IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx ULD 14.0001X**

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Issue No: 6

Certificate history:
Issue 5 (2020-01-22)
Issue 4 (2019-11-13)
Issue 3 (2018-02-20)
Issue 2 (2016-07-25)
Issue 1 (2015-07-30)
Issue 0 (2014-09-10)

Status: **Current**

Date of Issue: 2021-11-22

Applicant: **Danfoss A/S**
Nordborgvej 81
6430 Nordborg
Denmark

Equipment: **Electrically Operated Solenoid Coils, BZ Series**

Optional accessory:

Type of Protection: **Encapsulation "mb"**

Marking: Ex mb IIC T4 Gb

-40°C ≤ Tamb ≤ +45°C

(process medium -40°C to +70°C)

Approved for issue on behalf of the IECEx Certification Body: **Katy A. Holdredge**

Position: **Senior Staff Engineer**

Signature: (for printed version)

Date: 2021-11-22

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
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Certificate issued by:

UL International DEMKO A/S
Borupvang 5A
DK-2750 Ballerup
Denmark

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Date of issue: 2021-11-22

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Manufacturer: **Danfoss A/S**
Nordborgvej 81
6430 Nordborg
Denmark

Additional manufacturing locations: **Danfoss Ltd**
No.9 Quanhui Road
Wuqing Development Area
301700 Tianjin
China

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-18:2017 Explosive atmospheres - Part 18: Protection by encapsulation "m"
Edition:4.1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

DK/ULD/ExTR14.0001/00
DK/ULD/ExTR14.0001/01
DK/ULD/ExTR14.0001/02
DK/ULD/ExTR14.0001/03
DK/ULD/ExTR14.0001/04
DK/ULD/ExTR14.0001/05
DK/ULD/ExTR14.0001/06

Quality Assessment Report:

DK/ULD/QAR12.0002/07

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

These are solenoid coils for use with Danfoss 'B-series' valves. They are intended for permanent installation and are supplied with a permanently attached cable. They are intended for use with 13.5 mm armature direct/servo driven valve types (for example EV . . . B).

The coils consist of a copper wire winding mounted on a plastic coil former over a thermal cut-out, which is intended to remove power to the winding in the event of the limit temperature being reached internally. The winding ends are connected to internally mounted contacts. The external cable is soldered to the internal contacts and the entire sub-assembly is then encapsulated using an injection moulding process. A metallic housing is then fitted around the encapsulated part of the coil, covering substantially all of the encapsulating compound, and earthed using a connection to the external cable. The coils are marked by printing the necessary information directly onto the metallic outer housing. The coils are intended to have an external protective fuse which provides additional limitation of the current available from the supply to ensure the rating of the thermal cut-out is not exceeded.

Please see Annex for additional information.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- An external protective fuse is required to protect the coils as follows:
  - 018F4703: 250 mA, 1500 A breaking capacity, 250 V, Medium Time Lag
  - 018F4704: 150 mA, 1500 A breaking capacity, 250 V, Medium Time Lag
  - 018F4705: 500 mA, 1500 A breaking capacity, 24 V, Medium Time Lag
- The power supplying the solenoid must be limited to a prospective short circuit current of a maximum of 1500 A.
- The solenoid coil shall be protected against impact during use.
- The product is provided with a Y/G coloured earth wire as well as an external earth terminal. These shall not be used simultaneously. If the external earth connection is connected to earth or bonding system, the Y/G earth wire must be cut off, isolated and not connected. If the Y/G wire is connected to earth, the external earth terminal must be left without any connection.
- The solenoid shall be protected against direct sunlight and other ultraviolet sources.
- The cable supplied with the solenoids must not be handled or flexed and protected against impact if the ambient temperature is below 0 °C.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Issue 1: Minor changes to 2 drawings - not affecting the previous evaluation.

Issue 2: Editorial changes to instructions - no impact to the previous assessment.

Issue 3: Update to IEC 60079-18 Edition 4.

Issue 4: Update to IEC 60079-0, 7th Edition. Addition of alternative thermal cutout.

Issue 5: Update to IEC 60079-18 Edition 4.1.

Issue 6: Update markings/instructions.

Annex:

Annex to IECEx ULD 14.0001X Issue 6.pdf

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PARAMETERS RELATING TO THE SAFETY

018F4703: 110 / 120 Vac, 50/60 Hz, 0.14 / 0.13 A
018F4704: 230 / 240 Vac, 50/60 Hz, 0.09/ 0.08 A
018F4705: 24 Vdc, 0.43 A

MARKING

Marking has to be readable and indelible; it has to include the following indications:

MARKING left side

CE 0539 Ex II 2G UKCA 0843
Ex mb IIC T4 Gb
DEMKO 14 ATEX 1314X
IECEx ULD.14.0001X
UL21UKEX2020X

Warnings
Do not separate coil from the valve when energized.
See instruction

MARKING right side

Danfoss
MADE IN CHINA
Type BZ120C
Spare part no. 018F4703

-40°C ≤ Tamb ≤ 45 °C
110V 50Hz 0,14A
120V 60Hz 0,13A
F4753
Danfoss A/S, 6430 Nordborg, Denmark
22 Wycombe End, HP9 1NB, GB

Danfoss
MADE IN CHINA
Type BZ240C
Spare part no. 018F4704

-40°C ≤ Tamb ≤ 45 °C
230V 50Hz 0,09A
240V 60Hz 0,08A
F4754
Danfoss A/S, 6430 Nordborg, Denmark
22 Wycombe End, HP9 1NB, GB

Danfoss
MADE IN CHINA
Type BP024D
Spare part no. 018F4705

-40°C ≤ Tamb ≤ 45 °C
24Vdc 0,43A
F4755
Danfoss A/S, 6430 Nordborg, Denmark
22 Wycombe End, HP9 1NB, GB

ROUTINE EXAMINATIONS AND TESTS

Each piece of equipment defined above has to have successfully passed; before delivery:

Each product shall be subjected to a visual inspection according to IEC 60079-18 clause 9.1. No damage shall be evident, such as cracks in the compound, exposure of encapsulated parts, flaking, shrinkage, swelling, decomposition, failure of adhesion or softening.

Each product shall be subjected to a dielectric strength test according IEC 60079-18 clause 9.2 between external supply connections and earth/case, at 1500 Vrms for 1 s minimum, with no breakdown.