



**Water treatment & filtration solutions for
Marine Exhaust Gas Cleaning Systems**



Filtration specialist for the maritime industry

BOLL & KIRCH, as an experienced technology specialist, offers tailored solutions for Exhaust Gas Cleaning Systems (EGCS) also known as “scrubbers” suited to remove large volumes of contaminants and particulate matter.

Fine filtration solutions for reliable processes

The **BOLL FineFilterUnit** is a complete water treatment system based on advanced membrane technology to clean washwater of wet scrubbers. As a fully automated system, the **BOLL FineFilterUnit** cleans washwater or bleed off water and removes suspended solids to be finally collected as a concentrated sludge or solid component.

Safe and reliable compliance of the treated water with the IMO MEPC.259(68) discharge criteria is mandatory for the **BOLL FineFilterUnit**. Sustainable performance to enable continuous and trouble-free operation and protection of the scrubber system are also primary concerns we focus on.

BOLL FineFilterUnit for washwater

100% compliance with IMO regulation for washwater



Bleed Off Treatment

The **BOLL FineFilterUnit** is a fully automated system; centrally controlled and monitored by a PLC panel enabling the continuity of the separation process with limited maintenance. It offers top results in filtration of washwater and does not alter its pH value. The stand-alone unit can either be used independently or with multiple units in parallel.

The operating principle of the cross-flow membrane is based on the feed flow traveling tangentially across the surface of the membrane. The main advantage of this is that the filter cake, which can block the filter, is substantially washed away during the filtration process, increasing the operational time of the filter unit. The **BOLL FineFilterUnit** membrane is self-cleaning!

The loop/membrane surface is cleaned by a CIP-liquid composed of a mixture of water and our in-house developed cleaning agent BOLL Clean. Depending on the feed composition and the operation of the unit, the cleaning liquid stored in the CIP-tank can be reused several times.

The cleaning process will be executed on demand or automatically after a given time of operation.

Reliability for your washwater process

One application, two benefits!

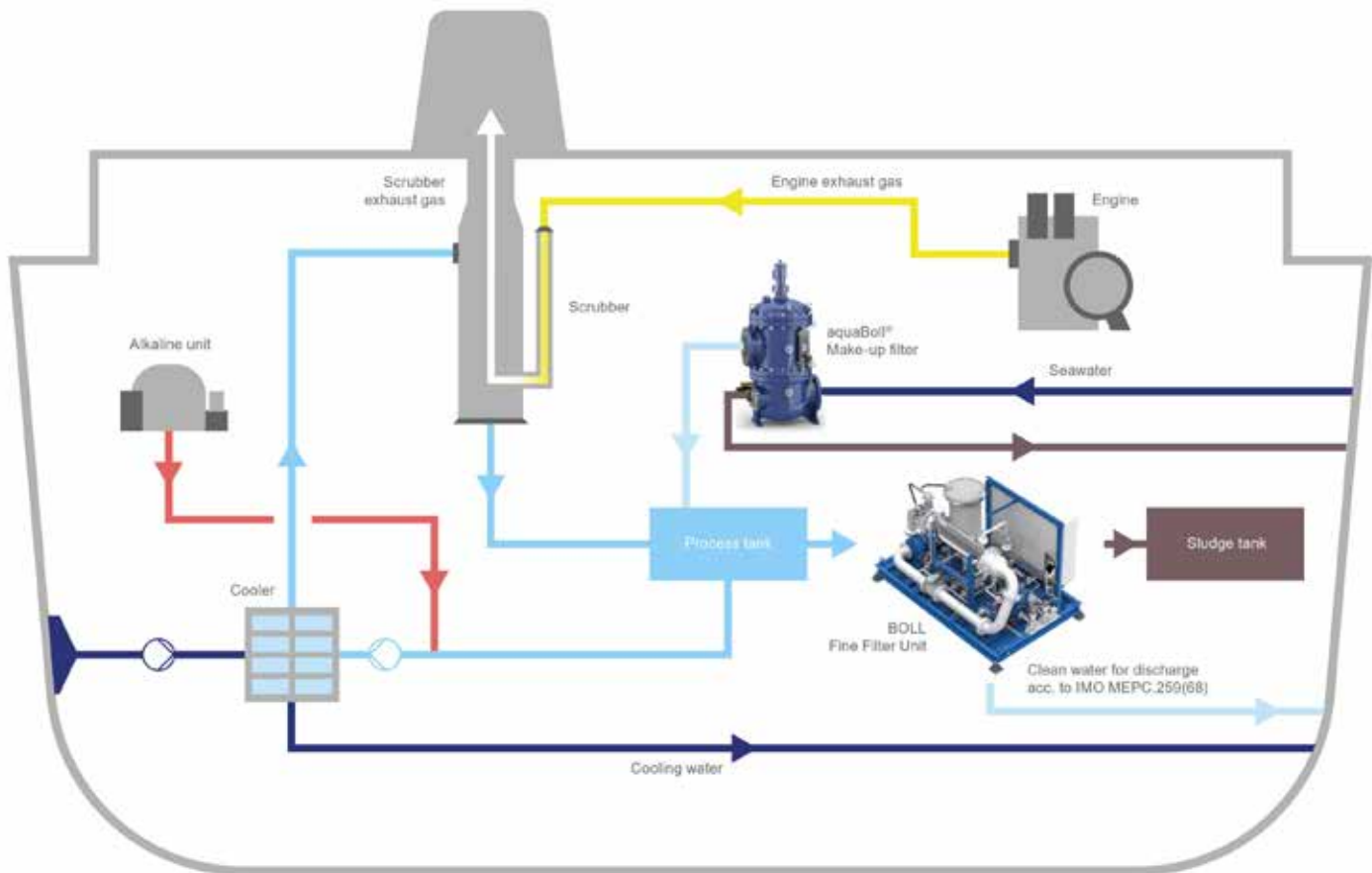
The **BOLL FineFilterUnit** cleans the scrubber washwater and optionally, the make-up filter ensures the efficient protection of the EGCS.

Closed loop systems need constant replenishment of water. Over time, the particle concentration in the washwater will increase, the washwater in the exhaust gas cleaning system has to be partially purged. At the same time some water evaporates while cooling down the exhaust gas. Thus, additional technical water is added to the closed loop system before being filtered. This is usually done with technical respectively fresh water or with seawater.

Using seawater for make-up, the aquaBoll® efficiently removes organic and inorganic particles from the water by ensuring fully automated filtration and thus protection of the EGCS.



Exhaust Gas Cleaning Systems - Closed loop operation



Benefits

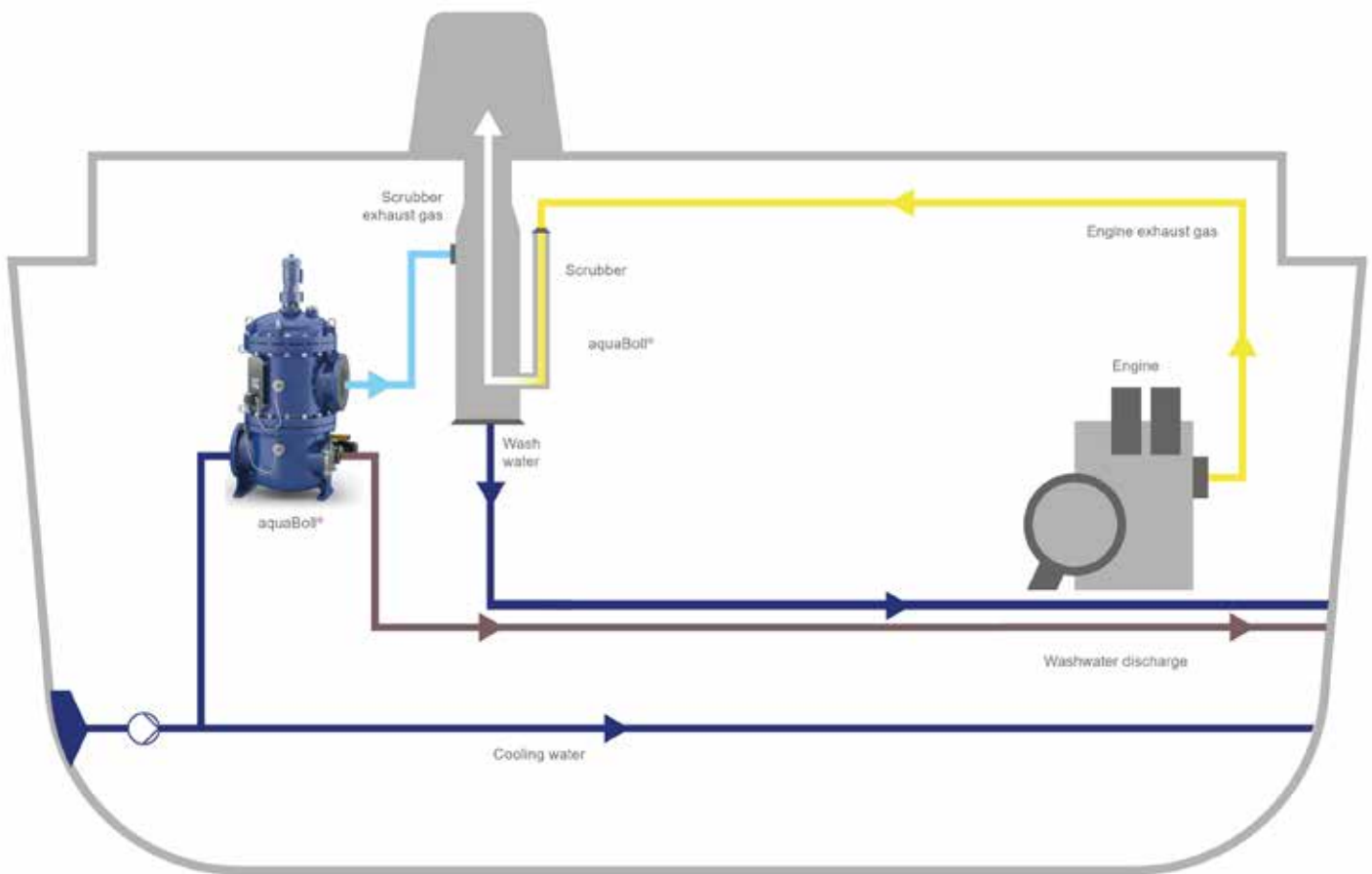
- 100 % compliance with the IMO regulation for treated washwater discharge
- Outstandingly long lifetime of the membrane due to efficient protection
- No use of chemicals during the treatment process
- Low maintenance due to automated systems
- Small footprint enabling easy retrofit
- Modular design

Nozzle protection

Seawater is sprayed into the gas scrubber by means of nozzles and entering into a chemical reaction with the sulphur dioxide contained in the gas, thereby neutralizing it. This seawater is supplied directly from the ocean and permanent nozzle protection is required to continue the exhaust gas cleaning process.

To this end, aquaBoll® efficiently removes organic and inorganic particles from the open loop intake while also ensuring fully automated filtration of the washwater generated during this process.

Exhaust Gas Cleaning Systems - Open loop operation



Our expertise

- Best possible nozzle protection for scrubbers
- Guaranteed protection for water treatment scrubbers
- BOLLFILTER Automatics are installed in a wide range of Exhaust Gas Cleaning Systems made by various manufacturers in order to maintain complex systems and ensure proper functioning thereof.



Make use of 70 years of experience in maritime filtration and increase the quality of your washwater. Our **BOLL FineFilterUnit** guarantees a treated discharge water free from particles and ensures efficient protection of your EGCS.

Reasons for choosing BOLLFILTER

- Long term experience in maritime filtration
- Engineered in Germany
- Market proven: Selected by leading EGCS manufacturers
- 100 % compliance with the IMO regulation for washwater
- No use of chemicals during the filtration process
- Steady high discharge quality
- Easy and crew friendly operation

Contact:

BOLL & KIRCH Filterbau GmbH
Siemensstraße 10 – 14
50170 Kerpen

Telephone: +49 2273 562 424
E-mail: info@bollfilter.com
www.bollfilter.com

