



D E S I G N I N G I N N O V A T I V E S O L U T I O N S

United Technologies

MARINE SOLUTIONS



Carrier Marine & Offshore's experts provided coordination, engineering, project management, and logistics support to assure the delivery and smooth installation of chillers aboard an impressive cruise ship.

Customer

HOLLAND AMERICA LINE

Location

MS PRINSENDAM CRUISE SHIP

Project running since

NOV 14

Innovative chiller solution keeps cruise ship running on schedule

Project

Operated by Holland America Line, the ms Prinsendam cruise ship has been delighting passengers since June 2002. When it was time to replace the onboard air conditioning chillers Holland America Line turned to Carrier Marine & Offshore's experts, based in Rotterdam, to provide tailored marine solutions as standard. The Carrier team succeeded in meeting the customer's special requirements linked to the ship's limited entry areas and onboard accessibility. This customized and well-executed retrofit response helped to keep the ship running smoothly and on schedule.



KEY BENEFITS

Narrow ship refit schedule met by fast delivery

Lower fuel consumption due to higher efficiency of new chillers

Burden of project management eased by Carrier experts

No cutting of the ship's hull required, due to modular equipment, shipped disassembled and tailored to fit

Guest comfort

TECHNOLOGIES

2x 19XR AquaEdge™ centrifugal chillers



Chiller components moving through ship corridor.



Condenser rigging through access hatch.



Condenser fitting through watertight door. Chiller being reassembled in machinery space.



Fully reassembled chiller onboard ms Prinsendam.

Background

Holland America Line needed to replace the aging chillers aboard their ms Prinsendam cruise ship, but had a very narrow window in the itinerary to accomplish the refit. Due to the tight quarters and confined access, there were additional challenges to fit the AquaEdge™ centrifugal chillers aboard into the machinery space. Technically and logistically, Carrier met the challenge by arranging shipment of the chiller in pieces for re-assembly aboard, along with limited adaptations to fit through the ship's watertight doors according to the ship's schedule.

Challenges and solutions

The project presented a number of specific challenges and the resulting solution succeeded in:

- **Tight spaces onboard and need to fit through access hatches** - modular chillers shipped disassembled and then re-assembled onboard;
- **Narrow watertight doors to access machinery room** - additional engineering adaptations made for removable waterboxes to fit heat exchangers through the narrow opening;
- **Limited window in ship itinerary to accomplish refit** - tight project management to compress delivery time;
- **Logistics coordination and engineering support** - Carrier expertise to manage the breakdown and shipment of all component pieces to meet deadlines, along with engineering knowledge and project management to oversee re-assembly, installation and commissioning.

Carrier Marine & Offshore presentation

The Carrier Marine & Offshore group provides specialized heating, ventilation and air conditioning (HVAC) systems and services for shipbuilders, ship owners and operators worldwide. With offices and service engineers based around the world, the Carrier Marine & Offshore team leverages its design expertise, energy auditing, retro commissioning, and maintenance to meet the particular needs of marine customers.

Carrier Marine & Offshore is part of UTC Building & Industrial Systems, the world largest provider of building technologies. The group's comprehensive solutions including elevator, escalator, fire safety, security, building automation, HVAC and refrigeration systems, and services offers a comprehensive range of solutions to the Marine industry through trusted brands including Autronica, Carrier, Marioff, Onity and Otis.

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