



## High icebreaking performance and operational capability with four azimuth propulsion units.

Aker ARC 124 features a new kind of propulsion arrangement that provides high icebreaking performance and operational capability in difficult ice conditions with relatively low propulsion power. With two azimuth propulsion units in the bow and two units in the stern of the vessel, the icebreaker is designed to operate especially in thick consolidated brash ice that forms in shipping channels and harbor basins as a result of regular traffic during the winter months.

The primary mission of the icebreaker is to keep the port open through the winter and assist large cargo ships with turning and berthing even in the most challenging ice conditions. In addition to ice-breaking and ice management operations within the

harbor, Aker ARC 124 is also equipped for conventional escort ice-breaking operations in coastal areas with a winch and a towing notch for contact towing. Secondary year-round tasks include stand-by duty for oil spill response and firefighting operations.

Aker ARC 124 provides comfortable living and working conditions in the high Arctic, one of the harshest and most demanding environment where the outside temperature can drop to -50 °C during the polar night. The port icebreaker is arranged with single cabins for a crew of 18 and additional accommodation for up to 12 supernumeraries. All cabins are located in the superstructure, away from the noise generated by the icebreaking process.

The diesel-electric port icebreaker features some of the latest developments in ship power and propulsion technology. The power plant consists of three medium-speed main generating sets and a separate

harbor generator. Four ice-strengthened azimuth propulsion units, each with a shaft output of 3000 kW, provide a bollard pull of 115 tons. Aker ARC 124 can break 1.5 m thick level ice at 2 knots and achieve a speed of 4 knots in 5 m thick consolidated brash ice. The icebreaking performance has been verified with model tests, including tests in limited water depth, at Aker Arctic's ice laboratory.

The port icebreaker concept can be tailored to the specific needs of existing ports or planned Arctic developments, and optimized for the operational requirements and environmental conditions of the intended operational area. Optional upgrades may include, for example, Dynamic Positioning class 2 for more demanding open water operations during the summer months.

In April 2015, FSUE Atomflot and Vyborg Shipyard PJSC signed a contract for the construction of a port icebreaker based on the Aker ARC 124 concept. The primary task of the vessel will be assisting LNG carriers in the port of Sabetta located in the Gulf of Ob. The construction of the vessel will begin in 2016 and it will be delivered in 2018.



## Main particulars

Length, overall:	89.5 m
Length, dwl:	77.6 m
Breadth, including fenders	21.3 m
Breadth, dwl:	19.9 m
Draught, design:	6.5 m
Draught, maximum:	7.5 m
Depth to main deck:	10.5 m
Deadweight: 750 tons (design draught)	
2000 tons (maximum draught)	

Main generating sets:	3 x 4880 kW
Harbor generating set:	800 kW
Propulsion:	Diesel-electric
	4 x 3000 kW azimuth thrusters

Icebreaking capability:	2 knots in 1.5 m level ice
	4 knots in 5.0 m brash ice
	with 50 cm consolidated layer

Bollard pull:	115 tons
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Speed in open water:	15 knots
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Ice class:	RMRS Icebreaker7, or IACS Polar Class 3
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### Aker Arctic Technology Inc

Merenkulkijankatu 6  
 FI- 00980 HELSINKI,  
 Finland  
 Tel.: +358 10 323 6300  
 Fax: +358 10 323 6400  
 info@akerarctic.fi  
 www.akerarctic.fi

**The Ice Technology Partner**