

# EUROPEAN UNION RECOGNISED ORGANISATION (EU RO) MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE

Certificate No:  
**MRA000001Z**

In accordance with Article 10.1 of EU Regulation 391/2009

This Certificate is issued to

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

for  
**Pressure Gauges/Transmitters**

with type designation(s)  
**MBS 9300**

The product is found to comply with  
**EU RO Mutual Recognition Technical Requirements for Pressure Gauges – Transmitters**

Intended service  
**Pressure transmitters for use in control, alarm, monitoring and instrumentation systems subject to classification.**

**Applicable for a ship as defined in Mutual Recognition Provisions Article 10 Regulation on Common Rules and Standards For Ship Inspection and Survey Organizations.**

**See product description on page 2 for further details.**

**Temperature [°C]: -25 and +70**  
**Vibration: ±1.6 mm / 4.0 g**  
**EMC: General power distribution zone**  
**IP Code: IP65**

## This is to certify:

that the Product referred to herein has been inspected for the Manufacturer, pursuant to the relevant requirements of the European Union Recognised Organisation Mutual Recognition procedure, required by Article 10.1 of EU Regulation 391/2009, and has been found in accordance with those requirements.

This Certificate is valid until **2024-08-22**.

Issued at **Høvik** on **2019-08-23**

DNV GL local station: **Denmark CMC**

Approval Engineer: **Nils Jarem**



for **DNV GL**  
Digitally Signed By: Sneen, Ståle  
Location: DNV GL Høvik, Norway  
on behalf of

**Trond Sjøvåg**  
**Head of Section**

When a product is presented with this EU RO MR Type Approval Certificate for given application, its acceptability with regards to the limitations stated in the certificate conditions defined in 1b, 1c and 1d of the applied Technical Requirement will be evaluated by the EU RO in charge of classing the ship or being in charge of the unit/system certification.  
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.



Form code: MRTA 001a

Revision: 2018-07

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Job Id: **262.4-000146-1**  
Certificate No: **MRA000001Z**

## Product description

Low pressure transmitter for marine applications.  
Type: MBS 9300

**Pressure range**  
-150 to 250 mBar

**Output Signal** 4-20 mA / Ratiometric 10-90% of supply  
**Power supply** 24 VDC / 5 VDC

**Electrical connection**  
No plug (EN175301-803-A)  
Plug Pg 9 (EN 175301-803-A)  
Plug Pg 11 (EN175301-803-A)  
Plug Pg 13.5 (EN175301-803-A)

**Pressure connection**  
DIN 3852-E-G1/2, gasket DIN 3869-21  
DIN 3852-E-G1/4, gasket DIN 3869-14  
DIN 3852-E-M14 x1.5, gasket DIN 3869-14

**Manufactured by**  
Danfoss A/S, Nordborgvej 81, 6430 Nordborg

## Application/Limitation

Applicable for a ship as defined in Mutual Recognition Provisions Article 10 Regulation on Common Rules and standards For Ship Inspection and Survey Organizations.

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

Name	Number	Revision
Low pressure transmitter for marine applications MBS 9300	AI176386432536 en-000501   IC.PD.P21.X5.02	2019-07
MBS9300_Approbation Drawing	064R5004	01
<b>Test reports:</b>		
Marine type testing of MBS 9300 low pressure sensors	119-21656-1	2019-04-10
Calibration certificate & 150% pressure test	9.10P-11021	2019-04-05
Impact test of MBS 9300	119-27383-1	2019-05-27
IACS E10 no. 12_MBS9300_Salt mist	T204328	2013-02-21
IACS E10 no. 11_MBS9300_Cold	T204328	2013-02-03
IACS E10 no. 9, 10_MBS9300_Insulation resistance and high voltage	T204328	2013-02-21
IACS E10 no. 7_MBS9300_Vibration	T204328	2013-02-03
IACS E10 no. 6_MBS9300_Damp heat	T204328	2013-02-21
IACS E10 no. 5_MBS9300_Dry heat	T204328	2013-02-21
GL VI-7 test 9_MBS9300_Vibration+temperature	T204328-2	2013-02-03
GL VI-7 test 6B_MBS9300_Dry heat 16h@70degree	T204328-2	2013-02-21

### Marking of product

The products to be marked with:

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

### Other conditions

The pressure transmitters have been verified for compliance with EU Mutual Recognition Technical Requirements for Pressure gauges – transmitters version 0.0, dated 2016-07-01.

Environmental test parameters	DNV GL location classes
Temperature: -25°C ~ +70°C	D
Vibration: ±1.6 mm / 4.0 g, incl. shock test 5 g.	B
Humidity: 95%RH @ 55°C, damp heat cyclic	B
EMC: General power distribution zone (tested to 6 GHz)	A
Enclosure: IP65, and Salt mist test. (IP-ratings according to IEC 60529)	B

### 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 annually and at renewal of this certificate.

END OF CERTIFICATE