

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	Differential Pressure Switch
Trade Name	MBC 5180
Application	Marine, Offshore and Industrial applications for use in environmental categories ENV1, ENV2, ENV3 and ENV4, as defined in Lloyd's Register Type Approval System, Test Specification Number 1 – July 2015.
Specified Standard	EN 60947-1: 2007 + A1: 2011 + A2: 2014 EN 60947-4-1: 2019 EN 60947-5-1: 2017 IACS E10 Rev. 8 / 2021
Ratings	Operating temperature: -10 °C – 85 °C Max. operating pressure: 45 bar Max. switch frequency: 10/min



Matthias Karg

Specialist to Lloyd's Register EMEA
A member of the Lloyd's Register group

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Contact load:
AC-15(0.5 A, 250 VAC)
DC-13(12 W, 125 VDC)

Additional Tests Dry heat (+85 °C / 96 h)
Low temperature (-10 °C / 2 h)
Vibration (5-200 Hz: 4 g; 200-500 Hz: 4-15 g; 500 – 1000 Hz: 15 g; 1000-1100 Hz: 15-25 g; 1100 – 2000 Hz: 25 g)
Shock (50 g / 6 ms)
Enclosure test (IP 65)

Other Conditions Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

If the specified standards are amended during the validity of this certificate, the product is to be re- approved prior to it being supplied to vessels to which the amended standards apply.

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 HTS/ETS 42096-22/MK and its supplementary Type Approval Terms and Conditions form part of this Certificate.



LLOYD'S REGISTER TYPE APPROVAL – DESIGN APPRAISAL DOCUMENT

Issued by: HAMBURG TECHNICAL SUPPORT OFFICE (HPC1762189)

Issued to: DANFOSS A/S

For: PRESSURE SWITCH, TYPE MBC 5180

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register Type Approval System Procedure TA14 Version 04 (September 2020) and this Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

ETS 58502	Type Approval Application Checklist	18.10.2021
ETS 58664	Request for Marine Services – Type Approval	22.11.2021
ETS 36979-18	Design Appraisal Document of previous certificate no. 18-20037	04.06.2018
KAT2000462	Production quality assessment report of Danfoss Poland	05.10.2020
060-9680 Rev. AB	EU Declaration of Conformity (LVD) for MBC 5180	20.07.2021
AI185486433551en-000601	Product data sheet Differential pressure switch Type MBC 5080 and MBC 5180	02.2021



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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.

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