

# Revolution

Aker Arctic

in  
Arctic  
shipping



*Container Vessel NORILSKIY NICKEL  
in level ice during ice trials in Kara Sea  
on March 2006.*

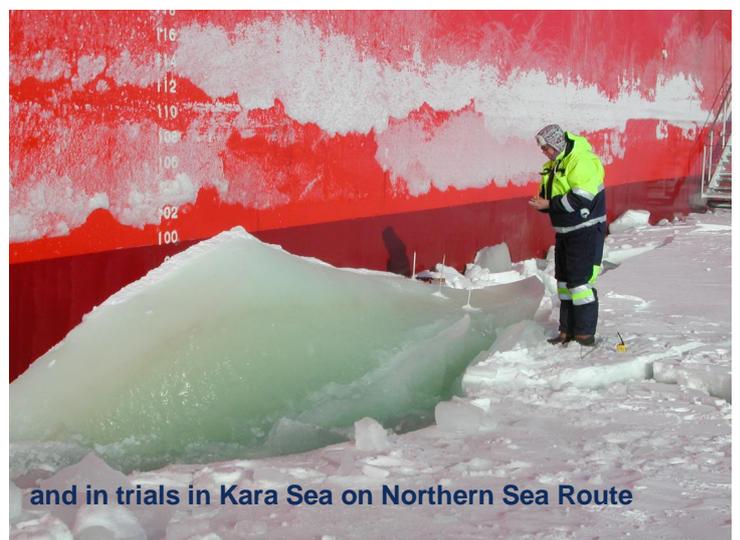
## **A Double Acting Arctic Container Ship has been developed for OJSC MMC Norilsk Nickel, for autonomous operation on the Northern Sea Route**

The newbuilding concept has been developed using the Arctic technology laboratory and patented Double Acting Ship concept. Several feasibility studies have been made and ice model testings have been performed at the arctic technology laboratory to find out the best economical and technological solution for the vessel. The new Arctic Container Vessel transports minerals from Dudinka on the river of Yenisey to Murmansk in Russia.

The new vessel is a prototype for a series of five which are to replace the current SA-15 type vessels that have been in successful use for the last twenty years. These vessels were built in Finland by Wärtsilä and Valmet shipyards in the 1980's. Aker Yards Helsinki yard built Norilskiy Nickel, and delivered her in early 2006.



*In Aker Arctic's ice model test laboratory in Helsinki.....*

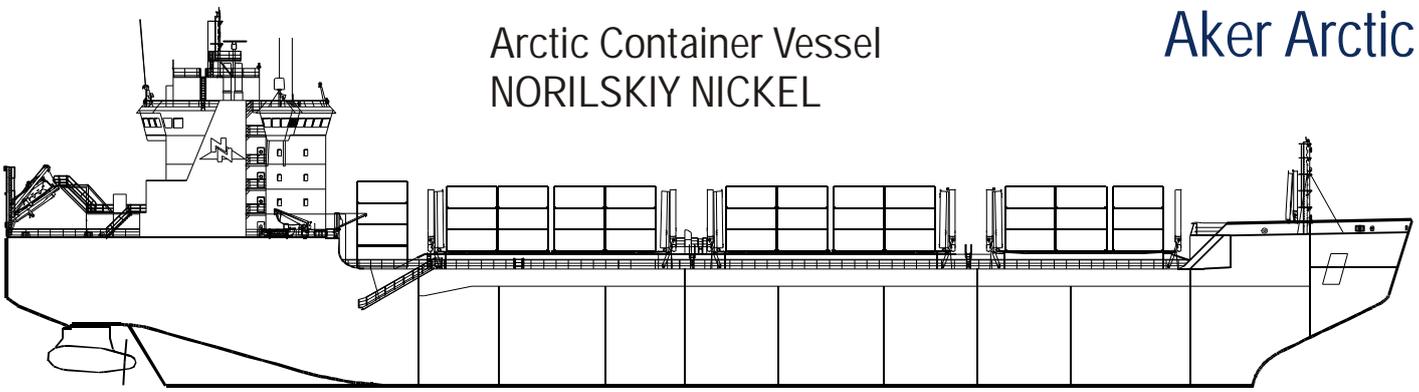


*and in trials in Kara Sea on Northern Sea Route*

**The Ice Technology Partner**

# Arctic Container Vessel NORILSKIY NICKEL

Aker Arctic



Length 169.5 m      Breadth 23.1 m  
 Draught 9.0 m      Power 13000 kW

The vessel has one 13 MW Azipod unit and ice class is LU 7.  
 The vessel left Aker Yards Helsinki shipyard for ice trials on March 3, 2006.

**NORILSKIY NICKEL in Yenisey channel**



**NORILSKIY NICKEL in Yenisey crossing a ridge field in Kara Sea**



The container vessel MS Norilskiy Nickel is designed to operate independently without icebreaker assistance carrying mining products from Dudinka (Yenisey River, Russia) to the market, mainly to Murmansk.

Ice trials were performed in Kara Sea and Gulf of Yenisey during the second half of March 2006. The tests included the following:

- level ice
- old brash ice channel

- manoeuvring
- transit through Kara Sea

The vessel is a Double Acting Ship design and intended to operate running astern in the most difficult ice conditions.

In general the vessel had no problems in crossing Kara Sea without icebreaker assistance (on the return voyage icebreaker was following the vessel in 2 NM distance). Most of the trip when crossing Kara Sea the vessel was running ahead, but the ridge/rubble field

forced the vessel, in some cases, to turn and go through the rubble running astern.

The tests in level ice proved that the vessel was able to proceed running astern with a speed of 3-3.5 knots and running ahead with a speed of 2.5-2.7 knots!  
 Also the vessel had not problem what so ever to navigate in the heavy Yenisey channel.



*The second of the series of five ships now, "Monchegorsk", was delivered on July 2008. Before the end of the first quarter of 2009 MMC Norilsk Nickel will receive three more ships to operate on the Northern Sea Route: "Zapolyarny" (autumn 2008), "Talnakh" (winter 2008) and "Nadezhda" (winter 2009). All of them will be built by Aker Yards.*

Aker Arctic Technology Inc.  
 Merenkulkijankatu 6  
 00980 Helsinki, Finland  
 www.akerarctic.fi  
 info@akerarctic.fi