



**TYPE APPROVAL CERTIFICATE**  
No. ELE013012XG

**This is to certify** that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

<i>Description</i>	<b>Temperature sensors</b>
<i>Type</i>	<b>MBT 5111 Standard (K type thermocouple) MBT 5111 Customised (K type thermocouple) MBT 5114 Standard (Pt-1000-2-wire) MBT 5114 Customised (Pt 1000-2-wire)</b>
<i>Applicant</i>	<b>DANFOSS A/S DK-6430 Nordborg DENMARK</b>
<i>Manufacturer</i>	<b>DANFOSS A/S</b>
<i>Place of manufacture</i>	<b>DK-6430 Nordborg DENMARK</b>
<i>Reference standards</i>	<b>- Rules for the Classification of Ships- Part C - Machinery, Systems and fire protection - Ch.3 ; Sect. 6 ; Tab. 1 .</b>

Issued in **HAMBURG** on **February 1, 2012**. This Certificate is valid until **January 31, 2017**

RINA

**Daniele Chirulli**

This certificate consists of this page and 1 enclosure



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**Enclosure - Page 1 of 1**  
**MBT 5111 Standard (K type thermocouple)**  
**MBT 5111 Customised (K type thermocouple)**  
**MBT 5114 Standard (Pt-1000-2-wire)**  
**MBT 5114 Customised (Pt 1000-2-wire)**

**MBT 5111 Standard**

Data sheet n° IC.PD.P30.C1.02/520B1823S  
Features according to Appendix H - General market

**MBT 5111 Customised**

Data sheet : Appendices B, C, D, E, F, I, J, K, L, M, N  
Features according to Appendix G

**MBT 5114 Temperature sensor:**

The MBT 5114 is a series of exhaust gas temperature sensors used for measuring and regulating exhaust gas in stationary and marine diesel and gas engines, turbines and compressors.

Measuring range:	-50 to 600°C
Short time temperature:	650°C
Max. peak temperature:	700°C
Element type:	Pt 1000
Tolerances.	DIN EN 60751, class B
Enclosure.	IP 65 or 54

**Danfoss Documentation for MBT 5111**

Engineering Sheet

Appendix B - ref. 060705-7 (07/2006), Appendix C - ref. 060705-8 (07/2006),  
Appendix D - ref. 060705-9 (07/2006), Appendix E - ref. 060705-5 (07/2006),  
Appendix F - ref. 060705-6 (07/2006), Appendix I - ref. 060707-5 (07/2006),  
Appendix L - ref. 060707-8 (07/2006), Appendix K - ref. 060707-7 (07/2006),  
Appendix M - ref. 060707-9 (07/2006), Appendix N - ref. 060710-5 (07/2006),  
Appendix J - ref. 060707-6 (07/2006).

**Danfoss Documentation for MBT 5114**

- Danfoss sensor specification code and change of MBT 5114 construction
- Danfoss Technical Brochure Doc. IC.PD.P30.R1.02-520B4161
- MBT 5114 Assy. Drawing No. 087U9016 and material list for 20087U9016 ver. 02
- Danfoss Engineering sheets, code no. 087U4092; TBO; 087U4073 - 087U4089; 087U4090; 087U4091;
- Test report No.201000978-Vibration and heat and cold test, dated 2010-05-05

**HAMBURG February 1, 2012**

