

# 1 EU-TYPE EXAMINATION CERTIFICATE



2 **Equipment or Protective systems intended for use in Potentially  
Explosive Atmospheres - Directive 2014/34/EU**

3 **EU-Type Examination Certificate No: FM21ATEX0009X**

4 **Equipment or protective system: D-Series Pilot Valves  
(Type Reference and Name) (Electrical Solenoid Valve Actuator)**

5 **Name of Applicant: Mac Valves Inc**

6 **Address of Applicant: 30569 Beck Rd  
Wixom, MI 48393  
United States of America**

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

8 FM Approvals Europe Ltd, notified body number 2809 in accordance with Article 17 of Directive 2014/34/EU of 26 February 2014, 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:

PR457075 dated 26<sup>th</sup> October 2021

9 Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents:

EN IEC 60079-0:2018, EN 60079-1:2014, EN 60079-31:2014  
and EN 60529:1991+A1:2000+A2:2013

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

11 This EU-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include:



II 2 G Ex db IIC T4 Gb  
II 2 D Ex tb IIIC T135°C Db

Ta = -25°C...+105°C (for models rated and marked over 5.4 Watts)

Ta = -25°C...+110°C (for models rated and marked 5.4 Watts and under)

**Richard Zammitt  
Certification Manager, FM Approvals Europe Ltd.**

Issue date: 27<sup>th</sup> January 2023

**THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE**

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F ATEX 020 (Dec/2020)



# SCHEDULE

to EU-Type Examination Certificate No. FM21ATEX0009X

## 13 Description of Equipment or Protective System:

### General

The D-Series Pilot Valves (equipment) are electromagnetic valves controlled by current through a solenoid coil. When the coil is energized, it actuates a metallic operating rod, which in turn operates a connected valve assembly. The valve assembly is not a subject of this report. The equipment is intended for use controlling air used in industrial pneumatic or vacuum systems.

### Construction

The equipment employs a solenoid constructed of plastic encapsulated magnet wire, which is contained and fastened inside a robust Aluminum enclosure. The enclosure has an operating rod and external mounting holes on the bottom for connection to the valve assembly. The housing also includes a permanently secured cover and a single ½-14 NPT entry with flying leads for wiring to a suitably rated junction box in accordance with the applicable electrical codes. The equipment optionally includes a separately certified Ex Equipment "A2F" Series Cable Gland covered on CML18ATEX1321X.

### Ratings

The equipment has a maximum working air pressure rating of 20...120 psi. Electrical ratings are 5...110VDC or 5...240VAC (50/60Hz); 7.3 Watts maximum.

The equipment has been assessed to Degree of Protection IP66 in accordance with EN 60529.

### *D a b-0Ec Series Pilot Valves.*

a = Voltage Code: two-letter code corresponding to electrical input ratings

b = Wire Length: one-letter code corresponding to wire length, minimum 24 in. (60 cm)

c = Options: E (flying leads) or F (integral cable gland)

## 14 Specific Conditions of Use:

1. Contact the manufacturer for information on dimensions of flamepath joints.
2. The solenoid assembly shall only be secured internally by M3X0.5X30.0 SHCS with property class 70. The label shall only be secured by a M3x0.5x6.0 socket button head cap screw with property class 10.9.
3. Equipment does not offer external bonding provisions and must be installed as part of a bonded system using the flying lead provided for protective bonding.
4. The external painted surfaces of the equipment may store electrostatic charge and become a source of ignition in applications with a low relative humidity where the surface is relatively free of contamination such as dirt, dust or oil. Guidance on protection against the risk of ignition due to electrostatic discharge can be found in PD CLC/TR 60079-32-1 and IEC TS 60079-32-1. Cleaning of the painted surfaces should only be done with a damp cloth, or outside of explosive atmospheres.
5. Do not open or separate the threaded cover. Contact the manufacturer if internal repair or maintenance is needed.

## 15 Essential Health and Safety Requirements:

The relevant EHSRs that have not been addressed by the standards listed in this certificate have been identified and assessed in the confidential report identified in item 8.

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# SCHEDULE



Member of the FM Global Group

to EU-Type Examination Certificate No. FM21ATEX0009X

## 16 Test and Assessment Procedure and Conditions:

This EU-Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

Whilst this certificate may be used in support of a manufacturer's claim for CE Marking, FM Approvals Europe Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

This Certificate has been issued in accordance with FM Approvals Europe Ltd's ATEX Certification Scheme.

## 17 Schedule Drawings

A list of the significant parts of the technical documentation is annexed to this certificate and a copy has been kept by the Notified Body.

## 18 Certificate History

Details of the supplements to this certificate are described below:

Date	Description
28 <sup>th</sup> October 2021	Original Issue.
10 <sup>th</sup> February 2022	<u>Supplement 1:</u> Report Reference: RR231271 dated 09 <sup>th</sup> February 2022. Description of Change: Minor updates to labels and instructions for combined markings of existing ratings and for addition of UKCA certification, resulting in additional Approval Location model code option "E".
04 <sup>th</sup> April 2022	<u>Supplement 2:</u> Report Reference: RR232083 dated 01 <sup>st</sup> April 2022. Description of Change: Minor drawing revisions not affecting safety.
27 <sup>th</sup> January 2023	<u>Supplement 3:</u> Report Reference: RR234701 dated 25 <sup>th</sup> January 2023. Description of Change: Addition of model code Option "F" to include separately certified cable gland. Documentation revised accordingly.

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# Blueprint Report

**MAC Valves Inc (1000000006)**

**Class No 3615**

**Original Project I.D. 457075**

**Certificate I.D. FM21ATEX0009X**

<u>Drawing No.</u>	<u>Revision Level</u>	<u>Drawing Title</u>	<u>Last Report</u>
13459-N	A	EXPLOSION PROOF COVER FOR D COIL (MACHINED)	PR457075
13459	E	EXPLOSION PROOF COVER FOR D COIL (MACHINED)	PR457075
14523-XX	B	FM HAZARDOUS LOCATIONS MARKING PLATE	PR457075
14532	A	FM HAZARDOUS LOCATIONS US, CA, UK & EU MARKING PLATE	RR231271
14548	A	MARKING PLATE - FOR ATEX CABLE GLAND	RR234701
23991-00	G	CABLE	RR234701
24270	D	POWER SHAFT BUSHING FOR Ex DXXV ASSEMBLY	PR457075
24277	C	EXPLOSIVE ATMOSPHERE CABLE GLAND	RR234701
30928-N	B	NICKEL PLATED RETAINER PLUG FOR D COIL ENCLOSURE	RR232083
30928	E	RETAINER PLUG FOR D COIL ENCLOSURE	RR232083
35043-FM	A	M3 x 0.5 x 30.0 SOCKET HEAD CAP SCREW STAINLESS STEEL	PR457075
35082-FM	A	M3 x 0.5 x 6.0 SOCKET BUTTON HEAD CAP SCREW	PR457075
93046	B	SPOOL EXTENSION	PR457075
DXXV-0EX	C	FM Ex D COIL ENCLOSURE ASSEMBLY	RR234701
DXXV-AA-012	A	COIL ASSEMBLY CONSTRUCTION A & B (SILICONE CABLE, TAPE & SHIELD)	RR234701
DXXV	AR	COIL ASSEMBLY CONSTRUCTION A & B (TAPE & SHIELD)	PR457075
EX-001	C	WARNING AND SAFETY INSTRUCTIONS FOR D COIL ENCLOSURE	RR234701