

CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** FM18US0279X
3. **Equipment:** ICON3000 Series Electric Valve Actuators
(Type Reference and Name)
4. **Name of Listing Company:** Biffi Italia SRL
5. **Address of Listing Company:** Strada Biffi 165
29017 Fiorenzuola d'Arda (PC)
Italy
6. The examination and test results are recorded in confidential report number:

PR451228 dated 12th February 2019
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2018, FM Class 3615:2018, FM Class 3616:2011, FM Class 3810:2018,
ANSI/ISA 60079-0:2013; ANSI/UL 60079-1:2015; ANSI/NEMA 250:2008
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:**
Flameproof for use in Class I, Zone 1, Group IIB; Explosionproof for use in Class I, Divisions 1, Groups C and D; Dust-ignitionproof for use in Class II, Division 1, Groups E, F, and G; and Dust-ignitionproof for use in Class III, Division 1, hazardous (classified) locations, indoors and outdoors ratings Type 4, 4X and 6.

The minimum ambient temperature ratings for Divisions for the ICON3000 Series Electric Valve Actuators are -40°C for ICON 010 & 020 models only and -25°C for all ICON Series. The minimum ambient temperature rating for Zones is -50°C and the temperature code rating is T4 at maximum ambient temperature of 70°C.

Certificate issued by:



J.E. Marquedant
VP, Manager - Electrical Systems

12 February 2019

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

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SCHEDULE



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11. The marking of the equipment (as appropriate) shall include:

Class I, Zone 1, AEx db IIB T4 Gb Ta= -50°C to 70°C

Class I, Division 1, Groups C, D; T4A Ta = -40°C to 60°C, T4 Ta= -40°C to 70°C (ICON 010 & 020 models)

Class I, Division 1, Groups C, D; T4A Ta = -25°C to 60°C, T4 Ta= -25°C to 70°C (All models)

Class II, Division 1, Groups E, F, G ; T4A Ta = -40°C to 60°C, T4 Ta= -40°C to 70°C (ICON 010 & 020 models)

Class II, Division 1, Groups E, F, G ; T4A Ta = -25°C to 60°C, T4 Ta= -25°C to 70°C (All models)

Class III, Division 1; T4A Ta = -40°C to 60°C, T4 Ta= -40°C to 70°C (ICON 010 & 020 models)

Class III, Division 1; T4A Ta = -25°C to 60°C, T4 Ta= -25°C to 70°C (All models)

NEMA Type 4, 4X, 6

12. **Description of Equipment:**

The ICON3000 Series Electric Valve Actuators convert the input three phase power of 208 to 600V, 50/60Hz, into a low speed/high torque output power, which is used to operate a valve. The ICON3000 Series Actuators cover 5 models, from Model ICON010 to Model ICON050 with an output torque range from 90Nm to 1440Nm and an output speed range from 12 RPM (@50Hz) or 14RPM (@60Hz) to 144RPM (@50Hz) to 173RPM (@60Hz).

The Actuator is enclosed in an enclosure constructed of EN AC-44300 Aluminum Alloy with a minimum yield strength of 130N/mm². Although the enclosure opens internally, the enclosure is sectioned into the electronics, motor and field terminal compartments. The ICON010LP which is the low voltage version of the ICON010 is rated at 24V dc.

The electronic compartment contains power and control circuitry for operation of the ICON3000 Actuator. It is characterized by two digital LCD screens that are available for viewing while the actuator is operational. This is accomplished through the use of a tempered glass window mounted in the electronics compartment cover.

The motor compartment contains a three-phase squirrel cage aluminum motor. This motor is protected against over-temperature with a bimetallic thermal probe, embedded on the windings, with a tripping point at 140°C±5°C (284°F±41°F). In this manner, the ICON3000 Series Electric Actuator is protected against failure due to over-temperature. The motor compartment is equipped with a 4 mm thick solid cover.

The ICON 3000 contains an absolute encoder that is designed to measure up to 8.000 output turns. This absolute keeps the actuator/valve position without electrical power and battery.

The field terminal compartment is equipped with a 4 mm thick solid cover, conduit entries and feedthrough terminal block. Conduit connection for external field wiring is accomplished through the use of two 1 inch NPT, one 1 ½ inch NPT and one ¾ inch conduit entries. Terminal block allows connection of external field wiring on one side of the terminal block and connection of internal actuator wiring on the back side of the terminal block.

The ICON3000 Series Electric Actuators (if required) can be manufactured with SAFT LS 9V lithium battery that is used to update the remote outputs in case of electrical failure and manual override operations.

The model structure of the ICON3000 Series Electric Valve Actuators is shown below.

ICON-a-bc/d-e. ICON3000 Series Electric Valve Actuators.

a = Gear Reducer BGR-M, SGR-M, WGR-M, ELGA-M or blank (when mounted directly).

b = Model identification 010, 010LP, 020, 030, 040 or 050.

c = Linear actuator L or blank.

d = Torque (in Nm)/Thrust (in KN): four digits up to 1440/six digits up to 334000; two digits up to 30/two digits up to 10 for 010LP.

e = Output speed (in RPM) or Operation time (in secs.) or Linear speed (in MM/secs): three digits to 173 or four digits to 1000; one digit up to 8 or four digits up to 1200 or three digits up to 0.4 for 010LP.

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13. Specific Conditions of Use:

1. Refer to the manufacturer for flamepath dimensions.
2. To reduce the risk of static ignition, only use antistatic cloth for cleaning.
3. The replacement cover screws shall be a SS AISI 316 Class A4 Grade 70, with minimum yield strength of 450 N/mm². The respective screw sizes are shown on the table below.

| Model | Screw Sizes | | |
|----------|-------------|--------------------------|------------------------|
| | Motor Cover | Terminal Enclosure Cover | Local Interface Covers |
| ICON 010 | M8 X 30 | M10 X 30 | M10 X 35 |
| ICON 020 | M8 X 30 | M10 X 30 | M10 X 35 |
| ICON 030 | M10 X 35 | M10 X 30 | M10 X 35 |
| ICON 040 | M10 X 35 | M10 X 30 | M10 X 35 |
| ICON 050 | M12 X 45 | M10 X 30 | M10 X 35 |

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 |
|--------------------------------|-----------------|
| 12 th February 2019 | Original Issue. |

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