

Arctic Passion News

1 / 2021

Dear Reader,

The significance of the Northern Sea Route as an export corridor from Arctic Russia to Europe and Asia has notably increased during the past years.

Special vessels and icebreakers are necessary to ensure safe, reliable passage in the icy Arctic waters. Technical and economic factors mean that carrying out shipping during winter is considerably more demanding and expensive compared to other normal shipping. Traditionally, transportation has taken place mostly in the summer season using routes with easier and single-year ice conditions.

However, recent industrial activities in the Arctic region have required shipping to become possible year round. A similar development transpired in the Baltic and Great Lakes regions many decades earlier.

Advancements in ship technology, information and communication systems, weather forecasting, and using satellite data to guide vessels through ice, have made daily navigation possible in Arctic ice conditions.

The breakthrough innovation to enable large-scale commercial transport in the Arctic was the Aker Arctic-developed and trademarked Double Acting Ship (DAS™) concept. To understand its components we have to look below the ice to explain the main reasons how an icebreaker works.

Unlike it might appear, an icebreaker does not crush ice, but breaks it by gradually bending it downwards. This is the reason an icebreaking ship's hull is not sharp and vertical – instead it is flat and flared. This type of shape is natural for the stern of the ship.

To enable steering when moving astern, shaft lines and rudders are replaced by azimuthing propulsion units. Utilising them gives us a vessel that can sail in two directions: ahead in open water and stern-first when breaking ice. Astern mode is so efficient that these ships can overcome even the thickest ice ridges, making commercial transport viable in the Arctic.

The first Arctic-class vessel designed by Aker Arctic using this technology was the container ship Norilskiy Nickel. Since 2006, it has been sailing year-round in

the Kara Sea region. Today, there are in total 37 double-acting cargo ships, LNG carriers and oil tankers in service, and more are in the order books. They have been constructed at various yards in Finland, South Korea, Russia, China, Germany and Japan.

This winter, both Sovcomflot and Teekay have made test voyages to see how navigation can be managed through the entire Northern Sea Route. These voyages have been supported by Atomflot's nuclear-powered icebreakers. The results are encouraging and shipping through the NSR will increase in the future: in winter-time only with special vessels, but with normal vessels in summer when ice conditions allow.

In this issue, we present our completely new Arctic LNG carrier, in addition to many other topics relevant to today's icebreaking practices. Our main target is to continue the successful development of new ships, with particular focus on reducing energy consumption and making substantial improvements regarding emission targets. For icebreaking ships, these are no easy tasks, but our mission is to rise to the challenge and to design such vessels for their owners' use and benefit.

Sincerely yours,
Reko-Antti Suojanen
Managing Director

