



NIPPON KAIJI KYOKAI

TYPE APPROVAL CERTIFICATE FOR AUTOMATIC DEVICES AND EQUIPMENT

Certificate No. TA14459M

This is to certify that the undernoted product(s) has/have been approved in accordance with the requirements specified in Chapter 1, Part 7 of "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use" and the relevant Society's Rules:

This certificate is issued to

Manufacturer:	Danfoss A/S
Place of Manufacturing:	Nordborgvej 81, DK-6430 Nordborg, Denmark
Product description:	Temperature Sensor
Model:	MBT 5111, MBT 5113, MBT 5116, MBT 5410, MBT 5722, MBT 5114
Approval No.:	96A106
Valid until:	17 March 2019

This certificate is subject to the conditions specified in the attached sheet(s).

Issued at Tokyo on 18 March 2014.


Y. Shibata
General Manager
Machinery Department

Note: The manufacturer, if desired, is requested to apply to the Society for renewal prior to the expiration date.

Specification & documents:

Type	Sensor Element	Temperature Range	Drawing
MBT5410	1×Pt100	-50 ~ +100 °C	MBT5410
	2×Pt100	-50 ~ +100 °C	
	1×Pt1000	-50 ~ +100 °C	
MBT5722	1×Pt100	-50 ~ +200 °C	MBT5722
MBT5114 standard	1×Pt1000	-50 ~ +600 °C	MBT5114
	2×Pt1000	-50 ~ +600 °C	
MBT5114 customised	1×Pt1000	-50 ~ +600 °C	
	2×Pt1000	-50 ~ +600 °C	
MBT5111 standard	1×NiCr-Ni	800 °C	MBT5111
MBT5111 customised	1×NiCr-Ni	800 °C	MBT5111-1
MBT5113	1×NiCr-Ni	800 °C	MBT5113
	2×NiCr-Ni	800 °C	
MBT5116	1×Pt100	-50 ~ +600 °C	MBT5116
	2×Pt100	-50 ~ +600 °C	
MBT5116 Slim-line	1×Pt100	-50 ~ +600 °C	MBT5116 Slime-line

Test items & approval conditions:

1. Test items:

(Applied testing items are marked with X.)

ENVIRONMENTAL TESTS		Mark
External examination		X
Operation test and performance test		X
Electric power supply failure test		--
Power supply fluctuation test	Electric	--
	Pneumatic and Hydraulic	--
Insulation resistance test		X
High voltage test		X
Pressure test (Pneumatic and Hydraulic)		--
Dry heat test (Temperature 55°C × 16 hours)		X
Damp heat test		X
Vibration test ($\pm 0.7g \times 1.5$ hours), note(1)($\pm 4.0g \times 2$ hours)		X
Inclination test		--
Cold test (Temperature -25°C × 16 hours)		X
Salt mist test		--
Electrostatic discharge immunity test		--
Radiated radio frequency immunity test		--
Conducted low frequency immunity test		--
Conducted high frequency immunity test		--
Burst / Fast transient immunity test		--
Surge immunity test		--
Radiated emission test		--
Conducted emission test		--
Flame retardant test		--

Note (1): Vibration test on $\pm 4.0g \times 2$ hours was carried for MBT 5114.

2. Approval condition:

Each equipment is not allowed to be installed in the bridge and on open deck.