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 BAS 09.0012X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 8	Issue 7 (2016-10-21) Issue 6 (2015-01-27) Issue 5 (2014-03-20) Issue 4 (2013-09-12) Issue 3 (2013-02-21) Issue 2 (2012-04-17) Issue 1 (2011-09-20) Issue 0 (2009-03-26)
Date of Issue:	2024-01-31		
Applicant:	**Bifold Fluidpower Limited** Broadgate Oldham Broadway Business Park Chadderton **United Kingdom**		
Equipment:	**Type 24 and 74 Solenoid Operator**		
Optional accessory:			
Type of Protection:	**Increased safety, Encapsulation, Dust ignition protection by enclosure and Non-electrical**		
Marking:	**Ex eb h mb IIC T* Gb** **Ex h tb IIIC T120°C Db** **Tamb -25°C to +**°C IP 66/67** **(for * and ** see description)**		

Approved for issue on behalf of the IECEx Certification Body: **M Powney**

Position: **Certification Manager**

Signature: (for printed version)

Date: (for printed version) 2/2/2024

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 www.iecex.com or use of this QR Code.

Certificate issued by:

SGS UK Limited
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Buxton, Derbyshire SK17 9RZ
United Kingdom

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Manufacturer: **Bifold Fluidpower Limited**
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Manufacturing locations: **Bifold Fluidpower Limited**
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United Kingdom

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 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-18:2017 Edition:4.1	Explosive atmospheres - Part 18: Protection by encapsulation "m"
IEC 60079-31:2022 Edition:3.0	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7:2017 Edition:5.1	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
ISO 80079-36:2016 Edition:1.0	Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic methods and requirements
ISO 80079-37:2016 Edition:1.0	Explosive atmospheres - Part 37: Non-electrical equipment for explosive atmospheres - Non electrical type of protection constructional safety "c", control of ignition source "b", liquid immersion "k"

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:

GB/BAS/ExTR09.0026/00
GB/BAS/ExTR11.0215/00
GB/BAS/ExTR12.0106/00
GB/BAS/ExTR13.0049/00
GB/BAS/ExTR13.0172/00
GB/BAS/ExTR14.0055/00
GB/BAS/ExTR16.0274/00
GB/SGS/ExTR23.0141/00

Quality Assessment Report:

GB/BAS/QAR07.0038/10

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

There are two types:

Type 24 and 74 Solenoid Operator.

The Type 24 Solenoid Operator consists of an aluminium main housing and cover. The Type 74 Solenoid Operator consists of a stainless steel main housing and cover. Both the Type 24 and 74 incorporate a female threaded hole for cable gland entry, an optional bracket lug and an M4 external earth mounting (including washers). The threaded cable gland entry may be M20 x 1.5 or ½"NPT 14TPI. When the NPT option is used the thread size is to be marked on the housing face.

The solenoid Operator is rated up to 50VDC. The Temperature Class, Power Level and maximum ambient temperature are shown in the table below and the apparatus is marked in accordance with these parameters.

Equipment Marking Variations			
Temperature Classification (T*)	Maximum ambient temperature (**°C)	Power Level Limit (Watts)	Thermal Fuse Limit (°C)
T3	+55	≤ 3W	+146
T3	+45	≤ 4.5W	+146
T3	+40	≤ 6.8W	+146
T4	+50	≤ 4W	+126

Note: Only solenoids with a 126°C thermal fuse will be rated as T4

The top of the main housing it is fitted with a cover and a rubber O-ring seal is fitted between these two components. The lid is mounted to the main housing by four off M4 socket head cap screws. The lid incorporates two types of mechanical override facility, Spring Return Manual Override and Detented Manual Override. The lid has a groove around its collar housing a spring clip which retains the stainless steel certification label. The base of the main housing is fitted with a stainless steel adaptor bush. A rubber o-ring seal and stainless steel washer between these two components maintains the IP rating of the enclosure. The exposed/connection end of the adaptor bush varies to suit different hydraulic/pnuematic valve mountings. The adaptor bush is also fitted with a clear silicone protective tube.

Within the lower internal area of the main housing there is the solenoid operator assembly. The solenoid operator assembly consists of a magnetic iron coil holder and soft magnetic iron armature. The coil holder and armature surround the adjusting rod (including stainless steel spring) and coil assembly. As the adjusting rod passes through the bore of the adaptor bush there is a stainless steel retaining washer and rubber o-ring seal. The adjusting rod is secured into the armature by a stainless steel socket screw, nut and spring washer.

The coil assembly consists of a moulded glass filled nylon bobbin that is wound with copper wire and insulation tape, with entry tag for supply lead wire connection. The coil winding incorporates a diode and thermal fuse. The assembled bobbin is then fully encapsulated in glass filled nylon with the supply leads ready for termination.

The coil assembly is seated into the holder. Within the upper area of the main housing there is a terminal plate assembly. The terminal plate assembly consists of a stainless steel circular plate that has two mounting holes, a central clearance hole for the adjusting rod fixing and a raised tab. This plate is fitted with a Weidmuller MK3 terminal block with 2 way entry. The plate is also fitted with a stainless steel M4 internal earth mounting (including washers). The terminal plate assembly is mounted on two stainless steel support pillars with nylon retaining sleeves that vary in length depending on the override option of the solenoid operator. The plate assembly is secured through the support pillars into the coil holder by two stainless steel M3 (variable length) cheese head screws.

When required, the solenoid operator may be fitted with 2 bonded magnets in the coil housing to provide a 'Latch Energised' option or 2 bonded magnets on the terminal plate to provide the 'Tamper Proof' option.

SPECIFIC CONDITIONS OF USE: YES as shown below:
1. The supply circuit shall be fitted with a fuse capable of meeting a 1500Amp short circuit current.

2. Termination to the Weidmuller MK3 terminal block shall be in accordance with TUV Certificate IECEx TUV 18.0019U

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Variation 8.1

To add a new encapsulant.

Variation 8.2

To confirm the current design meets the requirements of IEC 60079-0: 2017: Edition 7, IEC 60079-7: 2015: A1: 2017: Edition 5.1, IEC 60079-18: 2014: A1: 2017: Edition 4.1 and IEC 60079-31: 2022: Edition 3, in respect to the differences of IEC 60079-0: 2007: Edition 5, IEC 60079-7: 2006: Edition 4, IEC 60079-18: 2004: Edition 2 and IEC 61241-1: 2004: Edition 1.

The Ex marking code is updated accordingly.

Also, to confirm the current design meets the requirements of ISO 80079-36: 2016: Edition 1 and ISO 80079-37: 2016: Edition 1

The non-electrical Ex marking code is now included.

Variation 8.3

Condition of Use Number 2 updated to show the new IECEx certificate number for the Weidmuller MK3 terminal block.

ExTR: **GB/SGS/ExTR23.0141/00**	File Reference: 21/**0540**