



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **A-12853**

This is to certify that the
Temperature Sensor

with type designation(s)
Resistance Thermometer (Pt-100) MBT 5310, MBT 5722

Manufactured by
Danfoss A/S
NORDBORG, Denmark

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application
Temperature Sensors. Resistance Thermometer (PT-100).
Location classes :

Temperature	D
Humidity	B
Vibration	B
EMC	A
Enclosure	C

Høvik, 2012-11-23
for **Det Norske Veritas AS**

Odd Magne Nesvåg
Head of Section



DNV local office:
Fredericia

This Certificate is valid until
2016-06-30

Nils Jarem
Surveyor

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.
If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Certificate No.: A-12853
File No.: 891.20
Job Id.: 262.1-009424-4

Product description

Resistance Thermometer (Pt-100)

Type: MBT 5310 Bearing Sensor
MBT 5722 Stern Tube Sensor

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, 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 Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Type Approval documentation

MBT 5722: Drawing 084M1017 v. 00 Data Sheet IC.PD.P30.M3.02
MBT 5310 : Drawing 084M1008 v. 04 Data Sheet IC.PD.P30.Q2.02
MBT 5310 customised: Drawings 084M1019 v. 00, 084M1021 v. 00, 084M1022 v. 00

Test report: RMS 48/7/97-2 dated 24.07.1990
Retention Survey Report for A-11647, DNV Fredericia, dated 2012-06-07

Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006.

Place of manufacture

Danfoss A/S, Nordborg, Denmark
Danfoss A/S, Wuqing, China

Certificate retention survey

The scope of the retention/renewal survey 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 survey 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

Retention survey is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE