

**TYPE APPROVAL CERTIFICATE****This is to certify:****That the Temperature Sensor**

with type designation(s)

**MBT 153, MBT 5250, MBT 5251, MBT 5252, MBT 5253, MBT 5260, MBT 5270**

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:**

<b>Temperature</b>	<b>D</b>
<b>Humidity</b>	<b>B</b>
<b>Vibration</b>	<b>B</b>
<b>EMC</b>	<b>A: MBT 5252 only</b>
<b>Enclosure</b>	<b>Required protection according to the rules shall be provided upon installation on board</b>

Issued at **Høvik** on **2021-02-05**for **DNV GL**This Certificate is valid until **2025-12-31**.DNV GL local station: **Denmark CMC**Approval Engineer: **Nils Jarem****Marta Alonso Pontes**  
**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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Job Id: **262.1-001912-9**  
Certificate No: **TAA000006F**  
Revision No: **3**

## Product description

Series MBT consisting of the following sensors:

MBT 153: With Teflon cable and Silicone cable  
MBT 5250: Standard version acc. to data sheet  
MBT 5250: OEM version acc. to engineering sheet: 090428-5  
MBT 5251: MBT 5250 with plastic nut and Ni plug  
MBT 5252: Up to 400°C  
MBT 5253: MBT 153 mounted in sensor pocket MBT 120  
MBT 5253: With Deutsch plug DT04-4P-CE04  
MBT 5260: Fixed measuring insert  
MBT 5270-1040-020-FH0: Fixed measuring insert  
MBT 5270-12602-040-B0001-050: Fixed measuring insert

Sensor: Pt 100; or Pt1000 EN 60751 class A or B (standard)  
Operating temp. range: -50°C to 200°C  
-50°C to 200°C for MBT 5270  
-50°C to 400°C for MBT 5252 (HT)  
Connections: 2-, 3-, or 4-wire for MBT 153  
2-wire (2x 2-wire OEM) for MBT 5270  
2-, or 3-wire for MBT 5250, MBT 5252, MBT 5260  
2-, or 4-wire for MBT 5253,  
Protection tube: Ø3 mm for MBT 5270-12602-040-B0001-050  
Ø6 mm for MBT 5270-1040-020-FH0  
Ø8 x 1 mm generally  
Ø10 x 2 mm for MBT 5252  
Ø11 x 1 mm for MBT 5252 (HT)  
Max. insertion length: 250 mm, Vibration location class B  
500 mm, Vibration location class A  
20 mm, Vibration location class B for MBT 5270-1040-020-FH0  
40 mm, Vibration location class B for MBT 5270-12602-040-B0001-050  
Max. extension length: 50 mm (not MBT 5270, MBT 5253)  
Degree of protection: IP 54 (MBT 5252 with "B" Head)  
IP 65 (MBT 5250, MBT 5251, MBT 5252, MBT 5260)  
IP 67 (MBT 153, MBT 5253, MBT 5270)

## Place of production

Danfoss (Tianjin) Ltd, Wuqing Development Area, 9 Quanhui Road, 301700 Tianjin, China

## 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.

## Application/Limitation

Thermo wells to be used when measuring temperatures in fluids, steam or gases under pressure.

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## Type Approval documentation

Sensor	Data sheet
MBT 5250 MBT 5252 MBT 5260	AI208386431879en-000701 dated 2020-09
MBT 153 MBT 5253	AI202586427279en-000601 dated 2019-10
MBT 5250 (OEM)	Engineering sheet 090428-5
MBT 5270	ESH084Z2348 dated 2015-07-07
MBT 5270	Engineering sheet CRSS4328 version 02
MBT 5270	AI298141313986en-000101 dated 2019-03

Delta test reports MBT 5270: T210419 dated 2015-05-05, T210433 dated 2015-05-11  
Force flame ret. test report MBT 5114-#7 (MBT 5253): 117-33523-7 dated 2018-02-19  
Force EMC test report MBT 5252: 117-34687-2 dated 2020-04-01  
Test Reports of Danfoss: Ref. E17-B201, J.No. 2000 0135  
Drawings: No.: 084M1024-00, 084R2043 ver. AA

Type approval renewal assessment report for TAA000006F rev. 2, DNV GL Tianjin 2020-12-28.

## Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, December 2019.

## 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