

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.

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|----------------------------|---|
| Manufacturer | Danfoss A/S |
| Address | Nordborgvej 81, Nordborg, 6430, Denmark |
| Place of Production | Danfoss Poland Sp. z o.o. ul. Chrzanowska 5, Grodzisk Mazowiecki, 05-825, Poland |
| Type | Switches - Temperature |
| Description | Thermostats: CAS 178, CAS 180, CAS 181 |
| Trade Name | CAS-Series |
| Type | Switches - Pressure |
| Description | Pressure switches: CAS 133, CAS 136, CAS 137, CAS 139 Pressure switches for high pressure: CAS 143, CAS 145, CAS 147 Differential pressure switches: CAS 155 |



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| Trade Name | CAS-Series |
| Application | Marine applications for use in environmental categories ENV1, ENV2, ENV3 and ENV4 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 – 1996. |
| Specified Standard | Manufacturer's specification |
| Ratings | <p>Thermostats: Switch: SPDT (single pole doublethrow) Contact load: AC-14 / AC-15: 0.1 A, 220 VAC DC-13: 12 W, 125 VDC Measuring ranges: 20-80 °C / 70-120 °C / 60-150 °C</p> <p>Pressure switches: Switch: SPDT (single pole double throw) Contact load: AC-14 / AC-15: 0.1 A, 220 VAC DC-13: 12 W, 125 VDC Measuring ranges: 0-3.5 bar / 0-10 bar / 6-18 bar / 10-35 bar / 1-10 bar / 4-40 bar / 6-60 bar / 0.2-2.5 bar</p> |

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document No. HTS/ETS 39951-20/MK/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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LLOYD'S REGISTER TYPE APPROVAL
Issue by: HAMBURG TECHNICAL SUPPORT OFFICE (HPC1562014)
Issued to: DANFOSS A/S
For: Pressure switch and Thermostat, CAS-series

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register Type Approval System Procedure TA14 Version 03 (July 2017) and this Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

| | | |
|-----------------|---|------------|
| ETS 55092 | Application Checklist – Appendix to Form TA2502TA | 07.04.2020 |
| ETS 55176 | Request for Marine Services – Type Approval | 22.04.2020 |
| ETS 31494-15 | Design Appraisal Document of previous certificate no. 15-20032 | 13.04.2015 |
| KAT1800858 | Production quality assessment report of Danfoss Saginomiya (Poland) | 30.04.2018 |
| DK009625 | Certificate ISO 9001:2015 / Danfoss Saginomiya (Poland), Version 1 | 04.07.2018 |
| 060-9650-AC | EU Declaration of Conformity (EN60947-1/-4/-5) CAS-series | 14.05.2019 |
| IC.PD.P10.G9.02 | Data sheet Pressure switch and Thermostat CAS | 03.2017 |



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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 Lloyd's Register Type Approval System Procedure.