

## 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.

<b>Manufacturer</b>	<b>Danfoss A/S</b>
<b>Address</b>	Nordborgvej 81, Nordborg, 6430, Denmark
<b>Place of Production</b>	Danfoss (Tianjin) Co. Ltd. No. 9 Quanhui Road, Wuqing Development Area, Tianjin, 301700, China
<b>Type</b>	Temperature Sensor
<b>Description</b>	Temperature sensor based on platinum resistance thermometer
<b>Trade Name</b>	MBT 5250, MBT 5260, MBT 5252, MBT 5253
<b>Application</b>	Marine, Offshore and Industrial applications for use in environmental categories ENV1, ENV2, ENV3 and ENV4 (refrigerated cargo rooms only) as defined in Lloyd's Register's Type Approval System Test Specification No. 1: 1990, except sensors with a protection tube length above 250 mm (max.500 mm) - only environmental categories: ENV1, ENV2 and ENV3.
<b>Specified Standard</b>	Manufacturer's specification IACS E10 Rev. 7 / 2018
<b>Ratings</b>	Sensing element: Pt 100 or Pt 1000 Sensor tolerance: EN 60751 Class B Enclosure protection: IP 65 (plug versions)



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For detailed ratings, pls. refer to appendix.

### Additional Tests

Low temperature test: -40 °C  
Shock test: half sinus 100 g / 6 ms  
Enclosure protection: IP 65 (plug versions)

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 40765-21/MK/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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**Appendix**

**DESCRIPTION**

Temperature sensors  
 MBT 5250, MBT 5252, MBT 5253, MBT 5260

**RATINGS**

	MBT 5250	MBT 5252	MBT 5253	MBT 5260
Sensing element	1 or 2 Pt 100 1 or 2 Pt 1000 2 or 3 wire connection	1 or 2 Pt 100 1 or 2 Pt 1000 2, 3, 4 wire connection	1 or 2 Pt 100 1 or 2 Pt 1000 2 or 4 wire connection	1 or 2 Pt 100 1 Pt 1000 2 or 4 wire connection
Measuring range	-50 – 200 °C	-50 – 200 °C -50 – 400 °C	-50 – 100 °C -50 – 200 °C	-50 – 200 °C -30 – 150 °C
Insertion length	50 – 250 mm	50 – 500 mm	50 – 250 mm	30 – 250 mm
Sensor tolerance	EN 60751 class B			
Enclosure protection (plug versions)	IP 65	IP 65	IP 67	IP 65

## LLOYD'S REGISTER TYPE APPROVAL – DESIGN APPRAISAL DOCUMENT

Issued by: HAMBURG TECHNICAL SUPPORT OFFICE (HPC1462179)

Issued to: DANFOSS A/S

For: TEMPERATURE SENSOR, TYPES MBT 5250, MBT 5252, MBT 5253, MBT 5260

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 56277	Application Checklist – Appendix to Form 2502TA	04.11.2020
ETS 56355	Request for Marine Services – Type Approval	11.11.2020
ETS 33325-16	Marine Design Appraisal Document of previous Certificate No. 14/20066 (E1)	16.03.2016
CPN 1800858	Production quality assessment report of Danfoss (Tianjin)	25.03.2019
CNB321595-UK	Certificate ISO 9001:2015 of Danfoss (Tianjin) Ltd., Version 01	12.09.2018
DK009597-1	Certificate ISO 9001:2015 of Danfoss A/S, Cooling Segment, Version 02	02.07.2020
087R0017	Manufacturer's Declaration of Conformity (simple apparatus), Rev. 00	13.11.2017
084R1019	EU Declaration of Conformity (EMC), Rev. 01	21.08.2019
IC.PD.P30.I7.02	Data Sheet Temperature Sensors Types MBT 5250, MBT 5260, MBT 5252	09.2020
IC.PD.P30.A6.02	Data Sheet Temperature Sensors Types MBT 153, Sensor Pocket MBT 120	10.2019

### TEST REPORT

117-34687-2	Test Report (EMC) for MBT 5252 acc. to IACS E10 Rev.7/2018	01.04.2020
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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.*