

Arctic condensate tanker delivered

The Arctic condensate tanker *Boris Sokolov* was delivered in December 2018 and began its journey from China along the Northern Sea Route, arriving to the port of Sabetta in mid-January 2019. The tanker was accompanied by the LNG carrier *Boris Davydov* which was delivered from a Korean shipyard around the same time. While the ships sailed together as a convoy, they were not accompanied by an icebreaker.



Boris Sokolov arrived in Sabetta in mid- January 2019.

The naming ceremony of *Boris Sokolov* was held at Guangzhou Shipyard International on 4 December 2018. The high ice class ship is named after Captain Sokolov who commanded the world's first nuclear-powered icebreaker for almost 40 years. The vessel's godmother is Yuliya Zobova from PAO NOVATEK.

Boris Sokolov has now joined the Dynacom Tankers Management's fleet. The product tanker will be used primarily to transport gas condensate oil from the Sabetta LNG terminal to customers in Europe and Asia, but it is also designed to carry other types of oil cargoes.

Design work

In 2014, Aker Arctic began investigating options for year-round transportation of gas condensate, a liquid by-product from natural gas fields, in co-operation with Yamal LNG. Gas condensate is a low-density mix of oils and is a valuable raw material in the petrochemical industry.

Following the development of the Aker ARC 212, a design licensing agreement for the basic design and construction of the vessel was signed with the Chinese shipbuilder Guangzhou Shipyard International Co. Ltd. Aker Arctic supported the shipyard during construction whenever there were questions about the design and ice-going characteristics.

The propulsion system is based on diesel-electric machinery with two azimuthing propulsion units. The tanker has a high ice class, RMRS Arc7, which enables year-round, independent navigation in areas west of the Yamal peninsula and for about six months in areas east of the Yamal peninsula.

In hard ice conditions, the vessel can take advantage of the frequent traffic of large arctic LNG carriers and navigate in convoy with them.

Testing is important

The inclining test was performed in November 2018, during which the ship's lightweight and centre of gravity were confirmed. Two weeks later, open water sea trials verified that the ship fulfilled the design targets. The sea trials test the fundamental aspects such as speed, manoeuvrability, anchoring, fuel consumption and propulsion endurance. Additionally, the firefighting system, the ballast system, the navigation system, the cargo handling and heating systems were all proven to work. Finally, the ship was examined for excessive noise and vibration. "All design targets were met," says Project Manager Riku Kiili.

Boris Sokolov is based on the proven Double Acting Ship (DAS™) principle that allows tankers and cargo ships to operate independently without icebreaker assistance in challenging ice conditions. When operating stern-first, the vessel can break up to 1.8 m thick ice in a continuous motion and penetrate ice ridges without backing and ramming. In moderate ice conditions and in open water, the vessel sails ahead normally. The icebreaking capability has been verified in Aker Arctic's ice model test laboratory in Helsinki, Finland. "We are now hoping to perform full-scale ice trials during the next few months to ensure that the vessel meets the icebreaking targets and manoeuvring in ice," says Kiili. "Full-scale tests are not only valuable for the customer but they will also give us important feedback

about our design work. Their results can be used to validate the results of our model tests for future development projects."

Technical characteristics

Ship type:	Product tanker
Length:	214 m
Beam:	34 m
Loaded draught (design/max):	11.7/12.65 m
Deadweight:	43,300 tons (gas condensate), 49,700 tons (oil)
Cargo and slop tanks:	60,200 m ³
Gross tonnage:	38,692
Power plant:	2 × Wärtsilä 12V32 2 × Wärtsilä 16V32
Propulsion:	Diesel-electric, ABB Azipod (2×11 MW)
Ice class:	RMRS Arc7

10th LNG tanker arrived in Sabetta

The LNG tanker *Boris Davydov*, accompanying *Boris Sokolov* en route to Sabetta, was built at Daewoo Shipbuilding and Marine Engineering (DSME) yard in South Korea. It is the 10th vessel of its kind built for the Yamal LNG project. It can carry 170,000 cubic metres of LNG. Aker Arctic participated in the development and design work of the LNG-tanker and joined the successful full-scale tests onboard the first vessel in the series, *Christophe de Margerie*, in February 2017. (Read more in Arctic Passion News, issue 14). The last five ships in the series will be delivered by DSME during 2019.