



TYPE APPROVAL CERTIFICATE
No. ELE290425XG

This is to certify that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

<i>Description</i>	Pressure transmitters
<i>Type</i>	MBS 3300 / 3350, MBS 9300, MBS 33M
<i>Applicant</i>	DANFOSS A/S DK_6430 Nordborg DENMARK
<i>Manufacturer</i>	DANFOSS A/S - DANFOSS (TIANJIN) LTD.
<i>Place of manufacture</i>	WUQUING DEVELOPMENT AREA, 9 QUANHUI ROAD 31700 Tianjin (Tianjin) CHINA
<i>Reference standards</i>	RINA Rules for the Classification of Ships - Part C- Machinery, Systems and Fire Protection - Ch.3 , Sect. 8, Table 1

Issued in **HAMBURG** on **February 27, 2026**. *This Certificate is valid until* **February 26, 2031**

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RINA Services S.p.A.

This certificate consists of this page and 1 enclosure

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MBS 3300 / 3350, MBS 9300, MBS 33M

Product Description

The MBS Series pressure transmitter is designed for use in almost all marine applications, and offers pressure measurement, under harsh environmental conditions.

The pressure transmitter programme covers different output signal, absolute or gauge (relative) versions, measuring ranges from 0 - 1 to 0 - 600 bars. A wide range of pressure and electrical connections.

Main characteristics:

Type	MBS 33M	MBS 3300/3350	MBS 9300
Measuring Range	0...1 to 0...600bar	0...1 to 0...600bar	-70 to 250mbar
Supply Voltage	9 - 32 V DC (12 / 24 V DC nom.)	9 - 32 V DC; 15 - 32 V DC (12 / 24 V DC nom.); 4.5 - 5.5 V DC (5 V DC nom.)	9 - 32 V DC; 5 V DC +/- 10%
Output Signal	4...20 mA	4 - 20 mA; 0 - 5 V; 1 - 5 V; 1 - 6 V; 0 - 10 V; 10 - 90% of supply voltage	4 - 20 mA; Ratiometric 10-90% supply
Accuracy (incl. non-linearity, hysteresis and repeatability)	$\leq \pm 0.3\%$ FS (typ.) $\leq \pm 0.8\%$ FS (max.)	$\leq \pm 0.5\%$ FS (typ.) $\leq \pm 1.0\%$ FS (max.)	Between $\leq \pm 2\%$ FSS and $\leq \pm 0.5\%$ FSS according to value range
Enclosure/Wetted Parts	AISI 316L	AISI 316L	AISI 316L
Sensor Operating temperature	Normal: -40 - 85 °C ATEX Zone 2: -20 - 85 °C	4 - 20 mA: -40 - 100 °C 10 - 90% of supply voltage, 0 - 5 V, 1 - 5 V, 1 - 6 V, 0 - 10 V: -40 - 125 °C	
Medium Temperature	-40 - 85 °C	-40 - 125 °C	FPM gasket: -20°C - 100°C NBR gasket: -25 °C - 85 °C
Compensated Temperature	0 - 80 °C	0 - 100 °C	0 - 80 °C
Insulation Resistance	> 100 Mohm at 500 V DC	> 100 Mohm at 500 V DC	
Vibration Stability	Sinusoidal: 15.9 mm-pp, 5 Hz - 25 Hz 20 g, 25 Hz - 2 kHz	Sinusoidal: 15.9 mm-pp, 5 Hz - 25 Hz 20 g, 25 Hz - 2 kHz	Sinusoidal: 15.9 mm-pp, 5 Hz - 25 Hz 20 g, 25 Hz - 2 kHz

	Random: 7.5 grms, 5 Hz - 1 kHz	Random: 7.5 grms, 5 Hz - 1 kHz	Random: 7.5 grms, 5 Hz - 1 kHz
Shock Resistance	Shock: 500 g / 1 ms Free fall: 1 m	Shock: 500 g / 1 ms Free fall: 1 m	Shock: 500 g / 1 ms Free fall: 1 m
Enclosure	IP65 / IP67	IP54 / IP65 / IP67	IP65
Ambient Temperature	Between -40 and 85 °C according to type	Between -40 and 125 °C according to type	-25 °C - 100 °C (ATEX zone 2 = -10 °C - 85 °C)

Documents:

Product Specification Document of MBS 33M - AI244286497067en-000902 dated 2024.07
Product Specification Document of MBS 3300/3350 - AI308943247202en-000602 dated 2024.07
Product Specification Document of MBS 9300 - AI176386432536en-000801 dated 2021.03
Declaration of Conformity dated 11.08.2025

Test reports:

Danfoss Test Reports:

- TR060GPM970929 / 01 /02; PM941208 (01); TR060G-97/02/24; TR DIV 060G-145 (2004/11/04); TR064G0547-01
- Performance test dated 18/06/2008; Overpressure test dated 03/07/2008; 2008-9027; 064G0571-01; 064G5203
- 119-21656-1 - Danfoss AS - Marine type testing of MBS 9300 low pressure sensors.

Delta Test Reports: - T204328; T204328 - 2

Force Technology: - 117-33523-7 dated 2018-02-19

Remarks:

- Each particular application and installation is to be specifically approved in conjunction with the relevant system in which the components are used.

This certificate replaces the previous certificate ELE098420XG.

HAMBURG February 27, 2026