



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

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

Certificate No.: IECEx CML 16.0033X Issue No: 2 Certificate history:
Issue No. 2 (2019-02-25)
Status: **Current** Page 1 of 4 Issue No. 1 (2018-08-29)
Issue No. 0 (2016-06-06)
Date of Issue: **2019-02-25**
Applicant: **Thompson Valves**
17 Balena Close
Creekmoor
Poole
Dorset
BH17 7EF
United Kingdom
Equipment: **ICO4S Solenoid Valves**
Optional accessory:
Type of Protection: **Flameproof and Dust protected**
Marking: Ex db IIC T6 Gb (Ta = -**°C to +48°C) Ex db I Mb
Ex db IIC T4 Gb (Ta = -**°C to +90°C) Ta = -20°C to +90°C
Ex tb III C T130°C Db (Ta = -**°C to +90°C)
(*dependant on O-ring material)

Approved for issue on behalf of the IECEx
Certification Body:

H M Amos MIET

Position:

Certification Manager

Signature:
(for printed version)

Date:

February 25, 2019

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.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

Certification Management Limited
Unit 1, Newport Business Park
New Port Road
Ellesmere Port, CH65 4LZ
United Kingdom





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Manufacturer: **Thompson Valves**
17 Balena Close
Creekmoor
Poole
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BH17 7EF
United Kingdom

Additional Manufacturing location(s):

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 apparatus 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 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

*This Certificate **does not** indicate compliance with electrical 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 Report:

[GB/CML/ExTR16.0061/00](#) [GB/CML/ExTR18.0202/00](#)

Quality Assessment Report:

[GB/CML/QAR19.0002/00](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The ICO4 Solenoid Valve is an electrically operated control valve consisting of a solenoid which operates a poppet valve connected to the solenoid enclosure.

See Annex for full description and Conditions of Manufacture

SPECIFIC CONDITIONS OF USE: YES as shown below:

See Annex for Specific Conditions of Use



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 1

This Issue introduced the following changes:

1. Re-issued to correct a typo in the product ratings

Issue 2

This Issue introduced the following changes:

1. To update QAR reference only

Annex:

[Certificate Annex IECEX CML 16.0033X Issue 2.pdf](#)

Annexe to: IECEx CML 16.0033X Issue 2
Applicant: Thompson Valves Ltd
Apparatus: ICO4S Solenoid Valves



Description of equipment

The ICO4 Solenoid Valve is an electrically operated control valve consisting of a solenoid which operates a poppet valve connected to the solenoid enclosure.

The solenoid consists of a cast stainless steel cylindrical enclosure (solenoid pot) and a top threaded cover. The top cover provides access to the terminal compartment and is fitted with an O-ring interface seal. The solenoid pot housing has a perpendicular raised flat boss moulded onto the side, which has a locking set screw for the cover, an external earth connection point and a threaded conduit entry point. There is also another raised flat boss on the casting which features 2 tapped holes for mounting. The solenoid enclosure contains an internal encapsulated coil positioned below the terminal compartment and secured within the solenoid pot by the enclosure base (Pot Base) and circlip arrangement, the base is additionally fitted with an interface gasket. The coil contains internal magnetic steel core and armature components to form the solenoid.

The valve operates using electromagnetic force in the solenoid coil to actuate an armature which passes through the solenoid pot base; these are manufactured from magnetic steel and stainless steel respectively. The armature then operates the valve, therefore, controlling the flow of media through the valve.

The valve has the following ratings, number of ports and operation configurations:

110 Vac to 440 Vac, 40 to 60 Hz or 12 Vdc to 240 Vdc – Max. 18W

24 Vac to 440 Vac, 40 to 60 Hz – Max. 7W

Automatic 2/2, 3/2 and 5/2, manual reset, manual override and automatic latching options.

The fasteners used on the ICO4 Solenoid Valves shall be a minimum of Steel Grade 12.9 or Stainless Steel Grade A2-70.

Design options:

- The internal circuitry can be either full-wave rectifying, half-wave rectifying or transient suppression.
- Transient suppression circuitry may be made up of diodes, Zener diodes or a voltage dependant resistor.
- Circuits may be fitted with line monitoring resistors.
- The cable entry may be one of the following types and sizes:
 - M20 x 1.5, in accordance with ISO965, parts 1 & 3.
 - 1/2" NPT, in accordance with ANSI/ASME B1.20.1
 - PG 13.5, in accordance with DIN 40430All entry threads comply with IEC 60079-1:2014, clause 5, tables 4 or 5 and clause C.2.2, as applicable.

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Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

- i. The ICO4S solenoid valves shall be marked with one of the following minimum ambient temperature:

O-Ring seal material	Minimum ambient temperature
MFQ Fluorosilicone	-60°C
NBR Nitrile	-60°C
FKM Fluorocarbon (Viton)	-40°C
EPDM	-50°C
FFKM	-30°C
VMQ Silicone	-55°C

- ii. Where the dual conduit entry option is used, both entries shall be either the same threadform and size or have the threadform and size marked at the entry point.

Conditions of Certification

The following conditions relate to safe installation and/or use of the equipment.

- i. The ICO4S solenoid valves shall only be installed in accordance with IEC 60079-14 and the manufacturer's instructions
- ii. No repair shall be made to flamepaths.