

## Case story

# New energy efficient AIDA Cruise ships standardized with VLT® speed control

**AIDA Cruise's new ship generation 2015/2016 use VLT® drives to ensure efficient operation and a comfortable customer experience.**

On June 30, 2013, AIDA Cruises celebrated the keel laying of the first of two cruise ships of a new generation of energy efficient and environmentally friendly ocean liners.

When completed the two new ocean going cruise vessels will be AIDA's largest. With a GRT of 124,500 tons, the identically designed ships, which are 300 meters long and have a beam measuring 37.60 meters, each provide space for around 3,300 passengers.

The new ships will be delivered by Mitsubishi Heavy Industries Ltd. in March 2015 and March 2016 respectively.

### **Standardized control platform**

VLT® AutomationDrive FC 302 drives have been specified as standard for all electric motors in the engine room, utilities,

deck machinery and hotel/HVAC systems which will be delivered by leading suppliers of marine equipment from all over the world. All motors are premium efficiency IE 3 compliant to ensure optimum energy efficiency. FC 302 drives have been selected to control all machinery from bow to stern as a matter of keeping things simple.

By standardizing the motor control platform, AIDA will ensure cost efficient performance and maintenance with just one motor control platform. Ulf Hirsekorn, Senior Superintendent Electric at AIDA explains,

"We are extremely focused on standardizing as much as possible. It helps us to reduce the number of suppliers and avoid the complexities involved with multiple platforms. With the same drive used throughout the vessels, we only need to learn one system, which makes monitoring and maintenance far easier and more cost efficient."





The first keel element for AIDA's luxury cruise ship is lowered into place at Mitsubishi Heavy Industries Shipyard, Japan



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Senior Superintendent Electric,  
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### Small and rugged 690 V drives behind choice of Danfoss

The ships grid voltage is 690 V to reduce the weight of the many kilometres of power cable. There are more than 100 FC 302 drives on each ship – ranging from 2.2 to 400 kW with PROFINET interface. The largest drives belong to Danfoss' new D frame series, which features some of the smallest drives in the market in their power sizes.

"The IP55 rugged drives are well suitable for installation directly in the engine rooms close to the motors eliminating the need for long motor cables" says Ulf Hirsekorn.

"And with PROFINET installed throughout the vessel, the engineers on board have the complete overview of the many systems at any given time. Warnings, malfunctions or alarms can be spotted and handled immediately. This is good for safety and not least the passenger experience of comfort."

### Floats on an carpet of air

AIDA's new generation of ships also sets standards when it comes to protecting the environment. The new vessels will consume less than three liters of fuel per passenger per 100 kilometers. This in part the result of the use of the innovative Mitsubishi Air Lubrication System (MALS) which allows the ships to glide on a carpet of air bubbles.

Not only does this reduce friction resistance, it also remarkably cuts fuel consumption. On the AIDA vessels a VLT® AutomationDrive controls the pump that generates the bubbles. This is the first time the system will be used on cruise ships. According to a Mitsubishi press release from June 2012, MALS is expected to reduce each vessel's fuel consumption by approximately 7%.

Other fuel saving factors include a completely new hull design and dual fuel engines that can also run on LNG (liquefied natural gas), which substantially reduces CO<sub>2</sub> and particle emissions, depending on its availability in the port.

### Project overview

Two luxury cruise ships.  
Aida's largest

Length:	330 m
Beam:	37.6 m
Weight:	124.500 tons
Passengers:	3300
Owner:	AIDA Cruises, Rostock Germany
Shipyard:	Mitsubishi Heavy Industries Ltd., Japan
Delivery:	March 2015 / March 2016

**More than 100  
VLT® AutomationDrive FC 302  
units will be installed on each  
AIDA vessel to control:**

- Pumps
- Fans
- Compressors
- Separators
- Winches