

Chinese research icebreaker soon ready for construction



Polar Research Institute of China

China has four permanent research stations in Antarctica (The Great Wall, Kunlun, Zhongshan and Taishan) and one in the Arctic (Arctic Yellow River Station)

The highly advanced polar research icebreaker for China is now in its final design phase and will soon be ready for construction. Aker Arctic was awarded the concept and basic design in 2012.

The Polar Research Institute of China has selected the main equipment suppliers for its advanced research vessel. Aker Arctic is expecting to complete the basic design before autumn this year. Construction will begin later this year when the shipyard has been selected.

Once the vessel is ready, its main task is research operations in polar areas. Scientists will be able to move independently to and from Antarctica where China has three permanent research stations, as well as perform advanced scientific research on the ship, which is fitted with all the necessary equipment. The vessel is also able to operate in the Arctic.

Modern solutions

All the technical solutions chosen both for the vessel itself and for research purposes represent the most modern available. It is fitted with scientific equipment and instruments for marine geological and geophysical research, marine biological and ecological research as well as climate change monitoring, marine and seismic surveys. There is plenty of laboratory space reserved and the researchers can make use of a moon pool when operating in ice conditions.

The vessel will be able to break 1.5 m level ice with a 20 cm snow cover. This can be performed in both ahead and astern directions. It is fitted with diesel-electric machinery and two azimuthing thrusters. Two bow tunnel thrusters are provided for manoeuvring and position keeping. The power generation station consists of four main diesel generator sets. Propulsion power is 2 x 7.5 MW and there are two skegs protecting the propulsion machinery from multi-year ice blocks in the aft ship. The vessel can advance 12 knots with one engine, 15 knots with two engines, and all four engines can be used as needed in ice.

There is a cargo crane for efficient cargo handling, large cargo spaces in the bow and cargo fuel tanks. Also, a helicopter landing area and a hangar is provided. The vessel additionally fulfils the low noise requirement for research vessels.

"This research vessel has cutting-edge solutions and is easy to operate in both open water and demanding ice areas, where it can operate independently. It is expected to be ready in 2018," says Kari Laukia, head of ship design and engineering at Aker Arctic.

Technical details:

Length over all	122.5 m
Length on design water level	117 m
Breadth max	22.3 m
Draught at design waterline	7.85 m
Draught max	8.3 m
Depth to main deck	11.8 m