

Type Approval Certificate



[Temperature Sensors]

Initial Approval 3 November 1999

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

Product Description Type : MBT 5111 / 5113 / 5114 / 5116

* Applicant : Danfoss A/S
Nordborgvej 81, DK-6430 Nordborg, Denmark

" See Appendix 1 "

Approval Condition " See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification, Steel Ships

This Certificate is valid until 2 November 2029

Issued at Shanghai, China on 21 November 2024



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No(ME24056453091) and certificate No.(DLN34014-AE007).



KOREAN REGISTER

*General Manager of
China Plan Approval Center
CHINA KR Co., Ltd.*

Note : 1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Product Description and/or Approval Condition

Date of Issue : 21 November 2024

A. Product Description

1. Product Specification

- 1) Product Description :
The MBT series is temperature sensors for marine applications
- 2) Specification :
 - MBT 5111 standard / MBT 5111 customised (NiCr-Ni, up to 800 °C)
 - MBT 5113 standard (NiCr-Ni, up to 800 °C)
 - MBT 5114 standard / MBT 5114 customised (Pt 1000, up to 600 °C)
 - MBT 5116 standard / MBT 5116 slim line (Pt 100/ Pt 1000, up to 600 °C)

2. Approved Drawings and Documents

- MBT 5111, doc. no. : IC.PD.P30.C9.02
- MBT 5113, doc. no. : IC.PD.P30.H6.02
- MBT 5114, doc. no. : IC.PD.P30.T3.02
- MBT 5116, doc. no. : IC.PD.P30.H6.02

3. Test Reports, etc.

- Performance and Environmental Test on MBT 5111 Series : 087U4029, 087U4034, 087U4035 and 087U4040
- Performance Test for MBT5114 Series : 087U4065, 087U4066
- Vibration, Heat and Cold Test : 201000978
- EMC Test : 117-34687-2 dated on 2020-04-01

B. Approval Condition

1. Application & Limitation

- 1) This approval is granted on the basis of the approved documentation and test reports.
- 2) Degree of protection shall be complied with Rule Pt.6 Ch.1 Sec.2 201.2. (5).
- 3) Explosion-proof certification by a notified/recognized Certification Body is not covered by this certificate. Ratings and Special Conditions for Safe Use in hazardous areas are to be obtained from the relevant valid Ex-Certificate.

2. Individual Product Cert. and Drawing Approval Requirement

- 1) Individual Product Certification is not required.

3. Marking

- 1) The product or packing is to be marked with the manufacturer's name and type designation on a suitable position

4. Others

- 1) Test condition

Approved Testing	Approved location	Remark
EMC	All locations excluding the bridge and deck zone	6GHz
Temperature	-50 ~ +70°C	-
Vibration	Acceleration $\pm 4g$	-

< End of Certificate >