



TYPE APPROVAL CERTIFICATE
No. ELE011013XG/001

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 2100 / 2150; MBS 3100 / 3150; MBS 3300 / 3350; MBS 9300
<i>Applicant</i>	DANFOSS A/S DK_6430 Nordborg DENMARK
<i>Manufacturer</i>	DANFOSS A/S
<i>Place of manufacture</i>	DK_6430 Nordborg DENMARK
<i>Reference standards</i>	- Rules for the Classification of Ships- Part C - Machinery, Systems and fire protection - Ch.3 ; Sect. 6 ; Tab. 1 .

Issued in **HAMBURG** on **November 7, 2013**. This Certificate is valid until **November 6, 2018**



RINA Services S.p.A.
Giuseppe Russo

This certificate consists of this page and 1 enclosure

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Enclosure - Page 1 of 1

MBS 2100 / 2150

MBS 3100 / 3150

MBS 3300 / 3350

MBS 9300

Pressure transmitters for marine applications:

MBS 2100 Standard version MBS 2150 With pulse snubber	MBS 3100 / 9300 Standard version MBS 3150 With pulse snubber	MBS 3300 Standard version MBS 3350 With pulse snubber
Absolute or relative measurement	Absolute or relative measurement	Absolute or relative measurement
Measuring range: 0-1 to 0-600 bar	Measuring range: 0-1 to 0-600 bar Standard meas. range: 0-4 to 0-40 bar	Measuring range: 0-1 to 0-600 bar
Supply voltage: 4.75 to 8Vdc (5Vdc. nom)	Supply voltage: 9 - 32 Vdc	Supply voltage: 9 - 32Vdc, 10 - 30Vdc, 15 - 30 Vdc
Output signal: ratiometric 10-90% of supply	Output signal: 4 to 20 mA	Output signal: 4 to 20 mA, 0-5V, 1-5V, 1-6V, 0-10V
Accuracy: ± 0,5% FS typ., ± 1%FS max incl. non linearity, repeatability.	Accuracy: ± 0,5% FS typ., ± 1%FS max incl. non linearity, repeatability.	Accuracy: ± 0,5% FS typ., ± 1%FS max incl. non linearity, repeatability.
Enclosure/ Wetted parts: AISI 316L	Enclosure/ Wetted parts: AISI 316L	Enclosure/ Wetted parts: AISI 316L
Medium temperature: -40 to +125°C	Medium temperature: -40 to +85°C	Medium temperature: -40 to +125°C
Compensated temperature: 0 to 125°C	Compensated temperature: 0 to 85°C	Compensated temperature : 0 to 100°C
Data Sheet: IC.PD.P21.C1.02	Data Sheet: IC.PD.P20.01.02/520B2154	Data Sheet: IC.PD.P21.L1.02
Danfoss Test Reports: TR060GPM970929 / 01 / 02 , PM941208 (01), TR060G-97/02/24, TR DIV 060G-145 (2004/11/04) Test of MBS 2100 / 3300/ 3350 for Ships Classification (14 pages) Performance test; Marine High Temp approval for MBS 21xx and 33 xx (18/06/2008) Overpressure test; Marine High Temp approval for MBS 21xx and 33 xx (03/07/2008) Marine High temp EMC test lab. 2008-9027 064G0571-01 MBS9300 Visual inspection, 064G5203, 0-100mbar 4-20mA - Marine Approval, IACS E10/1 TR064G0547-01 MBS9300 Performance test on 064G5203 0..100 mbar 4-20mA MBS 6300 and MBS9300 pressure sensors, IACS E10 Marine EMC test Data Sheets: IC.PD.P21.X1.02 - 520B5413 Delta Test Reports: T204328 - 2 – Dry heat test of MBS 9300 T204328 - 2 – Vibration test of MBS 9300 T204328 – Damp heat cyclic test of MBS 9300 T204328 – Dry heat test of MBS 9300 T204328 – Damp heat cyclic test of MBS 9300 T204328 – Vibration test of MBS 9300 T204328 - Insulation resistance and high voltage test of MBS 9300 T204328 – Cold test of MBS 9300 T204328 – Salt spray test of MBS 9300 EMC Test of 3 x MBS 6300 and 1 x MBS 9300		

This certificate annuls and replaces the previous one n° ELE192609CS.

HAMBURG November 7, 2013



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