



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 (Tianjin) Co. Ltd. No. 9 Quanhui Road, Wuqing Development Area, Tianjin, 301700, China
Type	Temperature Sensor
Description	Temperature sensors based on platinum resistance thermometer (Pt 100 / Pt 1000) MBT 5410 – Room temperature sensor MBT 5722 – Stern tube sensor
Trade Name	MBT 5410, MBT 5722
Application	Marine, Offshore and Industrial applications for use in environmental categories ENV1, ENV2, ENV3 and ENV4 ⁽¹⁾ , as defined in Lloyd's Register Type Approval System, Test Specification Number 1 – December 2021. (1) for MBT 5722 only
Specified Standard	Manufacturer's specification IACS UR E10 Rev. 8 / 2021

Matthias Karg

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

Type Approval Certificate

Ratings	For detailed ratings, pls. refer to appendix.
Additional Tests	Low Temperature: -50 °C / 16 h Ingress Protection: IP65 (for connection box) IP67 (30 min / 1 m) (for sensor tube) Shock test (100 g / 6 ms)
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 HPC1662188-22/MK and its supplementary Type Approval Terms and Conditions form part of this Certificate.



Appendix

DESCRIPTION

Temperature sensors based on platinum resistance thermometer (Pt 100 / Pt 1000)

MBT 5410 – Room temperature sensor

MBT 5722 – Stern tube sensor

RATINGS

Type	MBT 5410	MBT5722
Sensing element	Pt 100 or Pt 1000 2, 3, 4 wire connection	Pt 100 3 wire connection
Measuring range	-50 °C to 70 °C	-50 °C to 200 °C
Insertion length	60 - 100 mm	1 – 20 m
Accuracy	IEC 60751 Class B (2008)	



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Issue Date: 25/10/2022
Expiry Date: 25/11/2026
Reference: HPC1662188-22/MK

LLOYD'S REGISTER TYPE APPROVAL – DESIGN APPRAISAL DOCUMENT

Issued by: HAMBURG TECHNICAL SUPPORT OFFICE

Issued to: DANFOSS A/S

For: TEMPERATURE SENSOR, Type: MBT 5410 & MBT 5722

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 58884	Type Approval Application Checklist	20.12.2021
ETS 58993	Request for Marine Services – Type Approval	17.07.2021
ETS 37390-18	Design Appraisal Document of previous certificate no. 18-20061	25.09.2018
PRJ111100391216-3	Production quality assessment report of Danfoss (Tianjin) Co. Ltd. (China)	30.09.2022
084R1019, Rev. 02	EU Declaration of Conformity (EMC)	27.01.2021
AI202186432661en-000801	Data sheet Temperature sensor MBT 5410	02.2021
AI202086427489en-000801	Data sheet Temperature sensor MBT 5722	02.2021

TEST REPORTS

117-34687-2 Rev. 2	Test Report (EMC) acc. IACS E10 Rev. 8/2021 for temperature sensor MBT 5252	14.07.2021
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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.