



CERTIFICATE NUMBER
18-HS1801286-1-PDA

DATE
04 Feb 2019

ABS TECHNICAL OFFICE
Houston ESD - Offshore
Equipment

CERTIFICATE OF Design Assessment

This is to certify that a representative of this Bureau did, at the request of

ERICO FRANCE SARL

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product: **Busbar Trunking System**

Model: **nVent ERIFLEX Flexibar - Plain Copper;
nVent ERIFLEX Flexibar Advanced - Plain Copper,
nVent ERIFLEX Flexibar - Tinned Copper
nVent ERIFLEX Flexibar Advanced - Tinned Copper
n...**

This Product Design Assessment (PDA) Certificate 18-HS1801286-1-PDA, dated 04/Feb/2019 remains valid until 11/Dec/2023 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

AMERICAN BUREAU OF SHIPPING

Dustin De Los Santos

Dustin De Los Santos
Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant change to the design or product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by the terms and conditions as contained in ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

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Tier: 3 - Type Approved, unit certification not required

Product: Busbar Trunking System**Model:** nVent ERIFLEX Flexibar - Plain Copper;
nVent ERIFLEX Flexibar Advanced - Plain Copper,
nVent ERIFLEX Flexibar - Tinned Copper
nVent ERIFLEX Flexibar Advanced - Tinned Copper
nVent ERIFLEX Flexibar SUMMUM - Plain Copper**Intended Service:**

Marine & Offshore Applications - Low Voltage Industrial Power Distribution and Control on board, including Switchboards, Motor Control Centers, Panelboards, Industrial Control Panels, Power Supplies, Drive Units, Transformers, Electrical Machinery, HVAC Chiller Controls, Power Converters, and Busbar Systems, on board of ships and offshore platforms.

Description:

nVent ERIFLEX Flexibar is formed with multiple layers of thin electrolytic copper, available in plain or tinplated, for increasing flexibility. The insulation is a PVC compound (plain copper and tin-plated copper - Flexibar Standard) with a high resistance, self extinguishing properties, or a TPE compound (Halogen-free, Low Smoke - Flexibar Advanced), or a silicone compound (Summum plain copper, to achieve low smoke and halogen free).

Flexibar connections are made by punching directly through the laminates, no lugs are needed.

Marking:

"ERIFLEX FLEXIBAR" or "nVent ERIFLEX FLEXIBAR" may be followed by "S" and (No. of laminates) x (Width in mm) x (Thickness in mm). Optional recognized component mark.

"ERIFLEX FLEXIBAR ADVANCED" or "nVent ERIFLEX FLEXIBAR ADVANCED" may be followed by (No. of laminates) x (Width in mm) x (Thickness in mm). Optional recognized component mark.

Identifications for various flexibars and Insulated Braided Conductors are listed in the Product Catalogues.

Rating:

Maximum Continuous Voltage 1000 V AC/1500 V DC,

Working Temperature:

- Flexibar Standard: -50°C to 105°C
- Flexibar Advanced: -50°C to 115°C
- Summum Plain Copper: -50°C to 280°C

Service Restriction:

- Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

- When used in Panelboards, Dead Front Switchboards, and Motor Control Centers:

- (1) Ampacities are to be per Table 1 in UL Report E125470,
- (2) The acceptability of the Temperature Rise at the connection point of the Flexibar to a Component, such as to a Circuit Breaker wiring terminal, shall be evaluated in the End-Use Application,
- (3) The ability of the Flexibar to withstand a Short Circuit shall be evaluated in the End-Use Application.

Comments:

- 1) Flexibars are to bear the recognized marking including the company identification, model or product designation.
- 2) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

Notes/Drawing/Documentation:

Document No. 02859/F1 BV: Bureau Veritas Type Approval Certificate - ERICO Insulated Busbars (Low Voltage), Issued on 22 October 2018, Pages: 2

Document No. 4788401624 UL Report - Cable Advanced Insulation, Issued on 2 July 2018, Pages: 8

Document No. E316390, UL file, ERICO Wires, Issued 06 December 2017, revised 23 March 2018, Pages: 2

Document No. 20170724-E316390, UL Certificate - ERICO Appliance Wiring Material, Issued 24 July 2017, Pages:

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Document No. 1045431 CSA Certificate - ERICO Wires Products, Issued on 12-03/2018, Pages: 3

Document No. E125470-19900511 UL Certificate - ERICO Panelboard and Switchboard Accessories, Issued on 28 February 2017, Pages: 2

Document No. E125470-20130212 UL Certificate - ERICO Panelboard and Switchboard Accessories, Issued on 28 February 2017, Pages: 2

Document No. QEUY2.E125470,UL Listing - Panelboard and Switchboard accessories - Components ERIC International Corporation, 27 August 2018, Pages: 2

Document No. QEUY2.GuideInfo - Panelboard and Switchboard accessories - Components, Standards: UL 67 and UL 891, Updated 15 July 2015, Pages: 2

Document No. QEUY8.GuideInfo - Panelboard and Switchboard accessories certified for Canada - Components, Standards: CSA-C22.2 No. 29 and CSA-C22.2 No. 244, Updated 15 July 2016, Pages: 2

Document No. 20170228-E125470 - Certificate for UL 67 Compliance, issued 28 February 2017, Pages: 2

Document No. 201702-24-E316390 - Certificate for UL 758 Compliance, issued 28 February 2017, Page: 1

Document No. SHIN1410041619PS - SGS Test Report of Erico Flexibar, Date: 21 October 2014, Pages: 4

Document No. 7467162-001-1: APAVE Test Report & Conformity Assessment of Flexible bars ERIFLEX, date: 10/02/2014, Pages: 8

Document No. C-290513-04080-1, BV Test Report of ERICO Flexibar, Date: 17 June 2013, Pages: 2

Document: DoC (Declaration of Conformity) for ABS, Dated 22 October 2018, Pages: 1

Document: EU Declaration of Conformity - Flexibar, Date: 5 December 2018, Page: 1

* Brochure Eriflex Flexbar Technical Characteristics, shts 4, 5 & 6;

* Brochure 1/5 to 5/5 -P_I_FLEXIBAR_SUM_v2_EN.doc, Eriflex Flexibar Summum Plain Copper IEC 439.1;

* Brochure 1/8 to 8/8 -P_I_FLEXIBAR_CR_v2_EN.doc, Eriflex Flexibar Plain Copper IEC 439.1;

* Brochure 1/5 to 5/5 -P_I_FLEXIBAR_CE_v2_EN.doc, Eriflex Flexibar Tinned Plated Copper IEC 439.1;

* UL File E125470, Flexibar, Issued 5-11-90, Revised 2008-03-05, 18 July 2001, 29 MAY 2002, 12 February 2013

* UL File E316390, Test Record of PVC Insulated Single dated 2008-02-08.

* Garlock 915-119: Material Datasheet - Elastomer Silicone C 61THT/60, Rev. 0, Date: 16 April 2004, pages: 1

Terms of Validity:

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STANDARDS

ABS Rules:

2019 Rules for Conditions of Classification, Part 1: 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

2019 Steel Vessels Rules: 4-8-3/1.7, 4-8-3/5.3 & 4-8-3/5.5.1

2019 Marine Vessel Rules: 4-8-3/1.7, 4-8-3/5.3 & 4-8-3/5.5.1

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2019 Rules for Conditions of Classification, Part 1 - Offshore Units and Structures: 1-1-4/7.9, 1-1-A2, 1-1-A3
2019 MODU Rules: 4-3-1/11, 6-1-7/9.9
2019 MOU Rules: 4-3-1/11, 6-1-7/9.9

National:

UL 67, Ed. 13, 2018;
UL 891, Ed. 11, 2012
UL 758 Ed. 3, 2017
UL 94, Ed. 6, 2018
UL 854, Ed.11, 2004
UL 2556, Ed. 4, 2015
UL 2885, 2018

CSA-C22.2 No. 29, Ed. 6, 2015
CSA-C22.2 No. 210, 2015
CSA-C22.2 No. 244, Ed. 1, 2015

International:

IEC 60695-11-10 (2014)
IEC 61439-1 (2011)
IEC 60754-1, 60754-2 (2011)
IEC 62821-1 (2015)

Government:

NA

EUMED:

NA

OTHERS:

NF EN 61439-1 (2012)
EN 60947-7-1 (2009)