



CERTIFICATE NUMBER
EFFECTIVE DATE
EXPIRY DATE
ABS TECHNICAL OFFICE

22-2311484-PDA
20-Oct-2022
19-Oct-2027
Rio de Janeiro Engineering -
Machinery

CERTIFICATE OF Product Design Assessment

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

DANFOSS A/S

located at

**NORDBORGVEJ 81 - BUILDING E14 S4A, APPROVALS DEPT., ,
NORDBORG, Denmark, DK-6430**

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: Pressure Transmitter
Model: EMP 2
Endorsements:
Tier: 3 - Type Approved, unit certification not required

This Product Design Assessment (PDA) Certificate remains valid until 19/Oct/2027 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping


Ivson Soares, Managing Principal Engineer

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 changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

DANFOSS A/S

NORDBORGVEJ 81 - BUILDING E14 S4A

APPROVALS DEPT.

NORDBORG

Denmark DK-6430

Telephone: 45-7488-2222

Fax: 45-7465 2580

Email: danfoss@danfoss.com

Web: www.danfoss.com

Tier: 3 - Type Approved, unit certification not required

Product: Pressure Transmitter**Model:** EMP 2**Endorsements:****Intended Service:**

High accuracy pressure transmitters for use on ABS Classed Vessels and Offshore Installations in accordance with the listed ABS Rules and International Standards.

Description:

EMP 2 are high accuracy pressure transmitters designed for monitoring and control in marine and industrial applications and offers a reliable pressure measurement, even under harsh environmental conditions.

Rating:

Pressure Range: -1 to 250 bar

Power Supply: 12 VDV to 32 VDC

Output Signal: 4 mA to 20 mA

Protection: IP65

Shock Stability: 500 g/1 ms

Operation Temperature: -10 degrees C to +70 degrees C

Vibration Stability: 3 Hz to 30 Hz - amplitude +/- 1.13 mm; 30 Hz to 300 Hz - acceleration 4G

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.

Comments:

The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

Notes/Drawing/Documentation:

Drawing No. AI175686432328en-001001, Datasheet - Type_EMP_2_Pressure_transmitter, Revision: n/a, dated May-2022

Drawing No. E220976E2, EMP 2 EMC test report, dated 13-Jul-2022

Drawing No. U220976E1, EMP 2 Environmental test report, dated 14-Jul-2022

Terms of Validity:

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STANDARDS

DANFOSS A/S

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ABS Rules:

Marine Vessels Rules (2022): 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-8-3/1.7, 4-9-9/7, 4-9-9/13, 4-9-9/Table1

Steel Vessels for Service on Rivers and Intracoastal Waterways (2022): 1-1-4/7.7, 1-1-A3, 1-1-A4

Steel Barge Rules (2022): 1-1-4/7.9, 1-1-A3, 1-1-A4

High Speed Crafts (2022): 1-1-4/11.9, 1-1-A2, 1-1-A3

Mobile Offshore Units (2022): 1-1-4/9.7, 1-1-A2, 1-1-A3, 4-1-1/7.9, 4-3-1/11, 6-1-1/9, 6-1-1/13

Facilities on Offshore Installations Rules (2022): 1-1-4/9.7, 1-1-A2, 1-1-A3

National:

NA

International:

IACS UR E10, Rev.8 Corr.1 Jan 2022

Government:

NA

EUMED:

NA

OTHERS:

NA