



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 SIR 04.0002X** issue No.:11

Status: **Current**

Date of Issue: **2013-10-11** Page 1 of 5

Applicant: **Rotork Controls Ltd**
Brassmill Lane
Bath
England
BA1 3JQ
United Kingdom

Certificate history:
Issue No. 11 (2013-10-11)
Issue No. 10 (2013-1-18)
Issue No. 9 (2011-6-10)
Issue No. 8 (2011-3-23)
Issue No. 7 (2011-1-20)
Issue No. 6 (2010-11-22)
Issue No. 5 (2008-11-5)
Issue No. 4 (2008-1-17)
Issue No. 3 (2006-12-18)

Electrical Apparatus: **IQT Range of Electric Valve Actuators**
Optional accessory:

Type of Protection: **Flameproof or Flameproof and Increased Safety**

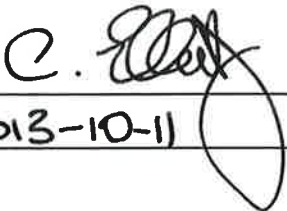
Marking: **Ex de* IIC T4**
Ta =- 20°C to +70°C**
* If the increased safety option is specified
** May be down to -50°C

Approved for issue on behalf of the IECEx
Certification Body: C Ellaby

Position: Deputy Certification Manager

Signature:
(for printed version)

Date:


2013-10-11

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:

SIRA Certification Service
Rake Lane
Eccleston
Chester
CH4 9JN
United Kingdom

sira
CERTIFICATION



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Manufacturer: **Rotork Controls Ltd**
Brassmill Lane
Bath
England
BA1 3JQ
United Kingdom

Additional Manufacturing location
(s):

Rotork Controls Inc
675 Mile Crossing Blvd,
Rochester, NY 14624
United States of America

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 electrical 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 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-1 : 2003 Edition: 5	Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosure 'd'
IEC 60079-7 : 2001 Edition: 3	Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety 'e'

*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

IECEX ATR:	File Reference:
Refer to previous issued for ExTR's and QAR	GB/SIR/ExTR11.0139/00
GB/SIR/QAR07.0003/01 and GB/SIR/QAR06.0023/02	R51A15000-068A/00
GB/SIR/ExTR11.0067/00 GB/SIR/ExTR13.0014/00	



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The IQ Electric Actuator comprises of an oil filled spur/worm gearbox with handwheel and de-clutch mechanism, to which is attached an electrical control enclosure and a terminal enclosure. Both these enclosures form an integral part of the gearcase and are designed to satisfy the requirements for flameproof equipment. In addition the terminal enclosure is designed to satisfy the requirements for increased safety, providing an alternative method of protection for the field wiring facilities. The IQT electric actuator comprises of a range of electric actuators based upon two gearcase sizes, the flameproof enclosures are constructionally identical on both gearcase sizes.

A permanent magnet dc motor is installed in the electrical enclosure by means of a motor cover, which has a spigoted flamepath joint and is secured by three M8 capscrews. The rotary output from the motor, transfers to the gearbox by means of a shaft supported in a rolling element bearing and a cylindrical flamepath bushing.

CONDITIONS OF CERTIFICATION: YES as shown below:

1. Constructional gaps

The maximum constructional gap (I_c) is less than that required by Table 2 of IEC 60079-1:2003 as detailed below:

IQ MAXIMUM FLAMEPATH GAPS (GAS GROUP IIC)

Flamepath	Maximum Gap (mm)	Actuator Type and Size
Terminal Bung/ Gearcase	0.115	All types and sizes
Motor Shaft/ Motor Shaft Shroud	0.24	All types and sizes
Motor Shaft Shroud/ Gearcase	-0.05/ 0.00	All types and sizes
Encoder Shaft/ Encoder Shaft Shroud	0.24	All types and sizes
Encoder Shaft Shroud/ Gearcase	-0.05/0.00	All Types and Sizes

Note: Negative sign, denotes an interference fit.

2. Static charge and discharge

The hand wheel is manufactured in a non-metallic material, in use adequate precautions must be taken to prevent the build up of static charges and their discharge.

3 This equipment must only be located where the risk of impact upon the viewing window is low



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EQUIPMENT(continued):

An electrical cover connects to the gearcase by means of a spigoted flamepath joint and is secured by four M8 capscrews. In one end of the electrical cover a window is provided to allow observation of an internal LCD display. As well as the motor, the electrical enclosure contains monitoring and control circuitry and a battery. The monitoring and control circuitry, controls the output speed and torque of the motor. It also senses and controls the position of the output shaft of the actuator by means of an encoder shaft. This shaft is supported in a rolling element bearing and transfers to the gearbox by means of a cylindrical brass flamepath bushing.



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

Original dated 2004-05-13	
Issue 1 dated 2005-03-14	
1.	Correction to marking details included.
Issue 2 dated 2006-05-24	
1.	Extension of the ambient temperature range from -20°C to -50°C.
2.	Introduction of an alternative external earth stud.
3.	Introduction of an additional, alternative battery.
Issue 3 dated 2006-12-15	
1.	The use of an intumescent coating on the exterior of the actuators for fire proofing purposes.
Issue 4 dated 2008-01-07	
1.	The introduction of an alternative window material and sealing cement.
2.	The introduction of an alternative window material (Makrolon ® 6717 sealed in place with Loctite ® 5699)
Issue 5 - this Issue introduced the following change:	
1.	The introduction of the deep terminal cover.
Issue 6 - this Issue introduced the following change:	
1.	The introduction of the Part N° 46754 heat treated, gravity die cast terminal covers was recognised.
Issue 7 - this Issue introduced the following change:	
1.	The ambient temperature range was approved to be increased from +60°C to +70°C.
Issue 8 - this Issue introduced the following changes:	
1.	The introduction of the alternative manufacturing address in Rochester NY 14624 was recognised
Issue 9 - this Issue introduced the following change:	
1.	The introduction of a non metallic battery pocket plug material was approved.
Issue 10 - this Issue introduced the following change:	
1.	The addition of LM25 Aluminium Alloy as a material option for the Motor Cover.
Issue 11 - this Issue introduced the following changes:	
1.	The introduction of a vandal proof cover option for all actuator sizes.

Annexe to: IECEx SIR 04.0002X Issue 11
Applicant: Rotork Controls Ltd
Apparatus: IQT Range of Valve Actuators



The following conditions of manufacture apply to enclosures that are marked for an ambient range below -20°C to -50°C:

1	Each enclosure shall be subjected to an overpressure test in accordance with the table below. In all cases the pressure shall be maintained for at least 10 s as required by clause 16 of IEC 60079-1:2003. There shall be no permanent deformation or damage to the enclosure.		
Equipment		Test Pressure	
		Bar	Lbf/in ²
Terminal compartment (Gearcase, All Sizes)		24.78	359.3
Terminal Cover (High Pressure die cast)		24.78	359.3
Electrical Compartment (Gearcase, All Sizes) Gravity Diecast & Gravity Diecast Heat Treated	short cover build DC version	40.29	584.2
	short cover build AC version	25.08	363.7
	long cover build DC version	38.07	552.0
	long cover build AC version	38.40	556.8
Motor cover	short cover build DC version	40.29	584.2
	short cover build AC version	25.08	363.7
	long cover build DC version	38.07	552.0
	long cover build AC version	38.40	556.8
Electrical cover (short) high pressure die cast	short cover build DC version	40.29	584.2
	short cover build AC version	25.08	363.7
Electrical cover (long) high pressure die cast	long cover build DC version	38.07	552.0
	long cover build AC version	38.40	556.8
Electrical cover (long) gravity die cast (heat treated)	long cover build DC version	38.07	552.0
	long cover build AC version	38.40	556.8
Window assembly	short cover build DC version	40.29	584.2
	short cover build AC version	25.08	363.7
	long cover build DC version	38.07	552.0
	long cover build AC version	38.40	556.8
Terminal bung	short cover build DC version	40.29	584.2
	short cover build AC version	25.08	363.7
	long cover build DC version	38.07	552.0
	long cover build AC version	38.40	556.8

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With the deep terminal cover fitted:

Required routine hydrostatic testing (-20°C to +70°C)

Each enclosure shall be subjected to a routine overpressure test in accordance with the table below. In all cases the pressure shall be maintained for at least 10 s as required by clause 16 of IEC 60079-1:2003. There shall be no permanent deformation or damage to the enclosure.

Equipment	Overpressure Test Pressure	
	Bar	Lbf/in ²
Deep terminal cover - sand cast	13.54	196.33

Required routine hydrostatic testing (below -20°C to -50°C to +70°C)

Each enclosure shall be subjected to a routine overpressure test in accordance with the table below. In all cases the pressure shall be maintained for at least 10 s as required by clause 16 of IEC 60079-1:2003. There shall be no permanent deformation or damage to the enclosure.

Equipment	Overpressure Test Pressure	
	Bar	Lbf/in ²
Deep terminal cover - sand cast	20.87	302.62
Terminal compartment (Gearcase, All Sizes)	20.87	302.62
Terminal bung	20.87	302.62