

CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** FM16US0325X
3. **Equipment:** Series 2000 Valve Actuators (MPA, MCP and M2CP designs)
(Type Reference and Name)
4. **Name of Listing Company:** Emerson Process Management Valve Automation, Inc.
5. **Address of Listing Company:** 19200 NW Freeway
Houston, TX 77065
USA
6. The examination and test results are recorded in confidential report number:

1G2A3.AE dated 20th December 1982
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2011, FM Class 3615:2006, FM Class 3810:2005,
ANSI/NEMA 250:1991
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.
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 Class I, Division 1, Groups B, C and D; Class II, Division 1, Groups E, F and G; and Class III, Division 1 hazardous (classified) locations, indoors and outdoors (Type 4X). (MCP Valve Actuators and CBM Module do not include Group B rating).

Certificate issued by:



J. E. Marquedant
Manager, Electrical Systems

7th October 2016

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
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SCHEDULE



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11. The marking of the equipment shall include:

Class I Division 1, Groups B, C, D; T4* Type 4X

Class II, Division 1, Groups E, F, G, Class III, Division 1; T4* Type 4X

*T4 temperature code rating when valve actuator motors are protected with 130°C rated thermal cutouts, and T4A temperature code rating when valve actuator motors are protected with 115°C rated thermal cutouts

12. **Description of Equipment:**

General - The Series 1000, 2000 valve actuators are self-contained electromechanical devices designed to operate at all types of valves such as gates, globes, sluice gates, plug, butterfly, damper and ball valves. The only difference between the series is in the output torque.

Construction – Explosionproof Actuator System – The 1000, 2000 series actuator is an integral device consisting of a gear housing and attached electrical enclosure. These enclosures are the modular control package, the separate control module, the motor housing and junction box.

Modular Control Package (MCP) – A cast aluminium enclosure that is mounted to the side of the gear housing and contains the torque and position limit switches as well as optional controls such as a disconnect switch, a power disconnect switch, a selector switch, pushbuttons, pilot lights, and a position indicator.

Separate Control Module (SCM) – As other optional arrangements, the MCP may be connected by a Killark GUF-4 conduit union or connected remotely to an identical SCM enclosure (except for some optional operator arrays). Only the mounting differs.

Series 2000 Valve Actuators (MPA, MCP and M2CP designs). Model abcd-ef.

a = Model Type

(1, 2, 3, 4, 5, 6, 7, 8 and 9) Multi-Turn with torque and thrust.

(E or H) Multi-Turn side mount on bevel gear.

(F or G) Multi-turn torque only.

(P, Q and R) Quarter turn-top mount.

(D, S, U or A) Multi-turn (no thrust).

(J, K, L or V) 2 Turn top mount.

(M or W) Quarter turn-side mount on 1/4T gear box.

(B) Multi-turn with ball screw output.

(C) Multi-turn with ball screw temperature compensated.

(T) Multi-turn with temperature compensation.

(N) Navy actuators DOD-V-24657 (SH).

b = Motor horsepower A, B, C, D, E, F, G, H, J, K, L, M, N, P, Q, R, S, T, U, V, W, 1-9 and X, Y, Z.

c = Motor gear ratio A, B, C, D, E, F, G, H, J, K, L, M, N, P, Q, R, S, T, U, V, W, X, Y and Z.

d = Valve adaption code to describe max Acme and Stem Size, max Shaft Size, Bolt Circle, Screw Size, Qty Screw, Worm Ratio and Hand of Gearing.

e = Motor voltage or pneumatic pressure 1,2,3,4,5,6,7,8,9,B,C,D,E,F,G,H,J,K,L,M,N,P,Q,R or T (65-150 psi).

f = Additional features F,C,H,P,M,E,D,SCM,PBM,CBM (CBM for Groups C,D,E,F,G) or none.

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CBM and PBM Modules.

Series 2000 Valve Actuators (MPA, MCP and M2CP designs). Model abcd-efgh.

a = Model Type

(D, U, S, X, Y, Z) Multi-Turn

b = Motor Horsepower

(A, B, C, D, E, F, G, H, J, K, L, M, N, P, Q, R, S, T, U, V, W, 1-9 and X, Y & Z Pneumatic)

c = Motor Gear Ratio

(A, B, C, D, E, F, G, H, J, K, L, M, N, P, Q, R, S, T, U, V, W, X, Y & Z)

d = Worm Gear Ratio

(A, B, C, K, L, M, R, S)

e = Motor Voltage or Pneumatic Pressure

[1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, J, K, L, M, N, P, Q, R or T]

f = Additional Mechanical Feature

(0) None

(C) Ceramic (Surface Coating)

(F) Fire Enhanced Model K-Mass (Surface Coating)

CBM Circuit Breaker Module (CBM does not include Group B)

PBM Pushbutton Module

SCM Separate Control Module

g = Gearbox Type Mechanical Features

(0) KWG – Special

(1) KBG – Special

(2) KWG – Bronze Worm Gear

(3) KWB – Ductile Iron Worm Gear

(4) KBG – Bronze Gear

(5) KWG – Bronze Gear 360 degrees

(8) MWG

(A) KWG – Traveling Nut – Bronze Worm Gear

(B) KWG – Traveling Nut – Ductile Iron Worm Gear

h = Valve Adaption Code to describe Worm Ratio, and Worm Gear Size

13. **Specific Conditions of Use:**

1. T4 temperature code rating when valve actuator motors are protected with 130°C rated thermal cutouts, and
2. T4A temperature code rating when valve actuator motors are protected with 115°C rated thermal cutouts.

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.

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16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
20 th December 1982	Original Issue.
7 th October 2016	<u>Supplement 7:</u> Report Reference: – RR206357 Dated 16 August 2016 Description of the Change: Company name and address change.

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