



# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAA00001W8**  
Revision No:  
**3**

## This is to certify:

That the **Pressure Switch**

with type designation(s)  
**MBC 5100, MBC 5180**

Issued to

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

is found to comply with  
**DNV rules for classification – Ships, offshore units, and high speed and light craft**

## Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

## Location classes:

Type	Temperature	Humidity	Vibration	EMC	Enclosure
MBC 5100	B	B	B, See also Tests carried out	Not relevant	B/IP65
MBC 5180	B	B	B	Not relevant	B/IP65

Issued at **Høvik** on **2023-06-20**

for **DNV**

This Certificate is valid until **2028-05-28**.

DNV local unit: **Denmark CMC**

Approval Engineer: **Martin Skårerverket**

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**Frederik Tore Elter**  
**Head of Section**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



## Product description

### MBC 5100 – Heavy duty pressure switch

Pressure Range:	-0.2 to 10 bar (Low pressure bellows) 2.0 to 30 bar (High pressure bellows) 0.5 to 25 bar (Low pressure diaphragm) 5.0 to 100 bar (High pressure diaphragm) 16 to 400 bar (High pressure piston)
Output:	1 c/o - contact
Rating:	AC 15: 0.5A, 250V, DC 13: 12W, 125V
Electrical connection:	• Pg9 / Pg11 / Pg13.5 plug (DIN 43650A) • ready assembled cable connection
Materials:	housing AlMgSi1 or 1.4306, bellows 1.4306, diaphragm Viton, piston Stainless Steel

### MBC 5180 – Differential Pressure Switch

Max. operating pressure:	45 bar
Setting range:	0.3 - 5 bar
Output:	1 c/o - contact
Rating:	AC 15: 0.5A, 250V AC, DC 13: 12W, 125V
Materials:	housing = AlMgSi 1, diaphragm = NBR

## Place of manufacture

Danfoss Poland Sp.z.o.o.  
Ul. Chrzanowska 5  
PL-05-825 Grodzisk Mazowiecki  
Poland

## Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

## Type Approval documentation

### MBC 5100

Data Sheets:	AI235886441161en-001001, dated 2021-04
Drawings:	061 R 9000 rev. 00-06-30, No. 640B0597
Test Reports:	MBC 3-94373 appendix 1 to 10, No. 20000213, No. 20032124 No. TR 061B-089 UK, No. 2000708, No. 2001182, No. 20042163E-6 of Danfoss BOS/3384/BS/18 dated 2018-07-13, Vibration test of MBC 5100 T214172 – 2 dated 2018-08-09, Corrosion check Pressure Switch MBC 5100 BS-3/091/B/19 dated 2019-07-25, IP 65 test of MBC 5100

### MBC 5180

Data sheets:	AI185486433551en-000601, dated 2021-02
Drawings:	061 B 9001 rev. 09
Test Reports:	Danfoss MBC 3-59212 PEJ960925(01). appendix 1 to 10

Type approval renewal assessment report for TAA00001W8, DNV Gdansk 2023-03-29.

## Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.

- Vibration test for the MBC 5100 ready assembled cable connection version:  
sinus sweep in the frequency range 25 ~ 2000 Hz, acceleration 20g

## Marking of product

The products to be marked with:

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

### **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 after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE