



# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAA000012U**  
Revision No:  
**2**

## This is to certify:

**That the Pressure Transmitter**

with type designation(s)  
**EMP 2**

Issued to

**Danfoss A/S**  
**Nordborg, Syddanmark, Denmark**

is found to comply with  
**DNV rules for classification – Ships, offshore units, and high speed and light craft**

## Application :

**Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.**

## Location classes:

<b>Temperature</b>	<b>D</b>
<b>Humidity</b>	<b>B</b>
<b>Vibration</b>	<b>B</b>
<b>EMC</b>	<b>B</b>
<b>Enclosure</b>	<b>B / IP65</b>

Issued at **Høvik** on **2022-10-04**

for **DNV**

This Certificate is valid until **2026-12-31**.

DNV local station: **Denmark CMC**

Approval Engineer: **Tommi Juhani Rifaat**

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**Frederik Tore Elter**  
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



### Product description

EMP 2 Pressure Transmitter with 4-20 mA output.

Technical Data / Range of Application	Measuring ranges: -1...1.5 bar (kg/cm <sup>2</sup> ) up to 0...400 bar (kg/cm <sup>2</sup> ) Accuracy: ref. to the manufacturer's data sheet Output signal: 4 to 20mA, two wire Power supply: 24V DC nom. (min. 12V DC, max. 32V DC) Media temperature: -40°C up to 100°C Wetted parts: stainless steel (AISI 316L, DIN EN 1.4044) Process connection: G¼ A, G½ A (standard) Electrical connection: cable entry Pg 13.5 Degree of protection: IP 65
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### Place of manufacture

Danfoss (Tianjin) Ltd  
 Wuqing Development Area, 9 Quanhui Road,  
 301700 Tianjin, China

### Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

### Application/Limitation

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

### Type Approval documentation

Documentation	Documentation Reference
Assembly drwg.	084R0250 rev. 01 dtd. 2003-12-04
Circuit diagram	084C0403 issue 02 Rev.00, 060C0323, 60C0328 issue 04 rev 00, 060C0338
Data sheet EMP 2	AI175686432328en-001001 dtd. 2022-05
Test Reports Danfoss	
EMC	TR 084G062 dtd. 2003-11-21, TR 084G063 dtd. 2004-03-24, 3 Reports dtd. 2004-03-23, E212000E1 dtd.2021-10-08, E220976E2 dtd. 2022-07-06
Vibration	Report dtd. 2004-03-16, Report U220976E1 dtd.2022-06-29
Damp Heat & Cold	Report dtd. 2004-03-18, Report U220976E1 dtd.2022-06-29
Performance	Report dtd. 2004-03-24
Dry Heat	Report U212000E1 dtd. 2021-10-20, Report U220976E1 dtd.2022-06-29
IP 65	Report 118-33184-1 dtd. 2018-09-28

Type approval renewal assessment report for TAA000021U, Tianjin on 2022-02-17

### Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.

### Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

### **Periodical assessment**

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE