

-basis for diverse operating environments



Aker Arctic utilizes its Subarctic icebreaker concept for a novel Arctic icebreaker.

The new icebreakers represent a further development of the Aker ARC 130 icebreaker concept originally developed for the Finnish Transport Agency.

The new design, Aker ARC 130 A, will use similar propulsion concept consisting of three azimuth thrusters – two in the stern and one in the bow of the vessel.

The propulsion power and ice strengthening have been increased according to the operational requirements of the Arctic seas. The vessel is designed to break 2-metre level ice with 30 cm snow cover in

both ahead and astern directions, operate in thick consolidated brash ice, and have excellent maneuverability in all ice conditions.

The icebreakers of Aker ARC 130 A design are about 122 m long overall and have a beam of 25 m and design draft of 8 m. The vessels have a diesel-electric power plant and the combined propulsion power of the three azimuth thrusters is 21.5 MW. The new icebreakers will be classified by the Russian Maritime Register of Shipping and their ice class will be Icebreaker8.

The novel design represents the newest development of icebreaking technology that Aker Arctic has now adapted also for Arctic vessels.

The builder, Vyborg Shipyard is an experienced builder of ice-class vessels and the new orders will strengthen its position as the builder of demanding vessels for the Arctic conditions.

The world's first LNG-fuelled icebreaker, based on Aker ARC 130 concept, is now under construction at Arctech Helsinki Shipyard for the Finnish Transport Agency. We are actively involved in the building process together with the owner and the shipyard. According to the schedule, delivery is planned for winter 2016.

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	Aker ARC 130	Aker ARC 130 A	Divergence
Length, overall	110 m	121.7 m	+10.6 %
Length, design waterline	98 m	106.9 m	+9.1 %
Breadth, dw., moulded	24 m	25 m	+4.2 %
Draught, design waterline	8 m	8 m	
Draught, maximum	9 m	8.2 m	-8.9 %
Displacement	10 800 m ³	12 900 m ³	+9.2 %
Classification society	Lloyd's Register	Russian Maritime Register of Shipping	
Ice class	PC4 Icebreaker+	Icebreaker8	
Flag	Finland	Russia	
Open water speed	17 knots	16 knots	
Icebreaking capability ahead	3.5 knots, 1.8 m	2 knots, 2.0 m+30 cm snow	
Icebreaking capability astern	5 knots, 1.2 m+20 cm snow	2 knots, 2.0 m+30 cm snow	
Operational capability in brash ice	10 knots, 2.0 m channel	4 knots, 7 m brash ice with 50 cm consolidation	
Accommodation	24 persons	35 persons	+45.8%
Endurance	30 days	30 days	
Ambient temperature	-30...+30°C	-50...+30°C	
Sea water temperature	-1...+25°C	-2...+28°C	
Bridge layout	Oblique; STB main steering position + PS wing	Symmetric, forward and aft steering positions + STB and PS wings	
Generating sets	4+1	4+1	
Main generating sets	21 000 kW	27 840 kW	
Harbour generating set	1168 kW	1200 kW	
Power plant rating	22 168 kW	29 040 kW	+31 %
Fuel	LNG+LSMDO	LSMDO	
Boilers	1	2	
Exhaust gas economizers	3	2	
SCR system	Space reservation	Space reservation	
Propulsion layout	Azimuth thrusters, 2+1	Azimuth thrusters, 2+1	
Propulsion power	19 000 kW	21 500 kW	+ 13.2 %
Propulsion system type	Diesel-electric AC/AC	Diesel-electric AC/AC	
Tunnel thrusters	None	Bow thruster, 1800 kW	
Dynamic positioning	Yes; no DP class	DP2	
Double hull arrangement	Double bottom, double sides	Double bottom, triple sides	
Roll reduction tank	Yes, u-shape tank	Yes, u-shape tank	
Towing notch	Yes	Yes	
Towing winch	Yes	Yes	
Stainless steel ice belt	Yes	No	
Cargo deck	7 x 20' container	8 x 20' container	
Deck cranes	2.5 ton/10 m, 2 ton/20 m	25 ton/27 m	
Fire-fighting system	None	RMRS FF1WS, 4 monitors, water screen	
Oil recovery system	Fixed; built-in	Separate equipment in containers >60°C	
Aviation facilities	Platform, winch only	Helicopter deck for Mi-8, no refueling	
Medical facilities	Sanitation cabin	Hospital + treatment room + isolation cabin	