

## Schaeffler Global Technology Solutions

### Ship Drives & Transmissions

#### ABB Finland

#### Professional Bearing Mounting on an Ocean Liner

ABB Oy, Marine and Ports is a leading manufacturer of electric power and propulsion systems for ships. The company is a global maritime organization, providing innovative, reliable, safe and environmental-friendly solutions and qualified services to reduce operational cost and ensure optimum vessel lifecycle for their customers.

#### Challenge for Schaeffler

After 15 years on the high seas, it was time for the cruise ship, „Voyager of the Seas“, to undergo a general overhaul in the dry dock. This was carried out in the dry dock in Singapore. Several thousand employees and mounting personnel were simultaneously involved in renovating the 311-meter-long colossal ship from top to bottom. This also involved replacing the rolling bearings in the ship's three propulsion systems. ABB, supplier of propulsion systems, got in touch with its local Schaeffler contact in Finland to carry out this challenging mounting operation.

#### Schaeffler Solution

Only the most experienced of mounting personnel are used to perform this complex mounting work as it requires sound technical knowledge and demands a high level of physical effort. Following internal coordination with the experts of the Schaeffler mounting service in Germany, two mounting personnel from Germany traveled to Singapore to replace the bearings. The Schaeffler mounting personnel worked in alternating day and night shifts under extremely hot conditions with temperatures of between 30-35 degrees even at night. Complying with the strict schedules was essential as each day spent in the dry dock generates considerable costs. The mounting personnel received support from the shipyard workers on site, who operated the cranes, for example.



**ABB**

#### Technical Information about the Ship

##### Cruise ship:

Voyager of the Seas

##### Initial operation:

1999

##### Ship's length:

311 meters

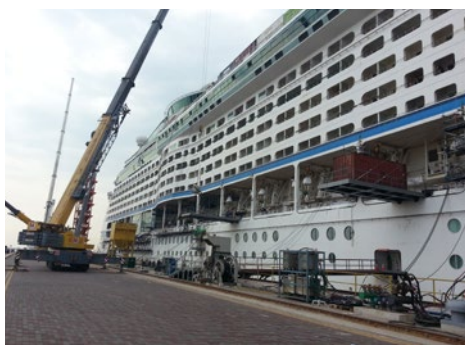
##### Beam:

48 meters

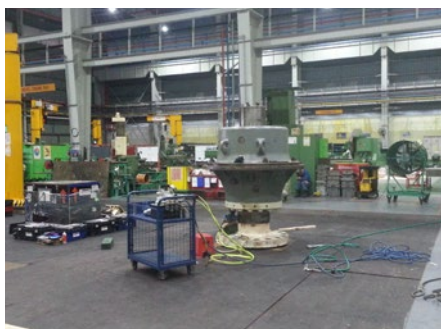
##### Draught:

Almost 9 meters

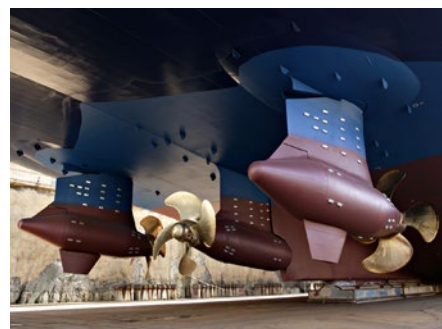




General overhaul in the dry dock



Mounting work on site – here, shaft and housing unit



Energy-efficient Azipod® propulsion systems from ABB are proven and established in cruise ships

## Customer Benefit

Thanks to the dedicated and professional work of all those involved in the project, the overhaul was completed within the planned timeframe of one month. This meant that the “Voyager of the Seas” could set sail for its next cruise as planned, and at the same time the shipping company could rest assured that the propulsion systems were in working order. Just one scheduled day spent in the dry dock can quickly generate costs of one million euros or more, which are incurred for rent, logistics, and outlay. If the propulsion becomes damaged during a cruise, for example due to bearing damage, and the speed must be reduced as a result, dry docking is often inevitable. In this case, rebooking and downtime costs can also be added to the expensive dry-docking costs.

## What's special

For years, ABB and Schaeffler have fostered a partnership with regards to rolling bearing solutions for all aspects of propulsion technology. As a sub-supplier, Schaeffler is not only involved in naval projects as an engineering partner of ABB, but also often provides support locally with its services and service products. Roberto Ongano, project manager of propulsion systems at ABB, acknowledged Schaeffler's performance in the local project by saying:

*“Despite the tough conditions on site and the enormous amount of energy and efforts needed, the Schaeffler mounting personnel have shown outstanding professionalism and seriousness which has served as an example to the whole ABB site team. Such a level of professionalism indeed promotes Schaeffler as a trustful partner to us, and I'm looking forward to sharing with you as many projects as possible in the future.”*

The Schaeffler industrial service experts offer mounting services for rolling bearings that are applicable across industrial sectors. They have detailed knowledge and extensive experience in all sectors.

## Technical Information about the Solution

The following parts were removed and replaced:

2 x Azipod® type V21  
1 x Fixipod  
8 x Pinion bearings