



Marine & Offshore

Certificate number: 08472/E0 BV

File number: AP 3041

Product code: 3891H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

*This certificate is issued to***DANFOSS A/S**

NORDBORG - DENMARK

for the type of product

PRESSURE TRANSMITTERS / TRANSDUCERS

Type:

MBS 3100/3150

MBS 2100/2150

MBS 3300/3350

MBS 9300

DST P30/35M

MBS 33M

Requirements:

BUREAU VERITAS Rules for the Classification of Steel Ships.

EC Code: 33

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.***This certificate will expire on: 09 Jul 2025****For Bureau Veritas Marine & Offshore,**

At BV FREDERICIA, on 09 Jul 2020,

Jesper JENSEN



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

- Product model or type designation :

Type: MBS 3100/3150, MBS 2100/2150, MBS 3300/3350, MBS 9300, DST P30/35M, MBS 33M

- Product description:

Pressure Transmitters for Marine Applications.

Main characteristics:

	MBS 3100/3150	MBS 2100/2150	MBS 3300/3350
Range (Bar):	0-1 to 0-600 (Gauge and Absolute)	0-1 to 0-600 (Gauge and Absolute)	0-1 to 0-600 (Gauge and Absolute)
Supply Voltage (Vdc):	9 to 32	4.75 to 8	See Output
Output:	4 - 20 mA	10 to 90% of S.V.	4 - 20 mA (Supply: 9 to 32 Vdc) 0-5, 1-5, 1-6 Vdc (Supply: 9 to 32 Vdc) 0-10 Vdc (Supply: 15 to 32 Vdc)
Operating Temp. (°C):	-40 to 100	-40 to 125	-40 to 125
Compensated Temp. (°C):	0 to 100	0 to 100	0 to 100
Electrical Connection:	EN 175301-803-A	EN 175301-803-A	EN 175301-803-A Screened Cable
Pressure connection:	DIN 3852-E-G1/4 EN 837 (G1/4 A, G1/2 A) 1/4 - 18NPT *	DIN 3852-E-G1/4 EN 837 (G1/4 A, G1/2 A) 1/4 - 18NPT *	DIN 3852-E-G1/4 EN 837 (G1/4 A, G1/2 A) 1/4 - 18NPT *
Body Material:	AISI 316L	AISI 316L	AISI 316L

	MBS 33M	DST P30/35M
Range (Bar):	0-1 to 0-600 (Gauge and Absolute)	0-1 to 0-600 (Gauge and Absolute)
Supply Voltage (Vdc):		
Output:	4 - 20 mA (Supply: 9 to 32 Vdc)	4 - 20 mA (Supply: 9 to 32 Vdc) 10%-90% of supply voltage (Supply 4.5-5.5 Vdc)
Operating Temp. (°C):	-40 to 85	-40 to 125
Compensated Temp. (°C):	0 to 80	
Electrical Connection:	EN 175301-803-A Screened cable	EN 175301-803-A EN 60947-5-2 ISO15170-A1-3.2-Sn Screened cable
Pressure connection:	DIN 3852-E-G1/4, EN 837 (G1/4 A, G1/2 A) 1/4 - 18NPT *	DIN 3852-E-G1/4 EN 837 (G1/4 A, G1/2 A) 1/4 - 18NPT *
Body Material:	AISI 316L	AISI 316L

* See Data Sheet.

	MBS 9300
Pressure span (mbar):	40 to 400 (Gauge and Absolute)
Supply Voltage (Vdc):	see output
Output:	4 - 20 mA (Supply: 9 to 32 Vdc) 10%-90% of supply voltage (Supply 4.5-5.5 Vdc)
Operating Temp. (°C):	-25 to 100
Compensated Temp. (°C):	0 to 80
Electrical Connection:	EN 175301-803-A
Pressure connection:	DIN 3852-E-G1/2 or G1/4*
Body Material:	AISI 316L

* See Data Sheet.

2. DOCUMENTS AND DRAWINGS:

Document IK.21.H1.02 dated November 1997.
 DataSheet MBS 3100/3150 No: IC.PD.P21.1I.02 dated 2020.05
 DataSheet MBS 2100/2150 No: IC.PD.P21.O3.02/520B5192 dated 05/2013
 DataSheet MBS 3300/3350 No: IC.PD.P21.1K.02 dated 2020.05
 DataSheet MBS 9300 No: IC.PD.P21.X1.02 - 520B5413 dated 2012.12
 Datasheet DST P30/35M No: IC.PD.P21.1G.02 dated 2019.12
 MBS9300 Approbation drawing No.064R5004, dated 2012-12-10
 Datasheet MBS33M No: IC.PD.P21.1N.02 dated 2020.06

3. TEST REPORTS:

Force Technology test report 119-30777-1 dated 20200129
 Force Technology test report 119-21656-1 dated 20190410

4. APPLICATION / LIMITATION:

- 4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships.
 4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**
 4.3 - BUREAU VERITAS Environmental Category, **EC Code: 33**
 4.4 - The equipment fulfils the EMC requirements for installation on the Bridge and Deck Zone.
 4.5 - Acid resistant stainless steel (AISI 316L).

5. PRODUCTION SURVEY REQUIREMENTS:

- 5.1 - The above products are to be supplied by **DANFOSS A/S** in compliance with the type described in this certificate.
 5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320.
 5.3 - **DANFOSS A/S** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products :

**Danfoss A/S
 Nordborgvej 81
 DK-6430 Nordborg
 DENMARK**

**Danfoss (Tianjin) Ltd-Industrial Automation Business Unit
 No. 9 Quanhui Rd.
 Wuqing Development Area, Tianjin
 TIANJIN
 CHINA**

6. MARKING OF PRODUCT:

- Maker's name or trademark,
- Serial number of the units,
- Equipment type number or model identification under which it was type-tested.

7. OTHERS:

- 7.1 - It is **DANFOSS A/S** responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.
 7.2 - This certificate supersedes the Type Approval Certificate No. 08472/D0 BV issued on 18 May 2016 by the Society.

*** END OF CERTIFICATE ***