BILGE WATER DEOILING
SAFE, RELIABLE, ECONOMICAL

MULTI-PHASE EMULSION BREAKER MPEB
What is bilge water?

Bilge water is the result of leakages, of de-watering processes from sedimentation and sludge tanks and of drains from different cleaning systems. It can be a mixture of salt water, coolants, fuel oil, lube oil, dust, soot and other substances. This mixture is normally collected in a bilge water tank. Bilge water collects in a ship’s bilge wells, which are located in the lowermost part of the vessel just about the hull.

Bilge water occurs on every ship, be it a container vessel, oil tanker or freighter. This causes an acute disposal problem because, before the bilge water can be discharged into the sea, this potent mix must undergo intensive treatment in line with the requirements of the International Maritime Organization (IMO).

Antipollution regulations are becoming increasingly stringent

Ensuring that the maximum residual oil content in bilge water permitted under present legislation (≤ 15 ppm) is not exceeded is reasonably straightforward. More and more countries introduce ever stricter environmental protection regulations to protect NSA (National Special Areas) and PSSA (Particularly Sensitive Sea Areas) zones. Compliance with “green ship” and “green harbour” requirements also calls for even more effective deoiling systems that are offered by MAHLE Industriefiltration.

Basic principle:
Two-stage bilge water cleaning

The “multiple phases” (water, oil, solids) are separated in the first stage. The second stage removes permanently the fine oil droplets ≥ 1 µm (emulsion/dispersion).
**CLEAN WATER IN TWO STAGES**

**BILGE WATER DEOILER MPEB**

**1st stage:**

**Multi-Phase Separation MPS**

The bilge water is pumped through the MPS profiles. The bilge water accelerates and swirls as it passes through the inlet on to the profiles, making the small oil droplets coalesce to form large drops which are then bound by the adhesion force of the profiles. These large drops pass through oil ascent lines into the first oil dome. All solids and heavier substances slide down the profiles into the sludge holding tank.

**Equipment**

- Automatic oil drain with level electrode and pneumatic oil discharge valve,
- Control cock at the oil collection dome,
- Safety valve,
- Pressure gauge,
- Solenoid valve for scavenger line.

**2nd stage:**

**Mechanical Emulsion Breaker MESB**

The water is then pumped through an element from the inside to the outside for fine droplet separation. The fine oil droplets (≥1 µm) coalesce in a microfibre bed to form large drops, which are fed into the second oil dome.

This permanent separation delivers complete operational safety at remarkably low cost.

**Equipment**

Scope of delivery similar to MPS-System, additional parts:

- Spring loaded non-return valve,
- Pneumatically operated three-way valve in the outlet to re-circulate separated bilge water if residual oil content exceeds 15 ppm, and
Configuration and design
A wide range of bilge water deoilers for all types of ships: the systems are modular in design, allowing for flexible configurations and customised dimensions.

Even highly contaminated media or emulsions/dispersions are safely separated in a continuous process without the use of added chemicals, absorbers or activated carbon. NFV deoilers are supplied with all components in accordance with IMO-Marpol MPEC.107(49) regulations (harbour control valve, oil-in-water-monitor with 3/2-way valve).

The advantages of MPEB technology
NFV bilge water deoilers employ highly effective, patented technologies to remove all contaminants from the bilge water. The systems use no chemicals, no adsorption processes, no high-speed centrifugal forces, no membrane filters, no backflushing and do not require periodic cleaning.

A high degree of installation flexibility
Ships are not built around the technology they contain, which is why our bilge water deoilers are available in all performance capacities (0.1 m³/h-10 m³/h) and in three different designs – to allow shipyards and shipbuilding companies to implement effective, creative solutions.

MPEB: Standard configuration, capacities and dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Configuration</th>
<th>Flow rate (m³/h)</th>
<th>Size, including service space</th>
<th>Weight (kg)</th>
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<td>MPEB (Single system)</td>
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<td>2800 × 2800 × 2000</td>
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Pump options
Different delivery options are offered:
- Built-on pump to facilitate installation.
- Separate feed pump to minimise suction head where required.
MAHLE Industriefiltration
develops and builds advanced filtration
and separation technology for use in a
wide range of industrial applications and in
power plants, civil and military ship-
building.

The company is part of the MAHLE Group,
one of the top 30 automotive suppliers
globally and the world market leader for
combustion engine components, systems
and peripherals.

NFV and AKO products are used in the fol-
lowing applications:
- Bilge water deoiling
- Ballast water treatment
- Cooling lubricant and detergent pro-
cessing
- Industrial waste water cleaning
- Separation systems (petrochem. industry)
- Oil and fuel treatment for engines, tur-
bines and gears; heavy oil filtration
- Protection of hydraulic units, pipe lines,
transfer and circulation systems

A DEMANDING TASK
BILGE WATER SEPARATION

Documentation
MAHLE Industriefiltration supplies each
MPEB bilge water separator with full doc-
umentation either as paper copies or as
PDF (Portable Document Format) files on a
CD-ROM. The instruction manual, which
can also be made available in most major
languages, covers:
- Safety
- System description
- Operating instruction
- Alarms and fault finding
- Installation instructions
- Spare parts
- Component descriptions

Retrofitting
MPEB is ideal for replacing older bilge
water separator systems. It is available as
the MPEB-VT, which is a separator unit
that consists of two vessels. The first ves-
sel is placed in the same location as the
old bilge water separator; the second ves-
sel may be placed anywhere in the engine
room where there is any available space.

Spare parts, service and support
MAHLE Industriefiltration provides spare
parts kits for all service and maintenance
needs. Global technical service, training
and support are available throughout the
lifetime of the MPEB.

Approval
The MPEB and the
oil-in-water monitor are
approved according to
the IMO Resolution
MEPC.107(49) as well as
the European Marine
Equipment Directive,
MED 2002/75/EC.
The MPEB also fulfils the
requirements of all major
classification societies.
Upon request, the MPEB
can be delivered with
individual test certificates
(USCG-certificate
No. 162.050/9041/0
or RMRS-certificate
No. 98.001.08.272).

MPEB® is a trademark
owned by MAHLE
Industriefiltration.
The company reserves
the right to make
changes at any time
without prior notice.