

Grundfos CRT titanium pumps solve corrosion problems on RO plants on board ships

PALL WASSERTECHNIK GMBH, HAMBURG, IS A SUBSIDIARY OF PALL CORPORATION, THE WORLDWIDE MARKET LEADER WITHIN SEPARATION AND FILTER TECHNOLOGY. PALL DEVELOPS AND PRODUCES EFFICIENT STATE-OF-THE-ART MEMBRANE FILTRATION SYSTEMS FOR SEA AND WASTEWATER PURIFICATION. A CORE AREA IS LEAKAGE WATER FROM REFUSE DUMPS. THE COMPANY EMPLOYS SOME 10,000 PEOPLE IN 27 COUNTRIES.

In addition to fresh and waste water purification systems, Pall Wassertechnik specialises in systems for turning sea water into drinking water on board ships, based on the principle of reverse osmosis (RO) using state-of-the-art membrane technology. For such systems, corrosion-resistant pumps must be used in order to obtain optimal system lifetime.

With the CRT series, Grundfos is the only major pump manufacturer in the world producing high-pressure multi-stage centrifugal pumps made of titanium offering almost 100% protection against corrosion.

THE SITUATION

RO technology is a proven technology, and the versatile know-how that Pall possesses within the area of membrane technology is utilised for a wide range of applications. An example of this is the DT disc module in reverse osmosis for purification systems, which has proven particularly efficient and cost-effective. Pall's systems cover all areas of water purification and include solutions

TOPIC:

100% corrosion-free pumps -
Long lifetime of RO systems
- Low weight and increased
strength of systems - Reduced
service and maintenance costs

LOCATION:

Hamburg

COMPANY:

Pall Wassertechnik GmbH

capable of handling 100-20,000 l/h. Every day, more than 2,000 systems are delivered worldwide.

The technology used in systems for drinking water extraction is tested to the limit. Systems from Pall Wassertechnik comply with all standards and specifications for the shipbuilding industry as well as for offshore plants. On drilling platforms as well as on land-based seawater plants, the systems have proven to be not only long-lived and reliable, but also highly robust and maintenance and user-friendly.

THE GRUNDFOS SOLUTION

The Grundfos CRT pumps are characterised by their high level of resistance to chlorine-containing corroding substances, oxidising acids and brine-containing substances. Titanium used to be perceived as an expensive and exotic material for making pumps, but this misconception can today be dismissed as investments are now typically seen in the context of total life cycle costs (LCC), while investment costs have been greatly reduced thanks to mass production.

Titanium is resistant to oxidising acids and chloride solutions, capable of withstanding deep-seated rust attacks and stress corrosion. Due to its low density (4.4 kg/dm³ as compared to 7.8 kg/dm³ for steel), titanium is the ideal raw material for heavy-duty applications on ships and other offshore applications as well as for a variety of aggressive liquids in industry.

The Grundfos CRT range is capable of delivering a head of up to 20 m³/h and a pressure of up to 20 bar.

THE OUTCOME

Due to its high content of chlorine ions, seawater is especially aggressive to metals. Consequently, Pall now installs Grundfos CRT pumps in all their RO systems for ships (including many marine units used by naval vessels). These systems have a drinking water capacity of 5,000 l/h.

Being corrosion-resistant, the Grundfos CRT series pumps have a long life expectancy. Despite the initial higher investment costs (a CRT pump typically costs twice as much as a comparable high-grade steel pump), the investment in a CRT pump is returned on the first failure of a conventional pump due to corrosion.