

Russian Connection

Nowhere is safety and availability more crucial than in Arctic areas. ABB was the first to use the Azipod® technology now used to drive icebreakers in these harsh environments. It all began with the first diesel-electric vessel on the Volga river.

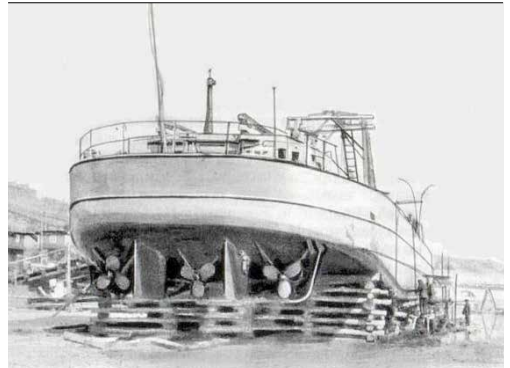
Ever since the maiden voyage of the river tanker on the Volga River, a bond between ABB and Russia was formed that has lasted up to the present time.

German engineer Rudolph Diesel invented the diesel engine following the oil industry's search for an economical oil-burning engine. He marketed his technology to oil barons around the world and in 1898 granted exclusive licenses to build his engines in Sweden and Russia.

In 1902 Karl Hagelin – a veteran of the Volga – suggested fitting diesel engines to river barges. He envisioned the direct shipment of oil through a 1,800-mile route from the lower Volga to Saint Petersburg and Finland. Since the canals of the Volga–Baltic waterway dictated the use of relatively small barges, steam engines were uneconomical and the diesel engine thus seemed a natural choice.

Up to this time, although diesel engines were reliable enough to be used for ship propulsion, they were still not reversible. Hagelin believed that reversing the engine and regulating its speed could be done with electrical transmission, and contracted Swedish ASEA (the A in ABB after a merger between Asea and Brown Boveri in 1988) to test the electrical drive system. Hagelin then recruited naval architect Johnny Johnson of Gothenburg to design the ship. *Vandal* was built at Sormovo shipyard in Nizhny Novgorod and then towed to Saint Petersburg for final assembly.

An old drawing showing *Vandal* on the Volga river.



The ship started operation in the spring of 1903 and served on the Volga route for 10 years. The rest is history: power electronics made it possible to fully utilize the “power station” concept. The Finnish coastal defence ships *Ilmarinen* and *Väinämöinen* built in 1928-29 were among the first surface ships to use diesel-electric transmission. Today cruise ships and icebreakers use Azipod® thrusters powered by electricity that is produced by an onboard diesel engine.

ABB was the first to use this technology, whose roots date back to the historic building of *Vandal* in 1903.

Text: Helen Karlsen