



- [1] **Type Examination Certificate**
- [2] **Equipment intended for use in potentially explosive atmosphere
Directive 2014/34/EU**
- [3] Examination Certificate number: **DTI 17ATEX0065X Ver. 01**
- [4] Equipment: **Colibri – Electric Expansion or Regulation Valve**
Models: ETS12C, ETS24C, ETS25C, ETS50C, ETS 100C and
KVS 1C, KVS 2C, KVS 3C and KVS 5C
- [5] Manufacturer: **Danfoss A/S**
- [6] Address: Nordborgvej 81
DK-6430 Nordborg, Denmark
- [7] This equipment and acceptable variation thereto is specified in the schedule to this certificate and in the documents that the certificate refers to.
- [8] Danish Technological Institute certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.
- [9] The examinations and test results are recorded in confidential report no. 17.0065, order no: 144095.
- [10] The essential Health and Safety Requirements are assured by compliance with:
[11] **EN IEC 60079-0:2018/AC:2020, EN 60079-7:2015/A1:2018**
- [12] The sign “X” placed after the certificate number, indicates that the equipment or protective system is subject to special conditions for safety use specified in the schedule to this certificate.
- [13] This certification relates to the design, examination and tests of the specified equipment or protective system. Further requirements of the directive may apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

The marking of the equipment must include the following:



II 3G Ex ec IIB T4 Gc

Danish Technological Institute
Certifications & Inspection


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Valid until 2027-06-22

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ATEX Manager

[14] **Schedule**
[15] **Type Examination Certificate**

DTI 17ATEX0065X Ver. 01

- [16] Description of equipment
The electric expansion or regulation valve is in a hermetic sealed stainless-steel construction and has a built-in electronic stepper motor. The valve is for precise liquid injection into evaporators for air conditioning and refrigeration applications. The fluid may only be according to Danfoss specifications.

Technical data:

Max working pressure: 50 bar or 735psig
Current: Max peak current 800mA / 600mA RMS
Internal resistance: 10 Ω
Step rate: Rated 160 steps/ sec.
Power: Max 7.2W

Range of ambient temperature:

$-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +70^{\circ}\text{C}$

If the applied power cable assembly has a specified ambient temperature which is lower than $+70^{\circ}\text{C}$, then the valve shall only be used within the limited ambient range based on the cable ambient temperature range

- [16] Report no. DTI 17ATEX0065

Description	Document number	Rev.	Date
Valve assembly large	034G7060	15	2022-01-06
NB Ø35 Motor with lead screw & antirotation	034G7097	09	2021-07-13
Engraving data	034R7004	07	2021-02-24
Plast bush M12 connector	034G3392	09	2021-04-16
M12 Glass seal for Colibri	034G7037	14	2019-05-03
Sight Glass for Colibri	034G7054	10	2018-05-18

- [17] Special conditions for safety 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.
- 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 $+70^{\circ}\text{C}$, 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 is 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).

[18] Essential Health and Safety Requirements
Concerning EHSR this schedule verifies compliance with the Directive
2014/34/EU of 26. February 2014.

Danish Technological Institute

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