



Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	Danfoss A/S
Address	Nordborgvej 81, Nordborg, 6430, Denmark
Place of Production	Danfoss (Tianjin) Co. Ltd. No. 9 Quanhui Road, Wuqing Development Area, Tianjin, 301700, China
Type	Transmitters/Transducers
Description	Pressure transmitter: MBS 33M Pressure transmitter for high temperature: MBS 3300 Standard MBS 3350 with pulse-snubber Low pressure transmitter: MBS 9300
Trade Name	MBS 33M, MBS 3300, MBS 3350, MBS 9300
Application	Marine applications for use in environmental categories ENV1, ENV2, ENV3 and ENV4 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 – 2019.

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Specified Standard	Manufacturer's specification IACS unified requirements E10 (Rev.9 Aug 2023)
Ratings	Pressure range: 0 bar to 600 bar Ambient temperature: -40 °C to 125 °C For detailed ratings, pls. refer to appendix.
Additional Tests	Dry heat: +100 °C / 16 h (4-20 mA versions) Dry heat: +125 °C / 16 h Low Temperature: -40 °C / 16 h Degree of protection: IP 65 for plug type (with mating connector) IP 67 for flying lead type
Other Conditions	For transmitter version of flying lead type, the cable used must be marine approved. Special conditions for Safe Use as stated in applicable Ex-certificates and the conditions of the LR Ship Rules & Regulations of Classification of Ships Part 6, Chapter 2 shall be observed when installed in hazardous areas. The Ex-certification does not form part of this certificate.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

Previous Version: LR2008558TA

The Design Appraisal Document TSO-25-028130/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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Appendix

Type	Pressure range	Temperature range	Power supply	Output signal
MBS 33M	0-1bar to 0-600 bar	-40C° to 85°C	9-32 VDC	4-20mA
MBS 3300 MBS 3350	0-1bar to 0-600 bar	-40C° to 125°C	9-32 VDC 9-32 VDC 15-32 VDC 4.5 -5.5 VDC	4-20mA 0-5V ,1-5V,1-6V 0 – 10 V radiometric
MBS 9300	40 – 400 mbar	-20C° to 100°C	9-32 VDC 4.5 -5.5 VDC	4-20 mA radiometric

Hardware / Software versions of MBS 33M, MBS 3300, MBS 3350

4-20mA versions HW:issue 02 rev (04060G0971 PCBA) SW: rev 1.5.0.x

Radiometric versions HW:issue 02 rev (04060G0973 PCBA) SW: rev 1.5.0.x

Absolute Volt versions HW:issue 02 rev (04060G0975 PCBA) SW: rev 1.5.0.x