

**Danfoss A/S**

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Denmark
CVR nr.: 20 16 57 15

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EU DECLARATION OF CONFORMITY**Danfoss A/S****Refrigeration and Air Conditioning Controls**

declares under our sole responsibility that the

Product category: Electric Expansion Valve and Electric Regulation Valve

Type designation(s): **ETS 12C, ETS 24C, ETS 25C, ETS 50C and ETS 100C** **KVS 1C, KVS 2C, KVS 3C and KVS 5C**

Covered by this declaration is in conformity with the following directive(s), regulation(s), standard(s) or other normative document(s), provided that the product is used in accordance with our instructions.

Equipment for use in potentially explosive atmospheres (ATEX) Directive 2014/34/EU

The above products have been tested and certified acc. to below classification and standards used

- EN IEC 60079-0:2018 Explosive atmospheres – Part 0: Equipment – General requirements
- EN 60079-7:2015 Explosive atmospheres – Part 7: Equipment protection by increased safety “e”
- EN IEC 60079-7:2015 / A1:2018 Explosive atmospheres – Part 7: Equipment protection by increased safety “e”
- EC-Type Examination: **DTI 17ATEX 0065x**
- Issued by: Teknologisk Institut
- Technical file: 034R7030



Date: 2022.11.02 Place of issue: DK 6430 Nordborg	Issued by DocuSigned by: Bent Nielsen Signature: 469F595A10704D7... Name: Bent Nielsen Title: Lead Design Engineer	Date: 2022.11.02 Place of issue: DK 6430 Nordborg	Approved by DocuSigned by: Jesper Kirkegaard Signature: 02CE1A82330744A... Name: Jesper Kirkegaard Title: Director, Engineering
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Operating instructions (safety related part ATEX)

Remarks for safe use of the ETS Colibri and KVS Colibri products in potentially explosive atmospheres

Specification:

- Use of the product in hazardous areas according to the classification
II 3G (Group II, category 3G, apparatus for gas atmosphere)
Complies with the requirements of the standards
 - o EN IEC 60079-0:2018 Explosive atmospheres – Part 0: Equipment – General requirements
 - o EN 60079-7:2015 + A11:2018 Explosive atmospheres – Part 7: Equipment protection by increased safety “e”
- In compliance with ATEX 2014/34/EU, Annex VIII
 - o **DTI I7ATEX 0065x**
- Marking



- Operating temperature of ambient environment:
-40 ... +70 °C, further limitations may apply due to temperature ratings of applied cable assembly
- Operating temperature of contained media:
ETSc -40 ... +70 °C and KVSc -40 ... +100 °C (KVSc duty cycle 20%)
- Maximum surface temperature
Acc. to classification level T4; 135 °C

Special conditions of use

- Do not separate the electrical connector on the valve when energized (The connection is marked “Warning – Do not separate when energized”).
- The valve shall be installed in a location where it is unlikely to be exposed to impact above 4 Joule.
- The valve shall through the cooling /pipe system be connected to ground.
- The valve shall be powered by a step motor driver, supplying a current controlled signal of nominally 600 mA RMS, not exceeding 700mA RMS, and max AC voltages 48, supply from an SELV voltage per EN60079-14 §6.3.5.
- The Stepper motor driver must include a transient protection not exceeding 140 % of the peak rated voltage value at the supply terminals to the equipment.
- KVSc -40 ... +100 °C (KVSc controller setup; 1/8 micro step, PPS 260 and duty cycle 20%)
- The valves shall only be used in the ambient temperature range $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +70^{\circ}\text{C}$.
If the applied power cable and connector assembly has a specified ambient temperature which is lower than ambient temperature range $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +70^{\circ}\text{C}$ actual for the valve, then the valve with cable shall only be used within the limited ambient temperature range specified for the cable assembly.
- The applied cable assembly must be fitted with an appropriate M12 connector according to standard EN 61076-2-101.
- The applied cable assembly must be suitable for installation in environments where it is intended to be used and rated at least IP54.
- The connector shall be evaluated for 2G IIB and be rated for 2 A and 60V AC or DC.
- The lock nut at the socket / connector shall be tightly screwed to the valve, so that it is no longer possible to disconnect the plug without tools. The tightening torques is recommended to be between 1.2 Nm and 1.5 Nm or as specified by the manufacturer of the cable assembly.
- The valve connector must be protected by a protective cap that provides at least IP 54 protection of the connector when not in use / service.
- The cable assembly shall be fixed properly when installed to protect it against mechanical damage. Max. bending angle of wires when installed in cold conditions must be considered as specified by the manufacturer of the cable assembly.
- The internal is hermetically sealed when installed in accordance to Danfoss instructions and not considered as ignition source in normal operation. The motor shall therefore only be operated in hermitic sealed cooling system where no flammable atmosphere is present. The oxygen shall always be above the UFL for the fluid.
- The upstart procedure for the sealed cooling system, using flammable fluid and where the valve is installed shall follow the procedure in EN378-2 and for maintenance the procedure in EN378-4 is relevant.
- The valve may not be used in systems where the system pressure can drop below the ambient environment pressure as this will increase the risk for oxygen entering into the system in an abnormal situation (leakage in the system).

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Equipment and protective systems intended for use in potentially explosive atmospheres Regulation 2016

The above products have been tested and certified acc. to below classification and standards used

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- EN/BS 60079-7:2015 Explosive atmospheres – Part 7: Equipment protection by increased safety "e"
- EN/BS 60079-7:2015 / A11:2018 Explosive atmospheres – Part 7: Equipment protection by increased safety "e"
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