Aker ARC 100 Icebreaking oil spill combat vessel

Aker Arctic

The vessel is an icebreaking Oil Spill Combat Vessel specially intended for oil spill responce and oil recovery for both open water and ice seasons, both in high seas and in shallow waters in coastal and archipelago areas especially in the conditions of the eastern part of Gulf of Finland.

The Vessel is also intended to provide icebreaking escort services especially close to harbour areas, towing and other tug operations including escort towing, Salvage and emergency towing operations, fire fighting of external fires according to fire fighter class 1 notation and ECO environmental monitoring.

The vessel is a compact size icebreaking vessel provided with diesel-electric propulsion with three azimuthing thruster propellers. The propulsion solution and the special hull form allow the vessel to operate efficiently ahead, astern and obliquely sideways, one of the propulsors is located in the bow, one aft and one on side in the aft part of the vessel.
The vessel has a double bottom, continuous main deck and a tween deck, and forecastle. The superstructure for accommodation and work spaces is located to bow part of the Vessel.

Hull form
The hull form is designed for the triple screw azimuthing thruster propulsion, for favourable ice resistance can performance in ahead, astern and oblique operation modes, and for adequate seakeeping characteristics.

Performance
Trial speed at full power in deep calm water is at least 15 knots. Economy speed at half power is abt. 12 knots.

Steering is excellent in both directions. In addition the vessel is able to move at slower speed also sideways and any direction, of which the oblique mode astern for breaking wide channels for large vessels and oblique mode ahead for oil recovery are the most important.

In ice conditions the vessel is able to proceed at abt. 6 knots speed in 60 cm level ice both ahead and astern and 3 knots speed in 1.0 m thick level ice respectively in ahead and astern at design water line. Steering capability is excellent due to the propulsion arrangement and hull form in any situation and in any direction. In addition the capability to penetrate ice ridges and to operate in any direction and to turn inside ridge fields will be excellent.
Bollard pull force ahead at full power is about 80 tonnes.

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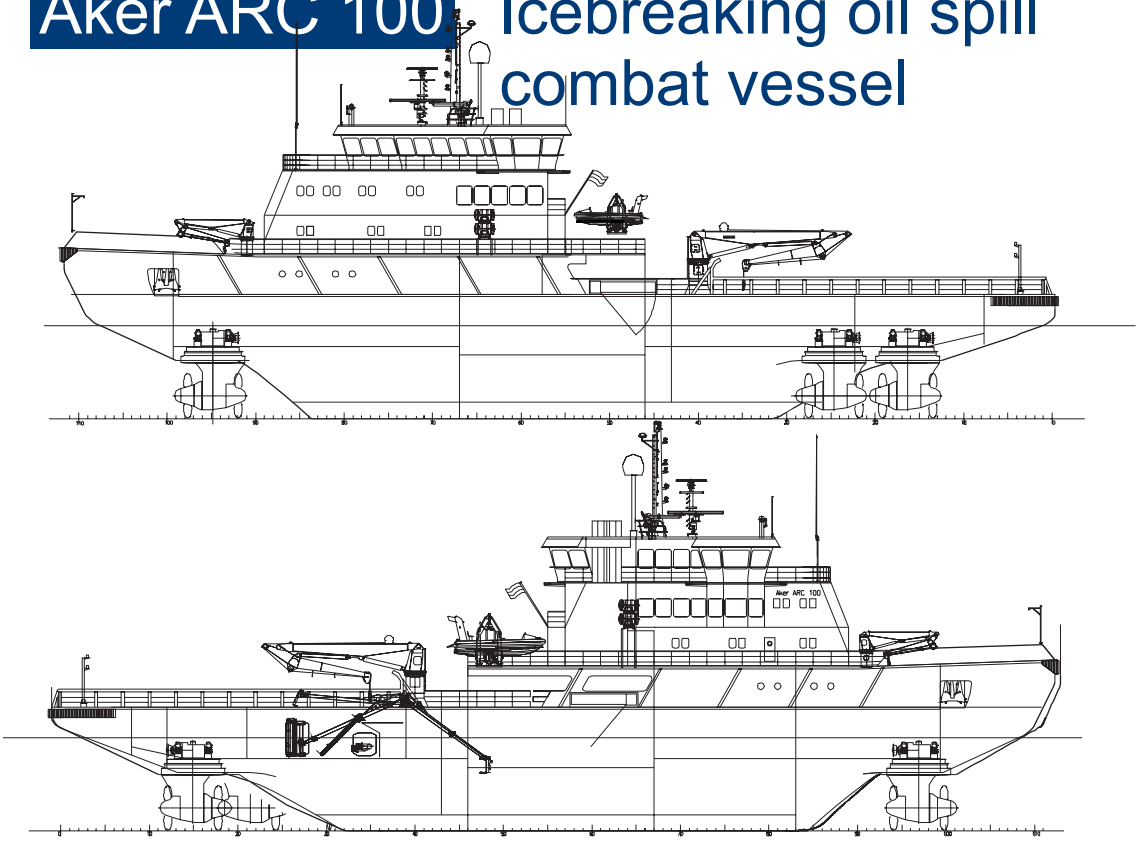

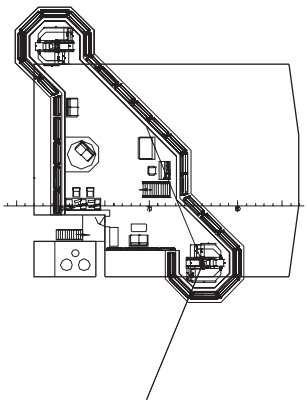

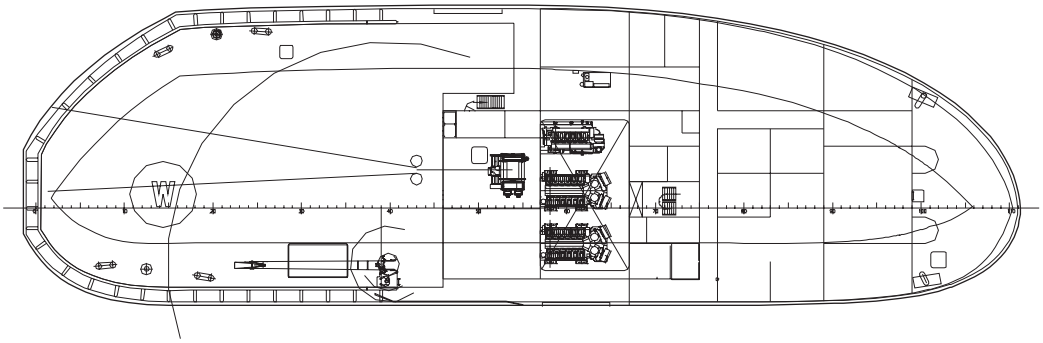

Main particulars

Length over all	abt. 68.4 m
Length at dwl	abt. 62.1 m
Breadth over all	abt. 19.9 m
Breadth at dwl	abt. 19.5 m
Draught at design wl	abt. 6.0 m
Draught maximum	7.0 m
Depth to main deck	abt. 8.4 m

Total deadweight at 6.0 m design draught abt. 540 tonnes. Deadweight at maximum draught abt 1500 tonnes

470 t fuel storage at design waterline allows for 10 days continuous operation at full power, or abt. 20 days at half power. Ample size fuel tanks allow for much longer ranges at deeper draughts.

Living spaces
Crew is twelve (12) persons. Onboard there are 12 single cabins and six (6) spare cabins for temporary personnel onboard. All cabins are equipped with private wc/ shower-module.

Cargo spaces
There are no real dedicated cargo spaces. Although there is dedicate storage space for some oil recovery equipments. Rest of equipments may be carried on the open aft deck when needed. Cargo deck area shall be about 400 m²

The hull contains large tank capacity, about 1200 m³, to be used for the recovered oil.

Hydrostatics
The stability of the vessel fulfils the stability requirements both at 6 m design draught and at 7 m maximum draught. Trim and list control in the varying loading cases is accomplished by using ballast and fuel transfer between the fuel tanks.

International rules
In addition, the vessel will meet the requirements of following international rules and conventions:
- International Convention for Safety of Life at Sea (SOLAS) 1974, with Protocol of 1988 and amendments that are in force and applicable to this type of vessel at the date of keel laying.
- International Convention for Marine Pollution Prevention, MARPOL 73/78, with amendments that are in force and applicable to this type of vessel.
- IMO Intact stability code 2008, A749(18)
- International Tonnage Measurement Convention
- COLREG rules for prevention of collisions
- International Load Line Convention
- IMO code on noise levels on ships A468(XII)
- ISO 6954guidelines of vibration in merchant ships
- ILO Maritime Labour Convention, 2006
- ISPS Code - International Code for the Security of Ships and of Port Facilities
- IMO Performance standards for navigational equipment as amended
- IMO Performance standards for radio equipment as amended
- IEC Publication no. 60092 Electrical installations in Ships
- International Convention on the Control of Harmful Anti-fouling Systems on Ships

Ambient conditions
The vessel, machinery and accommodation will be designed for operation in following ambient conditions:
Air temperature+25°C to -30°C
Water temperature+20°C to - 2°C

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