propellers

**Optional:**

PTO/PTI: 2 x 2250 kW  
 Transverse tunnel thrusters: 2 x 2000 kW  
 Auxiliary engines: 3 x 1800 kW

**Cargo and Ballast Pumps:**

Deep well type

### Meet Riku Kiili

Riku Kiili works with different customer projects and development projects, such as the Arctic Aframax and the Ice-DP system. He began his career at Masa-Yards Arctic Research Centre (MARC) and has been with Aker Arctic from the start.

During the past ten years, he has become familiar with all the different areas Aker Arctic is involved in, e.g. model testing at the ice laboratory, ship hull form design and concept development, transportation analyses and innovations, just to mention a few.

