



Marine & Offshore

Certificate number: 20843/D0 BV

File number: ACM 129/0809/001

Product code: 13201

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

STERLING THERMAL TECHNOLOGY LTD

AYLESBURY - UNITED KINGDOM

for the type of product

TUBE HEAT EXCHANGERS

DS012 - Tube Heat exchangers

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: 02 Apr 2029

For Bureau Veritas Marine & Offshore,

At BV LONDON, on 02 Apr 2024,

Spencer Yule

This certificate was created electronically and is valid without signature



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.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

Fin/tube Heat Exchanger type **DS 012** intended for electrical machines cooling.

1.1 - Ratings:

Design pressure: 8, 10, 12, 16, 18.66, 22 and 26.7 bar.

Working pressure: from 1 bar to 26.7 bar.

Cooling media: fresh water or sea water.

2. DOCUMENTS AND DRAWINGS:

2.1 - Engineering handbook DS 012 dated 03/1999.

2.2 - Drawings:

- DS 012/1 rev. 4 dated 14/11/2023
- DS 012/2 rev. 5 dated 14/11/2023
- DS 012/3 rev. 3 dated 14/11/2023
- DS 012/4 rev. 3 dated 14/11/2023
- DS 012/5 rev. 2 dated 14/11/2023
- DS 012/8 rev. 2 dated 14/11/2023
- DS 012/9 rev. 4 dated 14/11/2023
- DS 012/11 rev. 1 dated 14/11/2023
- DS033 Header Grids Rev. D dated 01/04/2016
- DS052 Side casings Rev. E sated 27/04/2023
- DS050 Tubeplates Rev. G dated 15/10/2013
- DS055 Cover Plates Rev. D dated 26/06/2023
- DS054 Fabricated Headers Rev. B dated 15/10/2013
- DS051 Formed Headers Rev. F dated 14/10/2013

3. TEST REPORTS:

Nil.

4. APPLICATION / LIMITATION:

4.1 - These heat exchangers may be used for electrical machines cooling.

4.2 - Circulating media: fresh water or sea water

4.3 - Cooled media: air

4.4 - 304 stainless steel is not to be used for parts in contact with sea water.

4.5 - Other materials and/or components:

Material \ component	Coverplates	Primary tube plate	Secondary tube plate	Formed header	Fabricated header
Carbon Steel	X	X	X	X(1)	X(2)
Stainless Steel	X	X		X	
Brass	X	X	X		
Titanium	X(3)	X(3)	X(3)		

X : allowable material for considered component under limitation conditions

(1) : Material quality to be in accordance with table 4 and table 5 of DS054 revB

(2) : Material quality to be in accordance with table 6 and table 7 of DS051 revF

(3) : Under special configuration detailed in 5.1 of DS055 revD, 3.7 of DS050 revG

- Carbon Steel :

- Carbon Steel BS EN10025 S235 JR
- Carbon Steel BS EN10025 S275 JR
- Carbon Steel BS EN10025 S355 JR
- Carbon Steel ASTM A516 Gr. 60
- Carbon Steel ASTM A516 Gr. 70

- Stainless Steel :

- Stainless Steel ASTM A240 304/304L
- Stainless Steel ASTM A240 316/316L

- Brass :

- 90/10 CuNi Plate ASTM B171 C70600
- 70/30 CuNi Plate ASTM B171 C71500

- Titanium :

Titanium Plate ASTM B265 Gr. 2

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The DS012 - Tube Heat exchangers are to be supplied by **Sterling Thermal Technology 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 - BV product certificate is required.

5.4 - Material Certificates and inspection requirements are to be provided and performed according to NR 216 (Rules on Material and weldings) and NR 467 (Rules for the Classification of Steel Ships, table 39 of Pt C, Ch 1, Sec 10 and table 26 of Pt C, Ch 1, Sec 3).

5.5 - Each heat exchanger is to be hydraulic pressure tested to 1.5 times the maximum design pressure.

5.6 - For information, **Sterling Thermal Technology Ltd** has declared to Bureau Veritas the following production site :

Sterling Thermal Technology Ltd
BRUNEL ROAD
RABANS LANE
HP19 8TD AYLESBURY
UNITED KINGDOM

6. MARKING OF PRODUCT:

Each heat exchanger should be marked with:

- Manufacturer's name or trade mark.
- Type designation.
- Maximum working pressure.
- Test pressure.
- Society's brand with COI identification number.

7. OTHERS:

7.1 - It is **Sterling Thermal Technology 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.

7.2 - This Certificate supersedes the Type Approval Certificate N° 20843/C0 BV issued on 24/01/2019 by the Society.

*** END OF CERTIFICATE ***