



Danfoss IXA

# Leading the way in **emission monitoring** of washwater

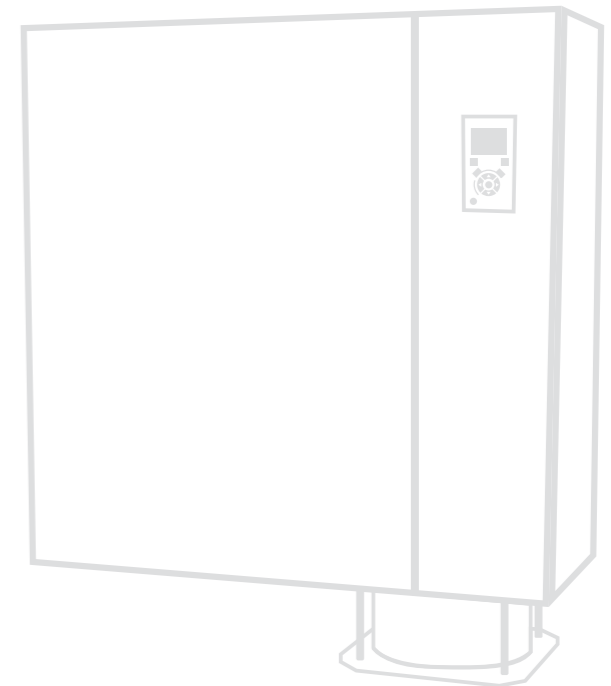
MES 1003 Washwater Monitoring System



# Comply with environmental regulations

Increased focus on the environmental impact from the marine industry has led to a increased focus on regulations related to emissions from the shipping industry.

Emission regulations are consequently becoming more and more strict, and this calls for reliable solutions that ensure compliance.



## Exhaust Gas Cleaning Systems

**The environment in Exhaust Gas Cleaning Systems (EGCS), also referred to as scrubber, is extremely harsh, and consequently there is a need for robust solutions that can operate in the environment of these systems.**

Danfoss IXA specializes in emission monitoring solutions that are built to withstand the harsh environment of Exhaust Gas Cleaning Systems. This, combined with our emission monitoring application knowledge, enables you to stay in compliance with washwater regulations in a reliable way.



## Marine regulatory compliance calls for reliable and compliant solutions

**With the MES 1003 Washwater Monitoring System, you achieve reliable washwater monitoring and documentation compliant with limits established by the International Maritime Organization in MEPC.259 (68).**

- Best-in-class system for reliable performance
- Robust design
- Precise and accurate measurement



**BUREAU  
VERITAS**



# MES 1003 Washwater Monitoring System

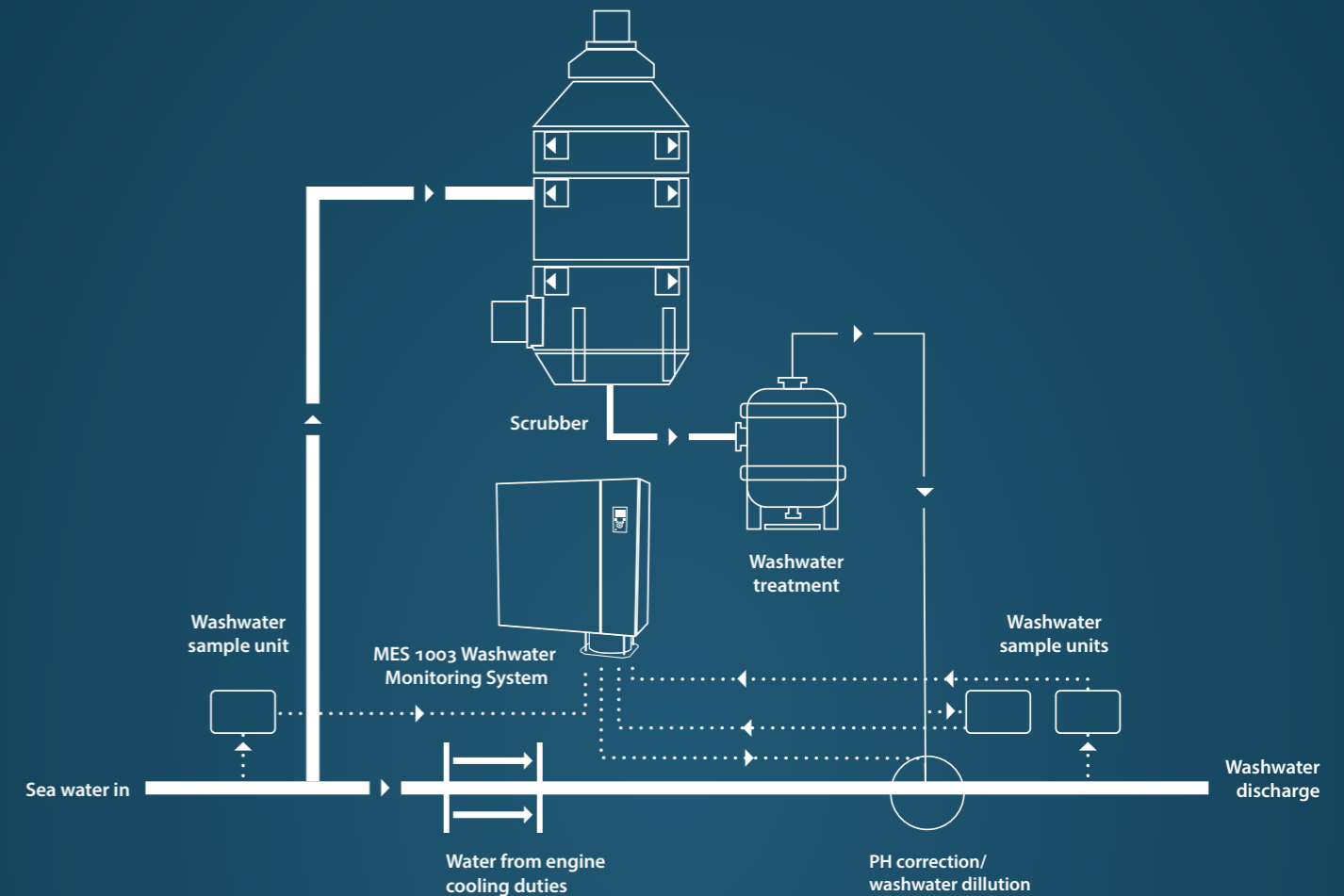
The MES 1003 Washwater Monitoring System is your reliable solution for scrubber washwater monitoring and documentation.



The MES 1003 documents the level of pH, PAH, turbidity and temperature in the scrubber washwater according to the rules defined by the International Maritime Organization, IMO. The MES 1003 is compliant with the guidelines defined in MEPC.259 (68).

- The MES 1003 is a state-of-the-art, reliable and robust Washwater Monitoring System built to operate in a harsh maritime environment.
- The MES 1003 uses the same analyzer unit for all measurements and thereby eliminates the risk of faulty readings due to sensor drift. This feature makes the MES 1003 stand out compared to other systems in the market.
- The MES 1003 can be integrated into an emission management system, which monitors all emissions on board and visualizes the real-time status.
- The MES 1003 offers long calibration intervals and can be maintained on-site.

## One analyzer unit that keeps you in control in a cost-efficient way



## MES 1003 Washwater Monitoring System Application

MES 1003 Washwater Monitoring System is a solution used on vessels equipped with a scrubber. The system measures values between inlet water and discharge water of the scrubber.

- The MES 1003 is based on a sampling principle with one Washwater Analyzer Unit (WAU) and a number of Washwater Sampling Units (WSU). The system supports between 1 to 4 sampling points per WAU.
- The MES 1003 can easily be configured to operate with any scrubber system, being open loop, closed loop or hybrid types.
- The MES 1003 offers a Modbus TCP/IP for interconnection to external systems. In addition, the MES 1003 can connect to the ship's GPS through an RS-422 interface and in this way all measurements are tagged with the ship's position. The measurements are stored internally for at least 18 months.

# Smarter solutions for a more cost-efficient performance

The MES 1003 total cost of ownership is low because of the single analyzer setup. The number of sensors is thereby kept at a minimum as well as costs for calibration and maintenance.



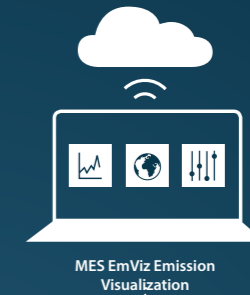
# One solution provider of emission monitoring

Danfoss IXA is one solution provider of emission monitoring.

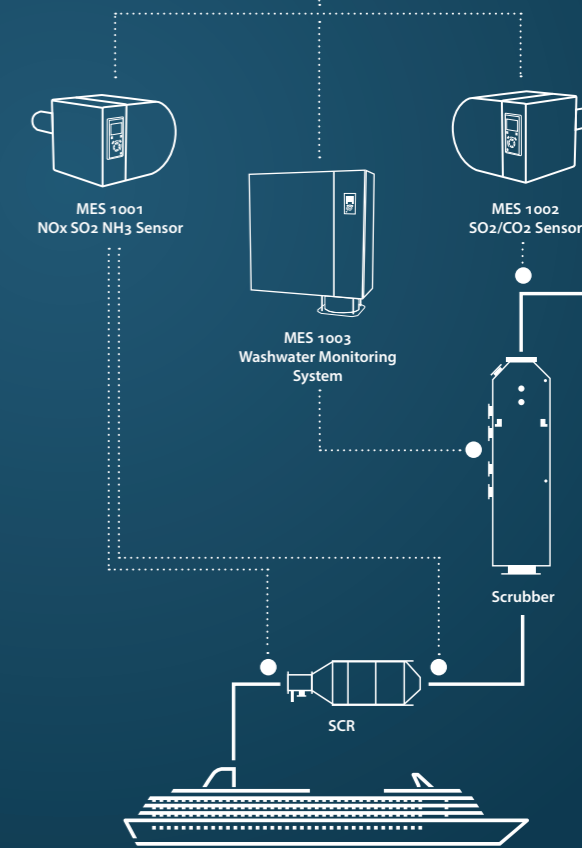
This covers monitoring and gathering of all emission data to be used for compliance, control, documentation, and optimization of processes in various applications throughout the engine room. This is done through platforms provided by the Danfoss IXA product portfolio.

All Danfoss IXA products together provide you with the best solution for emission monitoring that is easy to install, operate and maintain.

Danfoss IXA is world class provider of emission monitoring solutions.



One solution provider of emission monitoring



## MES 1003 Measurement ranges

pH	0 – 14 pH
PAH	0 – 1000 ug/l
Turbidity	0 – 4000 NTU
Temperature	0 – 80 °C



MES 1001  
NOx SO<sub>2</sub> NH<sub>3</sub> Sensor



MES 1002  
SO<sub>2</sub>/CO<sub>2</sub> Sensor



MES 1003  
Washwater Monitoring System

# One solution provider of emission monitoring in the maritime industry

Danfoss IXA A/S, part of the Danfoss Group, is a leading player in certified marine emission monitoring solutions. We develop sensors and systems, and our innovative sensors precisely and continuously measure climate parameters and environmentally harmful gases, providing documentation of regulatory compliance and essential input for energy optimization.

**We are engineering a more sustainable shipping industry.**

## Maritime expertise across divisions

To serve the marine industry in the best possible way, several Danfoss divisions bring a particular range of technical know-how and benefits on board. On their own, each division is at the forefront of its field with industry-leading insight and innovation. Working together, the Danfoss divisions form a comprehensive array of components that help major ships around the world ashore safely and on-time.

Learn more at [marine.danfoss.com](http://marine.danfoss.com)



Industrial Automation Sensors and controls



High Pressure Pumps



IXA Emission sensor



Hydroic Balancing and Control



Drives AC drives



SONDEX<sup>®</sup> Heat Exchangers



Semco Firefighting



Power Solutions Hydraulics



Industrial Refrigeration