



1 **EC TYPE-EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: Sira 05ATEX5284

4 Equipment: Type ICO3S Solenoid

5 Applicant: Thompson Valves

6 Address: 17 Balena Close  
Creekmoor  
Poole  
Dorset  
BH17 7EF  
UK

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Sira Certification Service, notified body number 0518 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report number R51A13525A.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN 60079-0:2004  
EN 60079-18:2004  
EN 60079-7:2003  
IEC 61241-0:2004  
IEC 61241-1:2004

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC type-examination certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



II 2 G D  
Ex mb e IIC T4  
Ex tD A21 IP66 T135°C  
Tamb -60°C to +80°C or Tamb -50°C to +80°C or Tamb -20°C to +80°C  
(depending on O-ring gasket material)

Project Number 51A13525  
Date 3 March 2006  
Latest issue 13 February 2007  
C. Index 20

C Ellaby  
Certification Officer

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**SCHEDULE**

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Sira 05ATEX5284

Re-issued 13 February 2007 to correct typographical errors.

**13 DESCRIPTION OF EQUIPMENT**

The Maxseal Type ICO3S Solenoids control a poppet valve inside a valve body attached to the bottom of the equipment by two M5 hexagon head bolts. The valve body provides two 6mm-diameter holes for mounting the assembly. The solenoid comprises a cylindrical cast housing designated as the solenoid pot and a top threaded cover; both are manufactured from 316 stainless steel. The cover on the top of the solenoid pot 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 molded onto the side. The boss incorporates an external earth point, a threaded cable entry to the terminal compartment and an M5 tapped hole for a locking set screw which secures the solenoid cover. Internally, the solenoid contains a coil that is fitted into a coil former housing and potted with an epoxy resin. These are positioned below the terminal compartment and held within the solenoid pot by the solenoid base secured in place by a steel circlip. The base being fitted with two interface o-ring seals.

The equipment operates by means of the electromagnetic force in the solenoid coil, rated between 24V AC to 240 V AC, 40 to 60Hz or 12V DC to 240 V DC, 10 W max, actuating the armature that extends through the solenoid pot base. Both are manufactured from magnetic steel. The armature then operates the valve poppet, thus controlling the flow of gas through the valve. The valve body has various configurations with differing numbers of ports.

**Design options:**

- The internal circuitry can be either full-wave rectifying, half-wave rectifying or transient suppression.
- Transient suppression circuitry may be fitted with either a single diode, a single zener diode, two zener diodes or a voltage dependant resistor.
- Circuits may be fitted with line monitoring resistors.
- Series supply circuitry is fitted with a thermal fuse.
- The cable entry thread may be one of the following types and size:

M20 x 1.5 to ISO965 parts 1 & 3  
1/2" NPT to ANSI/ASME B1.20.1  
PG 13.5 to DIN 40430

(All entry threads comply with the requirements of IEC 60079-1:2003 Clause 5.3 table 3 or 4 and as applicable clause C.2.2.)

**14 DESCRIPTIVE DOCUMENTS**

14.1	Drawing No.	Sheet	Rev.	Date	Description
	IC03-ATEX-Exemb-1	1 of 2	04	10 Feb 06 (Sira stamp)	IC03 Exemb certified drawing (general assembly and certification label)
	IC03-ATEX-Exemb-2	2 of 2	04	10 Feb 06	IC03 Exemb certified drawing (specification of parts)

14.2 Report number R51A13525A

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Latest issue 13 February 2007

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15 **SPECIAL CONDITIONS FOR SAFE USE** (denoted by X after the certificate number)

None

16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II** (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in report number R51A13525A.

17 **CONDITIONS OF CERTIFICATION**

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.

17.2 Holders of EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.

17.3 The Maxseal Solenoid Model: ICO3S shall be marked with one of the following minimum ambient temperatures dependent upon the type of O-ring seal used in its construction:

O-ring seal	Minimum ambient temperature
MFQ Fluorosilicone O-ring seal	-60°C
NBR Nitrile O-ring seal	-50°C
FPM Fluorocarbon O-ring seal	-20°C

17.4 The encapsulated parts of the apparatus shall be subjected to a visual inspection as described in Clause 9.1 of EN 60079-18:2004. No visible damage of the compound shall be evident, such as cracks, exposure of the encapsulated parts, flaking, impermissible shrinkage, discoloration, swelling, decomposition or softening.

17.5 The Maxseal Solenoid Model: ICO3S shall be subjected to an electric strength test in accordance with Clause 9.2 of EN 60079-18:2004. There shall be no breakdown of insulation

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