

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 Poland Sp. z o.o. ul. Chrzanowska 5, Grodzisk Mazowiecki, 05-825, Poland
Type	Switches - Pressure
Description	Heavy duty pressure switch MBC 5100 MBC 5100-AABC-XZZZZ AA Setting range B Type C Microswitch X Electrical connection ZZZZ Pressure connection For detailed product description, pls. refer to appendix.
Trade Name	MBC 5100
Application	Marine, offshore and industrial applications for use in environmental categories ENV1, ENV2 and ENV3 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 – 2013.



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Specified Standard EN 60947-1:2007 + A1:2011 + A2:2014
EN 60947-4-1:2010 + A1:2012
EN 60947-5-1:2004 + A1:2009

Ratings Contact load (SPDT):
AC 15 0,5A / 250 V
DC13 12 W / 125 V

Additional Tests Degree of protection: IP65
Salt mist
Shock: acceleration level: 40 g / 6 ms

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.

The Design Appraisal Document No. HTS/ETS 40299-20/MK/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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Appendix

DESCRIPTION	
	Heavy duty pressure switch MBC 5100
	MBC 5100-AABC-XZZZ
AA	Setting range: -0.20-400 bar
B	Type:
1	Low pressure bellows (-0.2-10 bar)
2	High pressure bellows (2-30 bar)
3	Low pressure diaphragm (0.5-25 bar)
4	High pressure diaphragm (5-100 bar)
5	High pressure piston (40-400 bar)
C	Microswitch:
1	0.5 A, 250 V (AC 15), 12 W, 125 V (DC 13)
X	Electrical connection:
0	No plug
1	Pg 11 plug (DIN 43650A)
2	Pg 13.5 plug (DIN 43650A)
3	Pg 9 plug (DIN 43650A)
X	cable version with pre-mounted flame retardant and marine approved cable (max. length 12 meter)
ZZZZ	Pressure connection:
CA05	M10x1 female
CB04	G ¼ female
DA05	M10x1 female with flange connection
DB04	G ¼ female with flange connection

LLOYD'S REGISTER TYPE APPROVAL
Issue by: HAMBURG TECHNICAL SUPPORT OFFICE (HPC1562085)
Issued to: DANFOSS A/S
For: PRESSURE SWITCH, TYPE MBC 5100

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register Type Approval System Procedure TA14 Version 03 (July 2017) and this Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

ETS 55532	Application Checklist – Appendix to Form TA2502TA	24.06.2020
ETS 55802	Request for Marine Services – Type Approval	06.08.2020
ETS 31971-15	Design Appraisal Document of previous certificate no. 15-20058	01.07.2015
KAT2000462	Production quality assessment report of Danfoss Poland	05.10.2020
IC.PD.P10.4A.02	Product data sheet Heavy duty pressure switch MBC 5000 and MBC 5100	09.2019
060-9650 Rev. AC	EU Declaration of Conformity reg. Low Voltage Directive 2014/35/EU	14.05.2019




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Supplementary Type Approval Terms and Conditions

Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.

Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations. Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the Lloyd's Register Type Approval System Procedure.