



ICEBREAKERS FOR DIFFERENT OPERATING ENVIRONMENTS

Advanced icebreaker designs improve the efficiency of escort operations in the Baltic Sea and the Arctic.

Aker Arctic's latest icebreaker designs combine an advanced hull form with a novel propulsion system. Two azimuth thrusters in the stern and a third in the bow make the vessels highly maneuverable and provide excellent operational icebreaking capability in the most challenging of ice conditions. Together with energy-saving technical solutions, overall efficiency is increased, and environmental impact is reduced. During the development of these new icebreaker designs, Aker Arctic carried out extensive model tests in both open water and ice, and the performance of both vessels has been verified in full-scale trials.



Aker ARC 130

The **Aker ARC 130** Baltic Escort Icebreaker was developed for the Finnish Transport Agency in cooperation with ILS Oy. The design combines the latest technical solutions with an environmentally-friendly dual-fuel power plant. The vessel is capable of running on both liquefied natural gas (LNG), and low-sulphur marine diesel oil.

Polaris, the most powerful icebreaker ever to fly the Finnish flag, was built by Artech Helsinki Shipyard in Finland and joined Arcita's icebreaker fleet in 2016.

Initial operational experience has been positive with more ships being escorted and less towing being required, compared to older icebreakers' duties in the same area.



Aker ARC 130A

The **Aker ARC 130A** Icebreaking Support Vessel has been developed a step further than its Finnish sister icebreaker. The design has been adapted to Arctic conditions and features increased dynamic positioning capability. The vessel is intended for service at the Novy Port oil terminal in the shallow waters of the Gulf of Ob, where the ice can be up to 2 metres thick. In 2015, Gazprom Neft ordered two vessels from Vyborg Shipyard in Russia.

The icebreakers **Aleksandr Sannikov** and **Andrey Vilkitsky** demonstrate an icebreaking capacity comparable to nuclear icebreakers.

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	Aker ARC 130	Aker ARC 130A
<i>Vessels built</i>	<i>Polaris 2016</i>	<i>Aleksandr Sannikov 2017 Andrey Vilkitsky 2018</i>
Length, overall	110.5 m	121.7 m
Length, design waterline	97.4 m	107.9 m
Breadth, design waterline	24.0 m	25.0 m
Breadth, maximum	24.4 m	26.0 m
Draught, design waterline	8.0 m	8.0 m
Draught, maximum	9.0 m	8.2 m
Classification society	Lloyd's Register	Russian Maritime Register of Shipping
Ice class	PC 4 Icebreaker(+)	Icebreaker8 (IACS PC 2 equivalent)
Flag	Finland	Russian Federation
Power Plant	Four main generating sets and one harbour generator (21,000 kW + 1,168 kW)	Four main generating sets and one harbour generator (27,000 kW + 1,200 kW)
Fuel	LNG and LSMDO	LSMDO
Propulsion system	Azimuth propulsion units (2 x 6,500 kW + 6,000 kW)	Azimuth propulsion units (2 x 7,500 kW + 6,500 kW) Bow thruster (1,800 kW)
Icebreaking capability	3.5 knots in 1.8 m level ice 5 knots in 1.2 m ice + 20 cm snow 10 knots in 2 m brash ice channel	2 knots in 2 m ice + 30 cm snow 4 knots in 7 m brash ice with 50 cm consolidation
Open water speed	17 knots	16 knots
Dynamic positioning	None	DP2
Ambient temperature envelope	-30...+30°C	-50...+30°C
Accommodation	24 persons	35 persons
Towing equipment	Winch, hydraulic pins and towing notch	Winch and towing notch
Oil recovery equipment	Built-in mechanical oil recovery system and tanks for recovered oil	Oil recovery equipment in containers and tanks for recovered oil
Other	1.5 t / 30 m deck crane	25 t / 27 m deck crane