

Johnson Controls Marine

Absorption chillers

Example of project success factors:

- Green Energy, positive environmental impact
- Short payback time
- World-class design and manufacturing competence and marine in-house application know-how
- Understanding of shipowners' and shipbuilders' requirements



Johnson Controls
Cruise & Advanced Offshore
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Energy conservancy is cool

Project overview

In the cruise market of today, it is of the utmost importance that we all are committed to low emissions and energy conservancy. As Johnson Controls continuously improve the efficiency of our conventional chillers, and charge them with environmentally friendly, low GWP refrigerants, there still is a huge opportunity left onboard.

Historically most ships have dumped vast amounts of waste heat into the sea – waste heat produced by the propulsion engines in such quantities that shower, swimming pool and laundry heating just cannot use it all. In addition, as more and more ships operate on LNG instead of oil, there is even less use of the waste heat as it isn't used in preheating the oil.

Customer needs

What better way then, than using proven physics and modern technology in converting this heat into the sought-after cooling, by means of our Absorption chiller?

The waste heat can come in several forms: as steam, as hot water or a mix of the two. The Absorption chiller comes in two sizes, at about 1.0MW or 2.0MW at 32°C sea water depending on conditions.

Project and service applications

The superior reliability is the unique feature of the Johnson Controls absorption chiller which includes

- Unique falling film configuration to maintain cooling capacity under ship motion.
- Innovative two-step cycle results in lower concentration of LiBr absorbent which minimizes risk for crystallization and corrosion.
- Superior hermetic integrity.
- Prevention of mixing absorbent and refrigerant by sloshing and self-limiting operation.
- by minimized risk of crystallization and corrosion potential
- Low total Life Cycle Cost by reduced hot water flow

Johnson Controls solution

Johnson Controls is offering this machinery to new ships and as retrofits, and we are also monitoring and following those ships where we already installed them.

To date the marine absorption chillers have been in operation since 2018 on two major cruise liners. In addition to this, several fishery vessels are equipped with this application, not to mention the thousands of land-based chillers built with the same robustness and reliability.