

Ballast Water Management System



MMC GREEN TECHNOLOGY

MMC Green Technology is a Norwegian company, established in 2010 and is part of the MMC group of companies. MMC Green Technology is a company focusing on environmental protective solutions for the maritime industry, the upcoming BWM convention and MMC's experience from water treatment systems was the main reason for the timing.

MMC Green Technology consists of employees with very long experience from several other companies in the Norwegian Marite Cluster. By knowledge about the high demands in maritime operations we aim to give our customers the best service at all time.

Dedicated and trustworthy, based on feedback and focused on results!

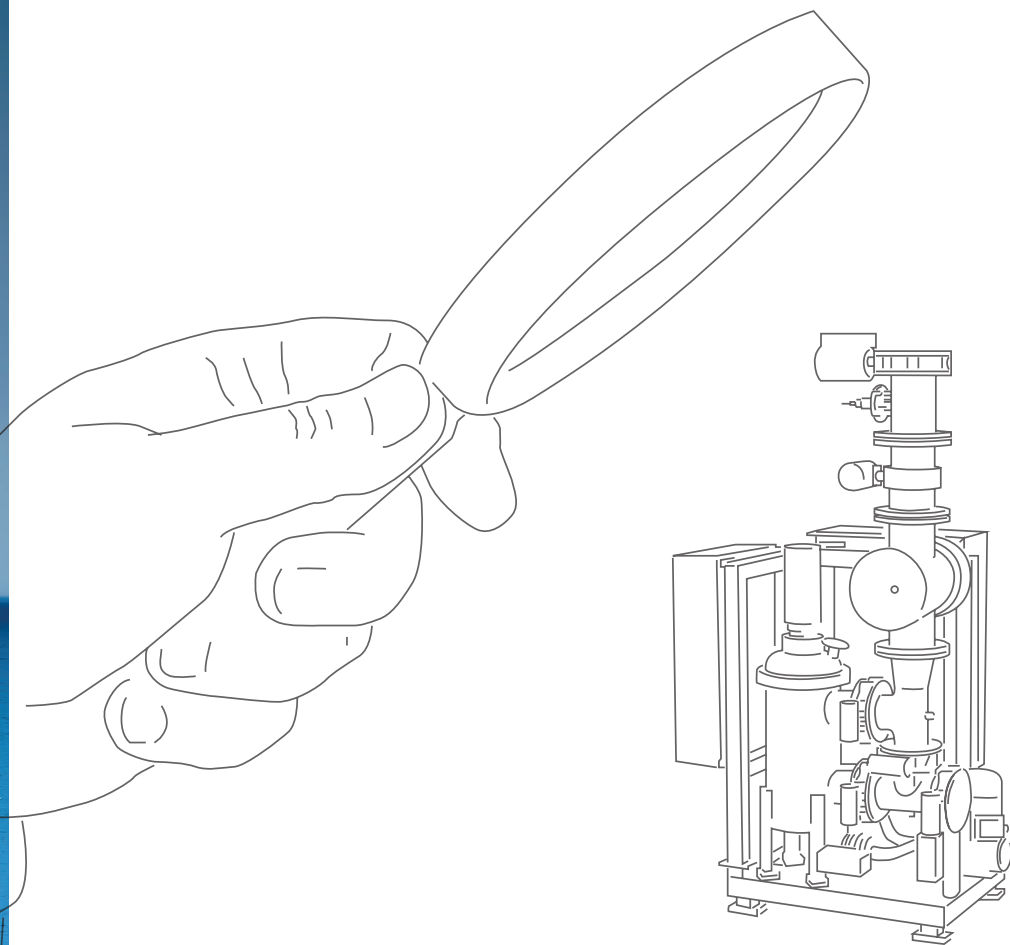
A desire to travel and utilization of natural resources in a harsh environment have developed this maritime cluster into one of the strongest and most innovative clusters in the world, especially within offshore and fishing. The strength of the cluster lies within the many participants in all segments of the value chain - from shipowners to ship equipment suppliers.

14 design companies
14 ship yards
18 ship-owner companies
172 equipment suppliers
22.500 employees
40% of the world's modern fleet
= ONE World-class maritime cluster!

THE NORWEGIAN MARITIME CLUSTER

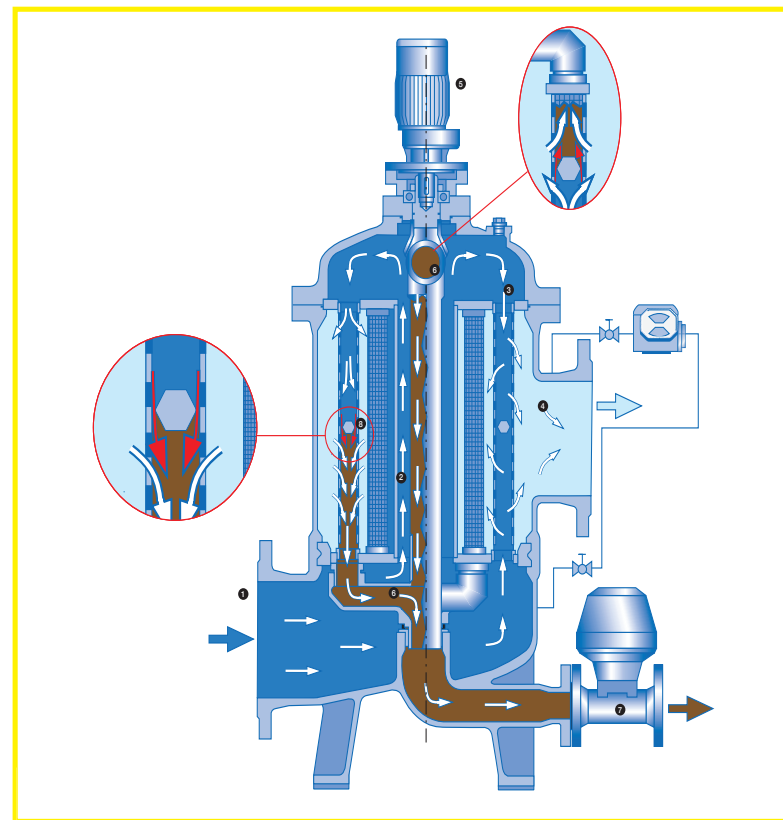
NORWAY, home for a tiny 0,1% of the world's population, controls over 5% of the world's merchant fleet and has the second largest offshore fleet in the world, after USA!

MMC BWMS
-about the system



MMC BWMS is a state of the art ballast water treatment system. Compact design, intuitive operation, reliable performance and easy maintenance has been the most important design criteria.

The ship operators best choice where limited space is available.



MMC BWMS - Filter

MMC BWMS make use of self cleaning filters. This filter is the most recognized filter in the Ballast Water business today, and has by far most experience (longest reference list).

The Filters consists of several filter candles made out of super duplex steel (chrome-nickel-molybdenum steel) with a filtrations degree of 40 micron

Sacrificial anode in addition for even better corrosion resistance

Backflush pump is standard configuration, ensuring efficient cleansing of the filter candles

Fully configurational backflush setpoint

Approximately 5-years service interval



MMC BWMS - UV

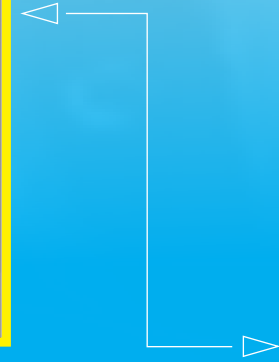
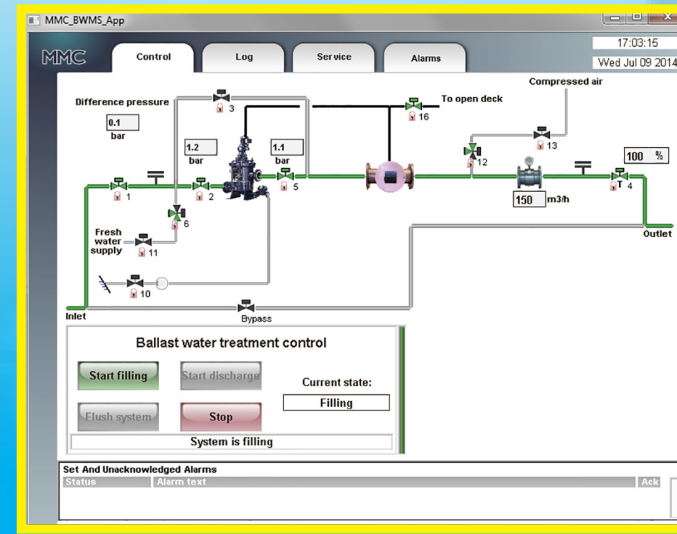
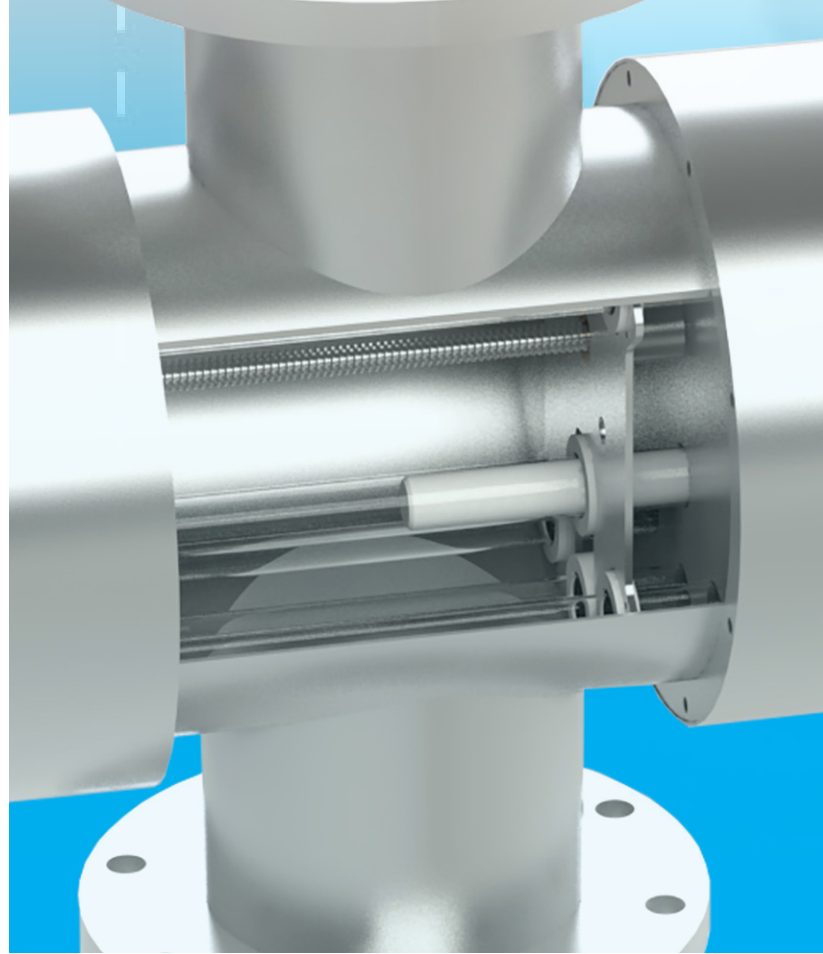
MMC BWMS make use of the latest UV-technology commercially available today, based on medium pressure UV-radiation. This is the most efficient UV-technology for Ballast Water Treatment with a UV-radiation wave length of 200-400 nm.

UV- light has proved to be a very "clean" alternative to active substances (chemical agents such as chlorine, chlorine dioxide or ozone). Unlike these methods, UV does not produce any disinfection-by-products (DBPs).

The UV-sensor is placed in between the lamps, "looking 360 degrees" and senses all lamps simultaneously. The sensor will detect if a lamp needs to be replaced. Lamps and sensor is covered by the same quart sleeves, and is cleaned by an state of the art wiping mechanism.

4 power steps, controlled according to UV- light transmission.

UV-lamp life time of more than 1000 hour (calculated to approx. 5-years operation on maximum power).



MMC BWMS - CONTROL SYSTEM

MMC BWMS make use of a state of the art Control System. Running on a modern industrial computer with an intuitive and user friendly graphical interface.

Can be integrated in ships existing automation system (IAS)

Easy possibilities for Remote Access

Large screen for good overview

Informal warnings and alarms

Very reliable components

Logs all operations, easy to export data, intuitive interface for browsing history

Simulator for training purpose

MMC BALLAST WATER MANAGEMENT SYSTEM -perfect Fit for Retrofit

*MMC BWMS has won several contracts in the offshore segment
due to the compact design.*

Tailor made skid solutions, factory tested



MMC BALLAST WATER MANAGEMENT SYSTEM

-you will not find a smaller footprint

m³/h



1400



1000



600



500



300



150



100



50



*MMC BWMS skid units are always fully factory tested prior to delivery.
Stainless steel frame and piping
Automatic flushing with fresh water after operation to avoid corrosion and extend
lifetime for essential components*

*MMC BWMS can be delivered as skid or in separate components
Skids can be tailor made and piping can be arranged vertical or horizontal*

MMC GREEN TECHNOLOGY
- AGENT NETWORK



We understand our customers need for global service. It has therefore been of high importance to find agents which can give the best local service.

MMC BWMS is today represented in most of the regions for maritime activity in the world through a very experienced and maritime focused network.



USCG AMS

MMC Green Technology has based the treatment system (MMC BWMS) on filtration (first stage) and UV irradiation (second stage). The filter mesh in the first stage is 40 microns. The UV irradiation in stage two damages the DNA structure in the organisms so that they can not reproduce. Systems approved on this basis needs to use both stages (filter + UV) on intake of ballast water, and only stage two (UV) on discharge of ballast water.



THE BALLAST WATER CONVENTION

While ballast water is essential for safe and efficient modern shipping operations, it may pose serious ecological, economic and health threats. There are literally thousands of marine species carried in ships' ballast water. These include bacteria and other microbes, small invertebrates, eggs, cysts and larvae of various species. In some cases, healthy, living fish have been found in ballast tanks.

In February 2004, the International Maritime Organization (IMO) adopted the International Convention for the Control and Management of Ships' Ballast Water and Sediments (the Ballast Water Management or BWM Convention), to regulate discharges of ballast water and reduce the risk of introducing non-native species from ships' ballast water.

Entry into force 8. September 2017.

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