

# CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**

- 2. **Certificate No:** FM21US0022X
- 3. **Equipment:** D-Series Pilot Valves  
(Type Reference and Name) (Electrical Solenoid Valve Actuator)
- 4. **Name of Listing Company:** Mac Valves Inc
- 5. **Address of Listing Company:** 30569 Beck Rd  
Wixom, MI 48393  
United States


6. The examination and test results are recorded in confidential report number:  
PR457075 dated 26<sup>th</sup> October 2021

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2022, FM Class 3615:2022, FM Class 3616:2022,  
FM Class 3810:2021 (ANSI/UL 61010-1:2012), ANSI/UL 60079-0:2020, ANSI/UL 60079-1:2015,  
ANSI/ISA 60079-31:2015, ANSI/UL 50E:2015, ANSI/IEC 60529:R2011

8. 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.

**Certificate issued by:**

  
\_\_\_\_\_  
J.E. Marquedant  
VP, Manager - Electrical Systems

25 January 2023  
\_\_\_\_\_  
Date

To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

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

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# SCHEDULE



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9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

10. Equipment Ratings:

Explosionproof for use in Class I, Division 1, Groups A, B, C and D; Dust-Ignitionproof for Class II, Division 1, Groups E, F and G; Temperature Class T4; Flameproof for Zone 1, AEx db IIC T4 Gb; and Dust-Protected by Enclosure for Zone 21, AEx tb IIIC T135°C Db; hazardous (classified) locations, indoors and outdoors (Type 4, IP66) with an ambient temperature rating of -25°C to +105°C/+110°C.

11. The marking of the equipment shall include:

CI I, Div 1, Gr A,B,C,D; CL II, Div 1, Gr EFG, T4  
Zone 1 AEx db IIC T4 Gb; Zone 21 AEx tb IIIC T135°C Db  
Type 4, IP66

For all models rated and marked over 5.4 Watts:

Tamb = -25°C...+105°C

For all models rated and marked 5.4 Watts and under:

Tamb = -25°C...+110°C

12. **Description of Equipment:**

**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 and protective bonding to a suitably rated junction box in accordance with the applicable electrical codes.

**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.

***D a b-OEE 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)

13. **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.*

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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*

**14. Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

**15. Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

**16. Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
26 <sup>th</sup> October 2021	Original Issue.
9 <sup>th</sup> February 2022	<u>Supplement 1:</u> Report Reference: RR231271 dated 9 <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".
25 <sup>th</sup> January 2023	<u>Supplement 2:</u> Report Reference: RR234701 dated 25 <sup>th</sup> January 2023. Description of Change: Minor updates to labels and instructions for combined markings of existing ratings as a result of additional options added for other area certifications that are not applicable to FM Approval for United States. Updated FM Standards to latest editions, which continue to meet requirements without additional testing.

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