

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Filter

with type designation(s)

BS031, BS061, BS101E, BS151E, BS201E, BS300E, BS400E, BS500E, BS603E, BS804E, BS1004E, BS1204E, BS1206E, BS1406E

Issued to

Filter Safe Ltd.
I.Z Migdal Tefen, Israel

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.7 Pressure equipment

Application :

Filter(s) approved by this certificate is/are suitable for all maritime applications and accepted for installation on all vessels classed by DNV.

Type:	Max. working temp.:	Working media:	Design pressure:
BS031	50°C	Ballast water	10 bar
BS061	50°C	Ballast water	10 bar
BS101E	50°C	Ballast water	10 bar
BS151E	50°C	Ballast water	10 bar
BS201E	50°C	Ballast water	10 bar
BS300E	50°C	Ballast water	8 bar
BS400E	50°C	Ballast water	8 bar
BS500E	50°C	Ballast water	8 bar
BS603E	50°C	Ballast water	7 bar
BS804E	50°C	Ballast water	7 bar
BS1004E	50°C	Ballast water	7 bar
BS1204E	50°C	Ballast water	7 bar
BS1206E	50°C	Ballast water	7 bar
BS1406E	50°C	Ballast water	7 bar

Note: Ballast water can be seawater / brackish water / fresh water.

Issued at **Hamburg** on **2021-03-23**

for **DNV**

This Certificate is valid until **2026-03-22**.

DNV local station: **Piraeus**

Approval Engineer: **Stefan Wiemer**

Jonathan Struwe
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

The filters are welded pressure vessels with dished or flat ends, with an outer diameter between about 406mm and 1980mm. For details (e. g. design data, materials or dimensions) see Approved Drawings (listed below in "Type Approval documentation").

Application/Limitation

The filters are approved according to DNV GL Rules Ship Pt.4 Ch.7 'Pressure Equipment' (Edition July 2020, Amended August 2020), and graded as pressure equipment class III (Pt.4 Ch.7 Sec.1 table 2). The joint efficiency is $v=0.7$, the corrosion allowance is 1 mm (carbon steel).

This type approval applies to the strength of the filter as a pressure vessel, the filter function has not been assessed. For the installation of the filter on board of the ship, the requirements of DNV GL rules Pt.4 Ch.6 "Piping systems" shall be observed additionally.

All material used for pressurized parts shall be delivered with material certificates according to DNV GL rules Pt.4 Ch.7 Sec.1 Table 7.

Manufacturing, workmanship and testing shall be done according to DNV GL Rules Pt.4 Ch.7 Sec.7.

Each filter manufactured to this type approval is to be:

- Constructionally checked and hydraulic pressure tested to minimum 1.5 x design pressure,
- Certified by DNV GL and to be delivered with a product certificate when required by DNV GL Rules or by the purchaser.

Place of Production

The filters are manufactured and assembled at below mentioned certificate owner's sites:

Global Headquarters
3 Ha'Ela st.
53210 I.Z Migdal Tefen
Israel

Hong Kong, Regional Office
DD362 Lot 30 Tsing Chau Tsai Shipyard,
Lantau Island N T,
Hong Kong

Type Approval documentation

Marking of product

For traceability to this type approval the products are at least to be marked with:

- the name and domicile of the manufacturer,
- the manufacturer's type designation and serial number,
- the year of manufacture,
- the design pressure,
- the design temperature in °C,
- the hydraulic test pressure, and
- DNV GL's identifying mark.

Periodical assessment

The objective of the periodical assessment is to verify that the conditions for the type approval (TA) have not been altered.

The main scope of the periodical assessment will normally include:

- verification of the TA applicant's production and quality system w.r.t. ensuring continued consistent production of the TA products at the TA applicant's own premises and at other companies that are given the responsibility for manufacturing of the products,
- review of TA documentation and that this is still used as basis for the production,
- review of possible changes in the design, the materials and the performance of the product, and
- verification of the product marking.



Job Id: **262.1-033823-1**
Certificate No: **TAP00002BE**

For retention of the TA certificate in its validity period the periodical assessments will be carried out every two years.

Unscheduled assessments for retention of the certificate may be carried out when there is reason to believe that the type approval applicant has not adhered to the obligations stipulated in the type approval certificate.

End of Certificate