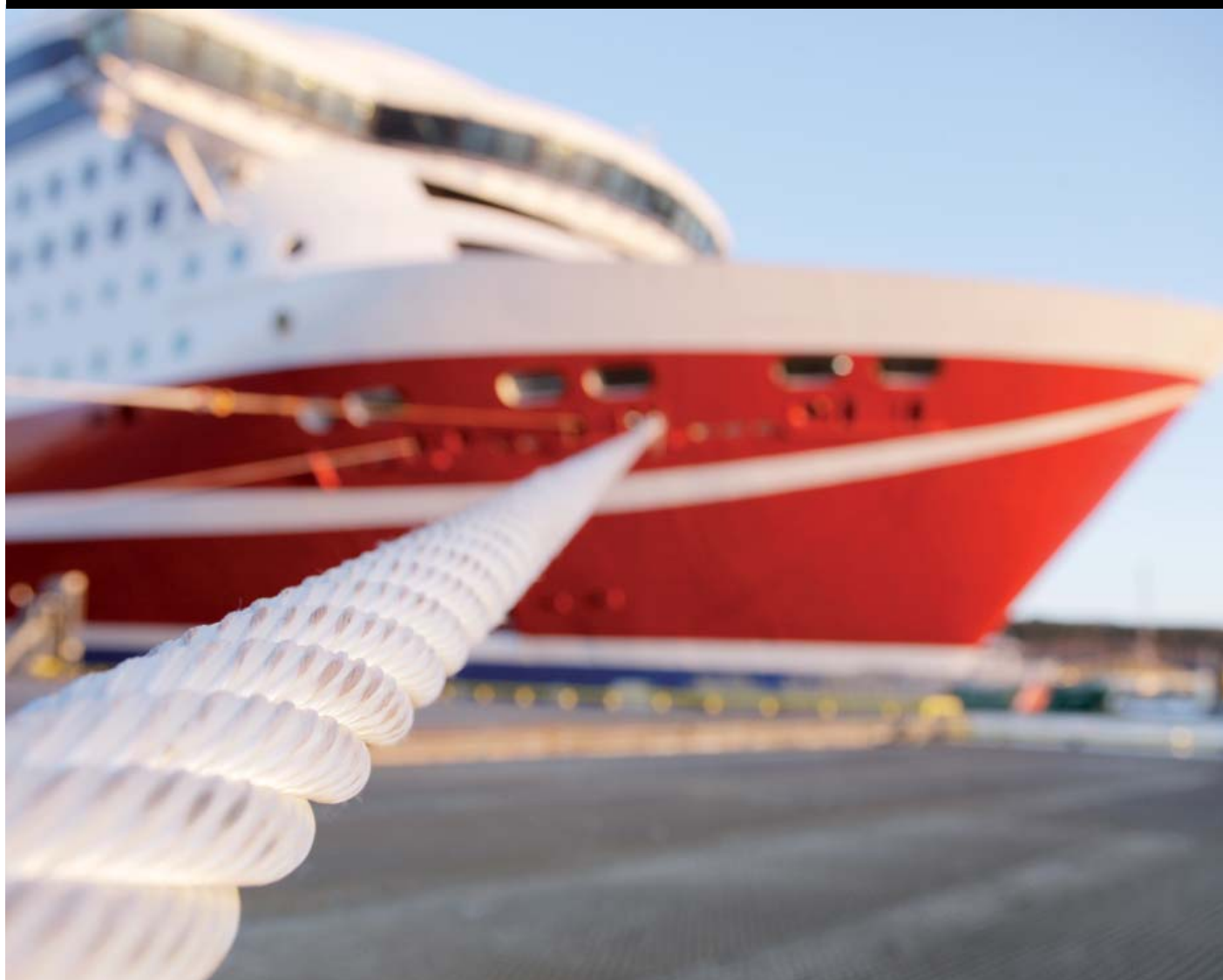


Case Norwegian Deck Machinery and m/s Viking Grace
Drives for electrically driven deck winches





Due to the quick turn-around times in harbor, the ropes are let out and retrieved very quickly.



Electrically driven winches were specified instead of hydraulic control.

Precise winch control opens up new opportunities

ACS800 drive customer benefits	
Reduce delivery times	Easy drive commissioning and configuration helps meet tight shipyard schedules
Everything built into the drive	Eliminates need for motor encoders and loadcell sensors, includes mechanical brake control and auto-mooring functionality
Environmentally friendly	Electrical control systems do not require the hydraulic fluids nor the additional pumping and piping
Stepless speed and torque operation	Low winch noise level

Precise operation of maritime winches is extremely difficult, involving low-speeds, high-torque and heavy vessels on floating water. Norwegian Deck Machinery saw this difficulty as an opportunity to apply the advanced ABB drive technology, with winning results.

Jarle Sørstrønen, President at Norwegian Deck Machinery (NDM) explains: “When winching up an anchor, or even a tow line, you initially have almost zero tension as it is slack. Then, at the instant you hit the anchor, the torque races up and it is critically important to have control of the enormous torque and forces at work.” Adding to the challenges, winch simulation models don’t work well so actual live situations are required. Working together NDM and ABB have mastered the winch application, which in turn offered NDM very interesting new business opportunities for maritime winches.

Frank Robert Fauskanger, Sales Manager Drives at ABB Norway says the benefits have been mutual.

“We have been fortunate to work with NDM very closely on advanced drive control for maritime winching. We began working specifically on anchor winches

and now have broadened it to other maritime applications such as on the Viking Line’s m/s Viking Grace ferry.”

Traditional hydraulics being replaced

Previously marine winches were controlled by hydraulic systems, which have dampening properties that until recently electrical controls couldn’t match. But hydraulics are also messy due to hydraulic oil, pumps, piping and possible leaks.

Now new electronic drive technology from ABB has made electrical control much more precise and reliable. At the same time, environmental concern about hydraulic oil leaks from has catalyzed the changeover.

ABB drives precise winch control

NDM has clearly seen a growing trend towards electrical winch control, with ABB its preferred supplier since early 2011. Key benefits come from ABB’s control program specifically designed for winch applications, giving true plug and play simplicity, explains Jarle.

“We enter a few parameters and start it up. Most times it works perfectly the first time. Spot on.”



The winch control program inside ABB's ACS800 industrial drive was easily adapted to meet the needs on the m/s Viking Grace.



Winch operator controls were easily integrated with the drive's I/O.

m/s Viking Grace was 1st ferry project for NDM

The Viking Line ferry m/s Viking Grace marked the first time NDM worked on a ferry project. The ferry has very short times in harbor which requires very precise and rapid winch control. “So we had to speed up the winches, which was very simple on this ABB frequency converter,” continues Jarle. “We also used ABB for the big anchor helping us enter another new sector. All the special requirements that the ferry operator had were made easy by simply changing a couple parameters in the easy-to-use software.”

Superb force control without the hassle

Now with the ABB solution, electrical force control is as good as or even better than hydraulic. “When the market saw how well electrical worked, they began to require it due to its superior convenience,” says Frank Robert. “It only needs an electrical cable, compared with the hydraulic pumps and piping as well as the risk of oil leaks.”

For Jarle and NDM, the opportunities are very exciting: “We see an interesting future in both the offshore and the new ferry business where these applications are well suited. For us it’s very positive to have ABB on our team, so we can

together further develop even more complex winches. Using our market knowledge and contacts, combined with their expertise in frequency converters, we are doing continuous technical development together.

“We have seen definite benefits of working with the ABB frequency converter. When we put it on the equipment, we know it’s working. When supplying winches to a vessel the deadlines are very strict, meaning it must leave the yard on the day it is supposed to. So we must be absolutely sure that when they want to start the winches, they are starting.

“In addition overall we save time, money and hassle by knowing that the electrically-driven winch will start right the first time, without problem, and our customer will be satisfied and meet his deadline.”



Jarle Sørstrønen, President at Norwegian Deck Machinery

Norwegian Deck Machinery, founded in 1989 and based in Bergen, Norway, is a worldwide supplier of winches and handling equipment for the marine segment. They offer complete system design, engineering, production, testing and lifelong service.



m/s Viking Grace

M/S Viking Grace represents a completely new generation of ferries with its revolutionary Liquefied Natural Gas (LNG) fuel system, modern interior design and a host of other innovations that provide its passengers with a totally new and fresh cruise experience.

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