



## Chemical Free Water Treatment on board LNG Carrier Al Aamriya

Since receiving approval from Wärtsilä Oy at the end of 2010, ENWA has seen increased demand for its Chemical Free Water Treatment for engine cooling and HVAC Systems. In December 2011 ENWA agreed a pilot scheme with LNG Carrier Company MOL LNG (Europe) for the EnwaMatic® Maritime on the vessel Al Aamriya.



LNG Carrier Al Aamriya - Capacity: 210,000 m3

### Environmentally Friendly Water Treatment

The agreement to run a Pilot Scheme came after independent water analyses from fresh water systems showed elevated levels of iron, copper and suspended solids in the cargo cooling system. An in balance in the chemical dosing process can lead to corrosion of the internal pipe work in the cargo cooling system. The alternative would have been to drain the system and flush it out with a harsh metal cleaning agent which had the potential to expose the metal back to bare and potentially lead to leaks. The EnwaMatic® Maritime which is a non-invasive method will filter out all corrosive particles and stabilise the water chemistry for corrosion control.

As the push for more environment friendly and intelligent ships continues, it makes sense to have a fully automated system for water treatment. Manual dosing procedures rely on the human element and unfortunately too many times water treatment is not seen as a priority, although it has significant impact on systems performance and life cycle costs.

### The first EnwaMatic® Maritime on an LNG Tanker

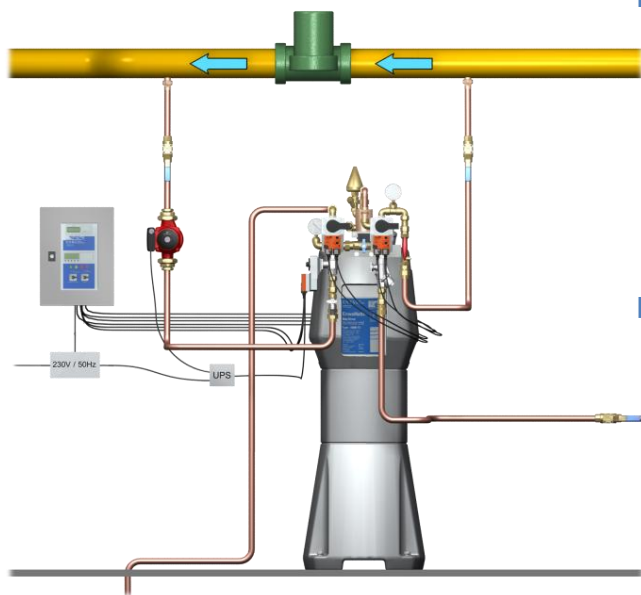
This is the first installation of the EnwaMatic® Maritime System on an LNG Tanker and marks a step in the right direction for the technology. Most of the users to date have been in the cruise line industry as the capital investment of the equipment is comparable with the annual cost of chemicals used by cruise liners. The major benefits for LNG Carriers and other vessel types is the improved heat transfer efficiency, reduced energy consumption, and reduced down time and life cycle costs.

The EnwaMatic® Maritime which is also approved by DNV filters suspended particles to below 5µm and provides corrosion inhibition without the need for chemicals. The EnwaMatic® Maritime F2 model was installed on Al Aamriya's cargo cooling systems in January 2012 and will be trialled for a period of 6 months. The trial will evaluate the efficiency and merits of the EnwaMatic® Maritime Unit versus the alternative considered.





## The EnwaMatic® Process



Click on the image to view a video illustrating the EnwaMatic® technology

### Functions:

- Corrosion inhibition
- Scale control
- Side-stream filtration to < 5 microns
- Environmental control of bacterial growth
- Air separation

### Benefits:

- Reduced energy consumption
- Prolonged system lifespan
- Reduces service and maintenance costs
- Cost-effective alternative to chemical dosing
- Continuous filtration and self-regulating water treatment
- Non-scouring solution for refurbishment projects
- Environmentally sound technology

### Health, Safety and Environment

- EnwaMatic® will create an ideal documented 'Clean Ship' Water Treatment environment
- No Hazardous Chemicals
- Drained water consist only of harmless particles
- Closed loop operation
- Automatic operation without the potential for mechanical failure
- Make up water can be pre-treated by passing through the EnwaMatic® Maritime
- The unit is bolted to the deck and attached to the walls to prevent movement
- Low Voltage System
- The EnwaMatic® Maritime is bolted to the deck to a sorb static forces
- High grade insulation
- No corrosive materials
- No sharp edges

### Design and Approvals

- Wärtsilä Oy of Finland, long term test
- 10 ears documented experience with the technology
- World patent
- DNV test report
- Cranfield University, School of Water Science
- TÜV Safety Approval
- EnwaMatic® is the only water treatment system on the German market fulfilling water treatment and environmental demands.
- Pioneering ship companies are recommending
- EnwaMatic® in their specifications

WÄRTSILÄ  **Fraunhofer**



**ENWA**  
WATER TREATMENT

[www.enwa.com](http://www.enwa.com)

**ENWA Norway**  
PB 257 Forus  
4066 Stavanger  
+47 51 63 43 00  
[post@enwa.com](mailto:post@enwa.com)

**ENWA Sweden**  
Backa Strandgata 8  
422 46 Hisings Backa  
+46 31 742 92 50  
[info@enwa.se](mailto:info@enwa.se)

**ENWA UK**  
46-48 Long Street, Middleton  
Manchester M24 6UQ  
+44 0161 655 7741  
[marcel.sousa@enwa.com](mailto:marcel.sousa@enwa.com)