

# CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** FM17US0101
3. **Equipment:** CML, CMQ, CMR Series Compact Modulating Actuators (CMA) Electronic Valve Actuators  
**(Type Reference and Name)**
4. **Name of Listing Company:** Rotork Process Controls
5. **Address of Listing Company:** 5607 W Douglas Ave  
Milwaukee, WI 53218  
United States
6. The examination and test results are recorded in confidential report number:  
  
3048160 dated 28<sup>th</sup> March 2013
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 3616:2011, FM Class 3810:2005,  
ANSI/NEMA 250:2008, ANSI/IEC 60529:2004
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:**  
  
CML, CMQ, CMR Series Compact Modulating Actuators (CMA) are rated as Explosionproof for Class I, Division 1, Groups C and D: Dust-ignitionproof for Class II, Division 1, Groups E, F and G Hazardous (Classified) Locations, indoors and outdoors Type 4 / IP67. The actuators are rated for overall ambient temperature ranges of -20°C to +65°C or -40°C to +60°C depending on the configuration. Electrical ratings are 24Vdc, or 110 to 240Vac, 1Ø, 50 or 60Hz depending on configuration.

## Certificate issued by:



J. E. Marquedant  
Manager, Electrical Systems

19 April 2017

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



US Certificate Of Conformity No: FM17US0101

11. The marking of the equipment shall include:

CLASS I, DIV 1, GROUPS C & D, T3  
CLASS II, DIV 1, GROUPS E, F & G  
MIN. RATED AMBIENT TEMP -20°C or -40°C  
MAX. RATED AMBIENT TEMP +60°C or +65°C  
Type 4, IP67  
DO NOT OPEN WHEN EXPLOSIVE ATMOSPHERE PRESENT  
CONDUIT SEAL REQUIRED TO BE SEALED AT HOUSING.

12. **Description of Equipment:**

The CMA (Compact Modulating Actuator) is self contained and used for continuous remote electrical operation of a control valve. The CMA consists of a main flameproof enclosure containing all of the electrical components and an attached smaller mechanical enclosure containing only gearing and mechanical power transfer devices. It is available in three different functions: Linear, Quarter-turn, and Rotary. The main enclosure is defined into "Sizes" per the table below.

The top part of the equipment is the explosionproof "XP" enclosure (the main enclosure), which is cylindrical in shape and includes a base and cover. The main enclosure is constructed out of the same aluminum either Low Pressure Gravity Cast (LPGC) or High Pressure Die Cast (HPDC). The cover has three different sizes: standard, intermediate and extended. The cover houses a hand-knob which creates a cylindrical flamepath joint with the cover. The user may use the hand-knob to switch from manual to remote operation and control of the actuator. The cover forms a cylindrical flamepath joint with the base to which it is attached by four M8 screws. The joint is provided with suitable seals for environmental protection.

The main enclosure houses all of the electronic components which make up the monitoring and control circuitry. This circuitry consists of power and logic PCBs both mounted on an aluminum bracket. The bracket is fastened to a cast aluminum mount which also acts as a mount for the DC motor. The whole assembly is fastened to the base. The operator uses an LCD display to program the actuator to control the motor and the logic PCB uses a feedback mechanism to sense the position of the output shaft. There are four 3/4 NPT or M25 threaded entries to the enclosure for field wiring purposes.

**CML-a. Compact Modulating Actuators (CMA).**

**CMQ-b. Compact Modulating Actuators (CMA).**

**CMR-c. Compact Modulating Actuators (CMA).**

a = Size 100, 250 or 750.

b = Size 250, 500 or 1000.

c = Size 50, 89, 100, 125, 200 or 250.

Options identified by wiring diagram number on nameplate and include: M00-00, M00-D0, M00-F0, M00-H0, M00-K0, M00-M0, M00-N0, M00-P0, M01-00, M01-D0, M01-F0, M01-H0, M01-K0, M01-M0, M01-N0, M01-P0, M02-0S, M02-DS, M02-FD, M02-FS, M02-HD, M02-HS, M02-KD, M02-KS, M02-MD, M02-MS, M02-ND, M02-NS, M02-PD, M02-OS, M10-00, M10-D0, M10-F0, M10-H0, M10-K0, M10-M0, M10-N0, M10-P0, M11-00, M11-D0, M11-F0, M11-H0, M11-K0, M11-M0, M11-N0, M11-P0, M12-0S, M12-DS, M12-FD, M12-FS, M12-HD, M12-HS, M12-KD, M12-KS, M12-MD, M12-MS, M12-ND, M12-NS, M12-PD or M12-PS.

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# SCHEDULE



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The CMA range includes the following variants:

Model	Size*	Minimum Thrust or Torque	Maximum Thrust or Torque	Speed	Stroke	Shut-off Thrust or Torque
CMR-50	1	2.3 Nm	5.6 Nm	11 RPM	N/A	N/A
CML-100	1	177.9 N	444.8 N	6.35 mm/s	38.1 mm	889.6 N
CMR-100	2	4.5 Nm	11.3 Nm	10 RPM	N/A	N/A
CMR-200	2	9 Nm	22.6 Nm	5 RPM	N/A	N/A
CMQ-250	1	11.3 Nm	28.2 Nm	5 s/qtr-turn	N/A	42.3 Nm
CML-250	2	444.8 N	1112 N	3.175 mm/s	38.1 mm	2200 N
CMQ-500	2	22.6 Nm	56.5 Nm	7.5 s/qtr-turn	N/A	84.8 Nm
CMR-89	3	4.04 Nm	10.1 Nm	24 RPM	N/A	N/A
CMR-125	3	5.6 Nm	14.1 Nm	18 RPM	N/A	N/A
CMR-250	3	11.3 Nm	28.2 Nm	10 RPM	N/A	N/A
CML-750	3	1334.5 N	3336.2 N	3.18 mm/s	50.8 mm	6670 N
CMQ-1000	3	45.2 Nm	113.0 Nm	11 s/qtr-turn	N/A	169.5 Nm

\*Note "Size" refers to performance aspects of the equipment; Sizes 1 and 2 are physically the same.

13. **Specific Conditions of Use:**

None

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
28 <sup>th</sup> March 2013	Original Issue.
19 <sup>th</sup> April 2017	<u>Supplement 4:</u> Report Reference: 3060693 dated 19 <sup>th</sup> April 2017 Description of the Change: This supplement includes updates to new certificate format, minor documentation revisions, as well as testing and evaluation to qualify minor construction changes to the equipment enclosures.

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