



Marine & Offshore

Certificate number: 02280/11 BV

File number: AP 642

Product code: 3891H

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

DANFOSS A/S

NORDBORG - DENMARK

for the type of product

PRESSURE TRANSMITTERS / TRANSDUCERS

EMP 2

Requirements:

BUREAU VERITAS Rules for the Classification of Steel Ships.

EC Code : 33B

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: 21 Feb 2027

For Bureau Veritas Marine & Offshore,

At BV FREDERICIA, on 27 Sep 2022,

Jesper JENSEN

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.

The electronic version is available at: <http://www.veristarm.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=ki2wjbk4xn>

BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

Pressure Transmitter type EMP 2

Voltage supply:	12 to 32 VDC
Output:	4 - 20 mA
Pressure:	-1 to 400 bar
Operating temperature:	-10 to 70°C
Medium temperature:	-40 to 100°C
Enclosure:	IP 65

2. DOCUMENTS AND DRAWINGS:

According to Manufacturer's data sheet IK.20.H6.02 and drawing N° 084R0250 Eng.
DANFOSS Data Sheet ref. IC.PD.P20.E8.02, dated Sep 2018.

DANFOSS Approval Drawings:

- N° 084R0250 dated 03-12-04
- N° 084R0251 dated 01-06-04
- N° 084G0403 dated 03-11-24
- N° 084C0403 dated 03-11-24
- N° 060C0323 dated 98-03-26
- N° 060N0201 dated 98-11-05
- N° 060C0338 dated 81-01-22
- N° 060G2295 dated 01-01-22
- N° 060G2295 dated 01-01-22
- N° 060G0284 dated 01-10-10
- N° 060C0328 dated 01-10-10

- Danfoss, Pressure Trsansmitter Type EMP 2 datasheet, No. AI175686432328en-000901, dated 2021.02
- EU Declaration of Conformity No. ID365934552224-0201, dated 2021.11.11

For I1 version:

- Pressure transmitter EMP 2 Datasheet, No. AI175686432328en-001001, dated 2022.05

3. TEST REPORTS:

Test report IN.20.D2.02 dated February 84 from Danfoss Laboratories in Nordborg, Denmark.

DANFOSS EMC-Laboratorium Test Report ref. TR 084G062: EMC tests.

DANFOSS EMC-Lab. Technical Report ref. TR DIV 084G-064: RF emission and immunity 0.08 - 2 GHz, dated 2004-11-04.

DANFOSS Test of EMP 2, Sinusoidal Vibrations, unreferenced, dated 16 03 04, witnessed by DNV Surveyor.

DANFOSS Test of EMP 2, Mechanical Shocks, unreferenced, dated 17 03 04, witnessed by BV, KR Surveyors.

DANFOSS Test of EMP 2, Damp heat & cold tests, unreferenced, dated 18 03 04, witnessed by BV, KR, ABS, LR Surveyors.

DANFOSS Test of EMP 2, Conducted & Radiated RF, unreferenced, dated 23 03 04, witnessed by ABS, GL Surveyors.

DANFOSS Test of EMP 2, EM field & Conducted emission, unreferenced, dated 23 03 04, witnessed by ABS, GL Surveyors.

DANFOSS Test of EMP 2, Esd & Burst/Fast emission, unreferenced, dated 23 03 04, witnessed by ABS, GL Surveyors.

DANFOSS Test of EMP 2, Surge/Voltage & Conducted low Frequency, unreferenced, dated 23 03 04, witnessed by ABS, GL Surveyors.

DANFOSS EMC-Laboratorium Test Report ref. TR 084G063: EMC tests.

DANFOSS Pressure Tests Report ref. 04-085, dated 2004.04.06.

DANFOSS Performance measuring description, unreferenced, dated 2004-03-24, with graphs dated 05-05-2004.

FORCE TECHNOLOGY - IP65 tightness test of EMP 2, ref. 118-33184-1, dated 28 Sep 2018

PHEONIX TESTLAB, Test Report No. E212000E1, dated 08.10.2021.

For I1 version:

- Environmental Test Report No. U220976E1, dated 29.06.2022.
- EMC Test Report No. E220976E2, dated 06.07.2022.
- IP Test Report No. 118-33184-1, dated 2018-09-28.

4. APPLICATION / LIMITATION:

4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships.

4.2 - Approval also valid for ships to be granted with the notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**

4.3 - The fitting aboard to be the same as used for the test.

4.4 - BUREAU VERITAS, Environmental Category, **EC Code: 33B**

4.5 - The equipment fulfils the EMC requirements for installation in Bridge and Deck Zone & General Power Distribution Zone.

4.6- Ex-certification is not covered by this certificate, Applications in hazardous areas are to be approved in each case according to the Rules and Conditions for Safe Use specified in a valid Ex-Certificate issued by a Notified or Recognised

Certification Body

4.7 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev8

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The PRESSURE TRANSMITTERS / TRANSDUCERS are to be supplied by DANFOSS A/S in compliance with the type described in this certificate.

5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.

5.3 - DANFOSS A/S has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

5.4 - For information, DANFOSS A/S has declared to Bureau Veritas the following production site:

**Danfoss (Tianjin) Ltd.
No.9 Quanhui Road.,
Wuqing Development Area,
TIANJIN
CHINA**

6. MARKING OF PRODUCT:

6.1 - Maker's name or trade mark.

6.2 - Serial number of the units.

6.3 - Equipment type number or model identification under which it was type-tested.

7. OTHERS:

7.1 - It is DANFOSS A/S'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° 02280/10 BV issued on 21 Feb 2022 by the Society.

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