



Design Appraisal Document

Lloyd's Register EMEA
Global Technology Centre
Southampton Boldrewood Innovation Campus
Burgess Road
Southampton
SO16 7QF

Date
20 September 2018

Please quote this reference number on all future communications
GTC/ENG/KK/WP33152054

CLIENT: FILTERSAFE AUTOMATIC SCREEN FILTRATION
MANUFACTURER: FILTERSAFE AUTOMATIC SCREEN FILTRATION
SUBJECT: GENERAL APPROVAL OF FILTRATION UNITS BS603/603E, 804/804E,
1004/1004E, 1204/1204E, 1206E & 1406E

DESIGN PRESSURE: 7 BARG MAX
DESIGN TEMPERATURE: 50°C
HYDRAULIC TEST PRESSURE: 9.84 BARG

Valid Until 19 September 2023

This Design Appraisal Document cancels and supersedes Document No. ENG18940362, Issue No. 6, dated 3rd April 2017

The Documents listed in paragraph 1 of the appendix have been examined for Compliance with the design requirements of Lloyd's Register Rules and Regulations for the Classification of Ships, Part 5, Chapter 11: July 2017 for the design conditions stated on the plans and are assigned an appraisal status as indicated subject to the following:-

1. The models listed above approved with standard, Turbo (T) and super Turbo (ST) model
2. All pressure retaining material certificates are to be to the satisfaction of the attending Surveyor in accordance with Lloyd's Register Rules Part 5 Chapter 11 Section 1.7.1
3. Filter component materials are to comply with specification, manufacture and testing requirements of Chapter 6 of the LR Rules for materials.
4. The leg length of each of the fillet welds for nozzle is to be not less than 1.4 times the actual thickness of the thinner of the parts being joined in accordance with Part 5, Chapter 10, Section 14.5.3 of LR Rules for Ships.

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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5. Mountings are to be subjected to a hydraulic test of twice the approved design pressure as per Part 5 Chapter 11 Section 10.2.1
6. Bolt tightening device should be used to ensure the bolting up the bolts is not overstressed.
7. Load cycles have not been considered in this appraisal as information submitted does not define.
8. External loads and/or moments caused by wind and ship motions have not been considered in this appraisal as information submitted does not define.
9. It is concluded that the NBR gasket material are used. The gasket factors have been extracted from the manufacturer's calculations.
10. The design appraisal of main flange is based on soft gasket case.
11. Should the manufacturer change the design or materials Lloyd's Register must be advised. Failure to do so will render this General Approval invalid.
12. The items referred to in this document are approved for installation in a ship classed by Lloyd's Register insofar as the above rules remain applicable and are not amended, and subject to the comments made in this design appraisal.

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1. The documents listed below have been examined

Document No.	Rev.	Title	Status	Date
W-0000481	D	Filter Body BS603-16 DIN (EN), (Integral Legs), 4 sheets	AQ	13 th January 2015
W-0000483	D	Filter Body BS603-16 DIN (EN), 4 sheets	AQ	13 th January 2015
W-0000818	A	Filter Body BS603-18 DIN (EN) SSR, 5 sheets	AQ	19 th January 2017
W-0000480	D	Filter Body BS804-24 DIN (EN), (Integral Legs), 4 sheets	AQ	13 th January 2015
W-0000479	D	Filter Body BS804-24 DIN (EN), 4 sheets	AQ	13 th January 2015
W-0000817	A	Filter Body BS804H-24 DIN (EN) SSR, 5 sheets	AQ	19 th January 2017
W-0000621	-	Filter Body BS804HR-20 DIN (EN), Branch Pipe Outlet 4 sheets	AQ	23 rd July 2015
W-0000655	C	Filter Body BS804HR-18 DIN, 4 sheets	AQ	3 rd April 2017
W-0000766	A	Filter Body BS804VD-18 DIN, 4 sheets	AQ	3 rd April 2017
W-0000844	A	Filter Body BS804HL-18 DIN, 4 sheets	AQ	3 rd April 2017
W-0000474	D	Filter Body BS1004-24 DIN (EN), (Integral Legs), 4 sheets	AQ	13 th March 2015
W-0000441	D	Filter Body BS1004-24 DIN (EN), 4 sheets	AQ	13 th March 2015
W-0000835	A	Filter Body BS1004H-24 DIN (EN) SSR, 5 sheets	AQ	19 th January 2017
W-0000475	D	Filter Body BS1204-24 DIN (EN), (Integral Legs), 4 sheets	AQ	13 th March 2015
W-0000482	D	Filter Body BS1204-24 DIN (EN), 4 sheets	AQ	13 th March 2015
W-0000836	A	Filter Body BS1204H-24 DIN (EN) SSR, 5 sheets	AQ	19 th January 2017
W-0000567	B	Filter Body BS603-18 DIN (EN), 9 sheets	AQ	29 th May 2015
M-0000271	B	Bracket for Conduit	SI	3 rd April 2017
M-0000280	B	Bracket for Name Plate	SI	3 rd April 2017
W-0000304	D	Outside Guide Ring	SI	3 rd April 2017
W-0000305	D	Multi Filter Inside Guide Ring	SI	3 rd April 2017
W-0000460	B	Leg Unit 1560 (for BS804-1004-1204)	AQ	3 rd April 2017
M-0000446	A	Saddle Bracket	SI	3 rd April 2017
M-0000447	A	Control Panel Bracket	SI	3 rd April 2017
M-0000448	A	Front Conduit Bracket	SI	3 rd April 2017
W-000XXXX-XX	A	Filter Body, BS 603E-XX", 6 sheets	AQ	20 th September 2018
W-000XXXX-XX	A	Filter Body, BS 804E-XX", 4 sheets	AQ	20 th September 2018
W-000XXXX-XX	A	Filter Body, BS1004E-XX", 4 sheets	AQ	20 th September 2018
W-000XXXX-XX	B	Filter Body, BS1204E-XX", 4 sheets	AQ	20 th September 2018
W-000XXXX-XX	A	Filter Body, BS1206E-XX", 4 sheets	AQ	20 th September 2018
W-000XXXX-XX	B	Filter Body, BS1406E-XX", 4 sheets	AQ	20 th September 2018
W-0000913-XX	E	Front Lid FT (HD), 2 sheets	AQ	20 th September 2018
W-0000941-XX	A	Flushing Chamber Flange VF	AQ	20 th September 2018
MAN-000XXXX-XX	A	Flushing Manifold 3Vx6"XXX (BS1206E/1406E), 2sheets	AQ	20 th September 2018
W-0001067-XX	D	Flushing Chamber Flange XVD (101E...1206E), 3 sheets	AQ	20 th September 2018

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Document No.	Rev.	Title	Status	Date
W-0001249-XX	A	BS603E Flushing Manifold (2V x 6" DIN)	AQ	20 th September 2018
W-0001323-XX	A	Flushing Chamber Connection Pipe for BS603E 420.4mm	AQ	20 th September 2018
W-0001324-XX	A	Flushing Chamber Connection Pipe for BS603E 173mm	AQ	20 th September 2018
W-0001325-XX	B	Flushing Chamber Connection Pipe 168mm	AQ	20 th September 2018
W-0001326-XX	B	Flushing Chamber Connection Pipe 100mm	AQ	20 th September 2018
M0001410-XX	A	Flushing Chamber Connection Pipe 427mm	AQ	20 th September 2018

2. The documents listed below have been considered together with the submitted documents in the appraisal

Document No.	Rev.	Title
Doc-00-077	A	Calculation sheet BS-603E-1204E, 1206E/1406E
	A	Filter Body BS804E/1004E/1204E Welding Map, 2 sheets
	A	Filter Body BS1206E/1406E Welding Map, 2 sheets

Appraisal Status Key

- AQ Approved subject to the matters raised that require resolution - and provided the arrangements are to the surveyor's satisfaction
- SI Retained as supporting documentation for information only

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