DNV·GL

TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00001W8
Revision No:
1

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 GL 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 GL.

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 **2019-01-11**

This Certificate is valid until **2023-05-28**.
DNV GL local station: **Fredericia**

Approval Engineer: **Nils Jarem**

for **DNV GL**
Digitally Signed By: Sneen, Ståle
Location: DNV GL Høvik, Norway
on behalf of

Jan Tore Grimsrud
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.

Job Id: **262.1-028858-2**
Certificate No: **TAA00001W8**
Revision No: **1**

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) 40 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, 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 GL, 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 GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Type Approval documentation

MBC 5100

Data Sheets:	IC.PD.P10.3A.02 dated 2018-01
Drawings:	061 R 9000 rev. 00-06-30, No. 640B059
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

MBC 5180

Data sheets:	IC.PD.P10.K5.02 dated 2018-01
Drawings:	061 B 9001 rev. 09
Test Reports:	Danfoss MBC 3-59212 PEJ960925(01). appendix 1 to 10

Type approval renewal assessment report for 9933497 HH, DNV GL Gdynia 2018-04-26.

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

- 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