



Lloyd's  
Register

## Type Approval Certificate

*This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.*

This certificate is issued to:

<b>PRODUCER</b>	Danfoss A/S Nordborgvej 81 6430 Nordborg Denmark
<b>DESCRIPTION</b>	Thermostat
<b>TYPE</b>	MBC 8100
<b>APPLICATION</b>	Marine, offshore and industrial applications for use in environmental categories ENV2, ENV3 and ENV4 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 - 2002.
<b>ADDITIONAL TESTS</b>	Enclosure protection IP65
<b>STANDARDS</b>	EN 60947-1:2007+A1:2011+A2:2014 EN 60947-4-1:2010+A1:2012 EN 60947-5-1:2004+A1:2009
<b>RATINGS</b>	Operating temperature range: -10 °C to 150 °C Enclosure protection: IP65 Contact type: SPDT Contact load: AC15: 0.5 A / 250 V DC13: 12 W / 125 V

<b>Certificate No.</b>	14/20046 (E1)
<b>Issue Date</b>	06 August 2019
<b>Expiry Date</b>	15 June 2024
<b>Sheet</b>	1 of 2

Lloyd's Register EMEA  
71 Fenchurch Street, London EC3M 4BS



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**OTHER CONDITIONS** Cable and / or plug to be of fire-retardant type as minimum

**PLACE OF PRODUCTION** Danfoss Poland Sp. z o. o.  
UL Chrzanowska 5  
05-825 Grodzisk Mazowiecki  
Poland

*The Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.*

*If the specified standards are amended during the validity of this certificate, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.*

*The Design Appraisal Document No. HTS/ETS 38566-19 and its supplementary Type Approval Terms and Conditions form part of this Certificate.*

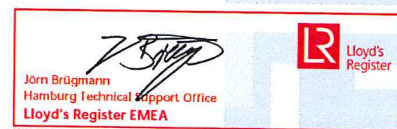
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**Sheet** 2 of 2

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# Design Appraisal Document

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Date  
**06 August 2019**

Please quote this reference number on all future communications  
**HPC 1462077/38566-19/MK/JB/AC**

**THE LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 2017  
ISSUED TO: DANFOSS A/S  
FOR: THERMOSTAT, TYPE MBC 8100  
TYPE APPROVAL CERTIFICATE NO. 14/20046 (E1)**

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register's Type Approval System Procedure TA14 and this Design Appraisal Document forms part of the Certificate.

## APPROVAL DOCUMENTATION

ETS 52937	Application Checklist – Appendix to Form TA2502TA	24.04.2019
ETS 53026	Request for Marine Services – Type Approval	14.05.2019
ETS 30041-14	Design Appraisal Document of previous certificate no. 14-20046	06.08.2014
KAT1800161/1	Production quality assessment report of Danfoss Poland	30.04.2018
060-9650-ac	EU Declaration of Conformity regarding EN60947-1, EN 60947-4-1 And EN60947-5-1	14.05.2019
IC.PD.P10.D8.02	Product data sheet Thermostat MBC 8100	02.2017

## TEST REPORTS

MBC 3-921622	Test Report (Environmental) for MBC 8100	21.04.2006
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FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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LR031.1.2016.06

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### Supplementary Type Approval Terms and Conditions

*Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.*

*Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.*

*Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.*

*Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the LR Type Approval System Procedure.*

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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Part 3  
Transmitters/Transducers

Producer/Licence No.	Item Description	Technical Details	Category/Additional Tests	Remarks	Cert. No.
Danfoss A/S Nordborgvej 81 6430 Nordborg Denmark	Thermostat Type: MBC 8100	EN 60947-1:2007+A2:2014 EN 60947-4-1:2010+A1:2012 EN 60947-5-1:2004+A1:2009  Operating measuring range: -10 to 150 °C Enclosure protection: IP 65 Contact kind: SPDT Contact load: 0.5A / 250 V / AC15 12 W / 125 V / DC13	ENV2 ENV3 ENV4 (2002)	Expires: 15 June 2024	14/20046 (E1)

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