



Marine &amp; Offshore

Certificate number: 56247/A0 BV

File number: ACM 149/2514/02

Product code: 1543I

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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## TYPE APPROVAL CERTIFICATE

*This certificate is issued to*  
**FILTERSAFE LTD**  
 - ISRAEL

*for the type of product*  
**FILTER FOR BALLAST WATER TREATMENT EQUIPMENT**  
 Automatic Screen Filter - BS Type 'E'

### Requirements:

- Bureau Veritas Rules for the Classification of Steel Ships
- Bureau Veritas Rules for the Classification of Offshore Units

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 27 Jul 2024**

**For Bureau Veritas Marine & Offshore,**

At BV PIRAEUS, on 27 Jul 2019,

Spyros KONTOULIS



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The electronic version is available at: <http://www.veristarnb.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=mfw0lrwkj>

BV Mod. Ad.E 530 June 2017

This certificate consists of 5 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION

#### Automatic Filters Type BS

##### 1.1 Technical Specifications

<b>Maximum Working temperature</b>	50 °C
<b>Filtration precision</b>	40 µm
<b>Seam factor</b>	0,6
<b>Operating Media</b>	Sea water
<b>Mounting</b>	Vertical and horizontal

Filters for Ballast Water Treatment Systems with the following cleaning mechanisms: Standard, Turbo & Super Turbo.

##### 1.2 Standard Version: BS-XXE H/V

Filter Type	BS101E	BS151E	BS201E	BS300E	BS400E	BS500E	BS603E	BS804E	BS1004E
Design pressure (bar)	10	10	10	8	8	8	7	7	7
Max. Flow rate (m3/h)	250	375	500	750	1000	1250	1500	2000	2500
Inlet / Outel Diameter (mm)	150-200	200-300	200-300	250-350	300-400	350-400	400-450	450-500	500-600

Filter Type	BS1204E	BS1206E	BS1406E
Design pressure (bar)	7	7	7
Max. Flow rate (m3/h)	3000	3000	3500
Inlet / Outel Diameter (mm)	500-600	500-600	500-600

##### 1.3 Turbo Version: BS-XXE H/V-T

Filter Type	BS101E	BS151E	BS201E	BS300E	BS400E	BS500E	BS603E	BS804E	BS1004E
Design pressure (bar)	10	10	10	8	8	8	7	7	7
Max. Flow rate (m3/h)	300	450	600	900	1200	1500	1800	2400	3000
Inlet / Outel Diameter (mm)	200-250	250-350	250-350	300-400	300-400	350-400	400-450	450-500	500-600

Filter Type	BS1204E	BS1206E	BS1406E
Design pressure (bar)	7	7	7
Max. Flow rate (m3/h)	3600	3600	4200
Inlet / Outel Diameter (mm)	500-600	500-600	500-600

##### 1.4 Super Turbo Version: BS-XXE H/V-ST

Filter Type	BS101E	BS151E	BS201E	BS300E	BS400E	BS500E	BS603E	BS804E	BS1004E
Design pressure (bar)	10	10	10	8	8	8	7	7	7
Max. Flow rate (m3/h)	350	525	700	1000	1400	1750	2100	2800	3500
Inlet / Outel Diameter (mm)	200-250	250-350	250-350	300-400	300-400	350-400	400-450	450-500	500-600

Filter Type	BS1204E	BS1206E	BS1406E
Design pressure (bar)	7	7	7
Max. Flow rate (m3/h)	4200	4200	4900
Inlet / Outel Diameter (mm)	500-600	500-600	500-600

## 1.5 Materials

Part	Material
Housing	S235JR / SA-106-B
Seals	NBR
Filter Element	Stainless Steel 904 / 316L

When other choices of materials are used per manufacturer's recommendations, the BV agreement is to be obtained.

**2. DOCUMENTS AND DRAWINGS**

2.1 - Operation Manual N° DOC-00142 Rev.08 dated 24/01/2018

2.2 - Document N° DOC-00381 dated 2019: Filtersafe configurations & Flow rates

2.3 - Assembly drawings:

Drawing Number	Rev.	Date
BS101E HB-08A-2S SNxxx	A	30/08/2018
BS101E V-08A-2S SNxxx	A	30/08/2018
BS151E HB-10A-2S SNxxx	A	30/08/2018
BS151E V-10A-2S SNxxx	A	30/08/2018
BS201E HB-12A-2S SNxxx	B	30/08/2018
BS201E V-12A-2S SNxxx	B	30/08/2018
BS300E HU-14A SNxxx-EF2	A	30/08/2018
BS300E V-14A SNxxx	A	30/08/2018
BS400E HU-16A SNxxx-EF	A	30/08/2018
BS400E V-16A SNxxx	A	30/08/2018
BS500E HU-16A SNxxx	A	30/08/2018
BS500E V-16A SNxxx	A	30/08/2018
B603E HU-16A SNxxx	A	30/08/2018
BS603E V-16A SNxxx	A	30/08/2018
BS804E HU-18A SNxxx	A	30/08/2018
BS804E V-18A SNxxx	A	30/08/2018
BS1004E HU-20A SNxxx	A	30/08/2018
BS1004E V-20A SNxxx	A	30/08/2018
BS1204E HU-24A SNxxx	A	30/08/2018
BS1204E V-24A SNxxx	A	30/08/2018
BS1206E HB-24A SNxxx	A	26/02/2019
BS1206E V-24A SNxxx	A	26/02/2019
BS1406E HB-24A SNxxx	A	26/02/2019
BS1406E V-24A SNxxx	A	26/02/2019

2.4 - General Assembly Drawing

Drawing Number	Rev.	Date
BS201E HB-10A-BV-Approval	-	21/04/2019
BS500E-HU-16A-BV-Approval	-	22/04/2019
BS603E-HU-16A-BV-Approval	-	22/04/2019
BS1204E-HU-24A-BV-Approval	-	23/04/2019
BS1406E-HU-24A-BV-Approval	-	23/04/2019

## 2.5 - Filter body drawings:

Filter type	Drawing Number	Rev.	Date
BS 101E	USW.4M.1000F-E	C	20/06/2018
BS 151E	USW.6M.1000F-XX	C	20/06/2018
BS 201E	USW.8M.1000F-XX	C	20/06/2018
BS 300E	UAW.4F.1100L-16	C	17/06/2018
BS 400E	UAW.4F.1100L-XX	C	17/06/2018
BS 500E	UAW.4F.1100L-XX	A	17/06/2018
BS 603E	UAW.4N.1000EC-XX	A	21/06/2018
BS 804E	UAW.4P.1000EC	A	17/06/2018
BS 1004E	UAW.4P.1000EC	A	17/06/2018
BS 1204E	UAW.4P.1000EC	B	25/07/2018
BS 1206E	UAW.4Q.1000EC-HR-24	A	25/07/2018
BS 1406E	UAW.4Q.1000EC-HR-24	A	25/07/2018

2.6 - Calculation data sheets N° 00-073 dated 12/06/2018, 00-075 dated 12/06/2018, 00-77 Rev. 01 dated 17/06/2018

*No departure from the above documents shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.*

**3. TEST REPORTS**

Not applicable.

**4. APPLICATION / LIMITATION**

4.1 - May be used as automatic pre-filter intended in Ballast Water Treatment Systems.

4.2 - This Certificate applies to bare filters. If required by the Rules, each attached piece of equipment is to be either type-approved or design-appraised on a case-by-case basis.

4.3 - Reviewed as Class 3 pressure vessel according to the Society's Rules Pt C, Ch 1, Sec 3 with a seam factor of 0,6.

4.4 - This approval doesn't cover the functional performance and the good operating in service of the filter.

4.5 - The fitting on board will be made according to the manufacturer's recommendations and instructions.

4.6 - Each filter unit is to be delivered with the relevant documentation for maintenance and operation.

**5. PRODUCTION SURVEY REQUIREMENTS**

5.1 - The Filters are to be supplied by **FILTERSAFE LTD.** in compliance with the type and the requirements described in this certificate.

5.2 - This type of product is within the category IBV of BUREAU VERITAS Rule Note NR320.

5.3 - Fabrication and welding requirements to comply with the Society's Rules Pt C, Ch 1, Sec 3 [4.10 Class 3 vessels]. Welding procedures and welding consumables are to be approved by the Society.

5.4 - Work's certificate is to be provided for raw materials of shell assembly and head of filter according to the Society's Rules [Class 3 vessels]

5.5 - Each filter is to be hydraulic pressure tested to 1.5 times the maximum working pressure under witnessing of a Society's Surveyor.

5.6 - BUREAU VERITAS Product Certificate is required.

5.7 - For information, **FILTERSAFE LTD.** has declared to Bureau Veritas the following production sites:

**FILTERSAFE LTD.**  
**Haella Street, Tefen Industrial Zone 2495900,**  
**P.O.Box 23,**  
**ISRAEL**

**FILTER SAFE HK LIMITED**  
**DD302 LOT30 Tsing Chau Tsai Shipyard,**  
**Lantau Island, NT, Hong Kong**  
**HONG KONG**  
**CHINA**

#### **6. MARKING OF PRODUCT**

Each filter shall be marked with at least:

- Manufacturer's name or trademark
- Type designation
- Year and serial number
- Design pressure
- Design temperature
- Test pressure and the date of the test
- Society's brand as relevant

#### **7. OTHERS**

It is **FILTERSAFE LTD.**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

**\*\*\* END OF CERTIFICATE \*\*\***