



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: **IECEX INE 23.0073X** Page 1 of 3 [Certificate history:](#)  
Status: **Current** Issue No: 0  
Date of Issue: 2024-03-28  
Applicant: **BIFFI ITALIA s.r.l**  
Strada Biffi, 165  
I – 29017 Fiorenzuola d'Arda  
**Italy**  
Equipment: **Electrical Actuator series BIFFI ICON3000 or BIFFI ICON3000AD or BIFFI ICON3000LP or BIFFI ICON3000+UCS  
and series BETTIS XTE3000 or BETTIS XTE3000AD or BETTIS XTE3000LP or BETTIS XTE3000+UCS**  
Optional accessory:  
Type of Protection: **db eb h or db eb h ia and/or h tb**  
Marking: **Ex db eb h IIB T4 Gb or Ex db eb h ia IIB T4 Gb  
Ex h tb IIIC T135°C Db IP66/68**

Approved for issue on behalf of the IECEx  
Certification Body:

Position:

Signature:  
(for printed version)

Date:  
(for printed version)



Thierry HOUÉIX

Ex Certification Officer

2024-03-28

Signé électroniquement  
Digitally signed by  
Thierry HOUÉIX  
Ex Certification Officer  
Délégué Certification

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**France**



controlling risks |  
for sustainable development



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Strada Biffi, 165  
I – 29017 Fiorenzuola d'Arda  
**Italy**

Manufacturing  
locations: **BIFFI ITALIA s.r.l**  
Strada Biffi, 165  
I – 29017 Fiorenzuola d'Arda  
**Italy**

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended

## STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

[IEC 60079-1:2014](#) Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"  
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

[IEC 60079-31:2013](#) Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"  
Edition:2

[IEC 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"  
Edition:5.1

[ISO 80079-36:2016](#) Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic methods and requirements  
Edition:1.0

[ISO 80079-37:2016](#) Explosive atmospheres - Part 37: Non-electrical equipment for explosive atmospheres - Non electrical type of protection constructional safety "c", control of ignition source "b", liquid immersion "k"  
Edition:1.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

## TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[FR/INE/ExTR23.0071/00](#)

Quality Assessment Report:

[FR/INE/QAR08.0005/14](#)



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## EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

This range of Electric Actuators are suitable for explosive gas atmospheres of group IIB and for dust group IIIC.

The enclosure made in light alloy, is intended to receive mainly an electric motor and an electronic part.

For gas application, the overall enclosure is protected by "Ex db h" excepted the terminal board compartment which is protected by "Ex eb" or "Ex eb ia". A version is envisaged with a compartment containing an intrinsic safety element and a cell. The equipment is only "db eb h" when energized and "db eb h ia" when de-energized.

An optional "Ex eb" connection module can be added in the terminal board compartment to verify the integrity loop of end user connections: Lonworks Removable Connection Module or Profibus Removable Connection Module. The module consists of a printed circuit board fitted with terminals covered by the certificate IECEX KEM 10.0093U in accordance with the standards IEC 60079-0:2017 and IEC 60079-7:2017.

For dust application, the enclosure is protected by "Ex h tb".

The motor is fitted with an internal thermal probe put in the winding.

In accordance with the specifications defined in the descriptive documents of the manufacturer, the electric actuator can be coated (optionally) by a passive fire protection in intumescent coating type K-mass.

The equipment has two different brandnames: BIFFI and BETTIS with the following models: BIFFI ICON3000 or BIFFI ICON3000AD or BIFFI ICON3000LP or BIFFI ICON3000+UCS and series BETTIS XTE3000 or BETTIS XTE3000AD or BETTIS XTE3000LP or BETTIS XTE3000+UCS.

The enclosure presents the degrees of protection IP66/68 according IEC 60529 standard. The verification of the degree of protection IPX8 corresponds to an immersion under 10 meters of water during 48 hours

## SPECIFIC CONDITIONS OF USE: YES as shown below:

- The gap and diametrical clearances are lower than the values specified in the tables of IEC 60079-1 standard. The width of the flameproof joints is greater of the values specified in the IEC 60079-1 standard. For any repair, to contact the manufacturer.
- For the assembly of the various parts of explosion-proof enclosures, the screws must be in stainless steel class A4 grade 70 with yield strength higher or equal to 450 N/mm<sup>2</sup>.

The other conditions of use are stipulated in the instructions.

## Annex:

[IECEX INE 23.0073X-00\\_Annex.pdf](#)



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## PARAMETERS RELATING TO THE SAFETY

Ambient temperatures: from -20°C to +60°C

Supply voltage:

- from 173 to 690 V for three phases motors series SM and series TM
- from 110 to 240 V for single phases motors series SM and series TM
- from 24 to 120 Vdc for direct current series DM
- 24 V for direct current series LP

Frequency: 50/60 Hz

Power of motors: from 0.03 kW to 13.980 kW

The maximum power of motors varies according to the type of the motor and the electric characteristics.

The various powers are specified in the descriptive documents.

Operating rate of the motors for single or three phases:

Motor SM series: S2-15 minutes and S4-25% 60 starts/hour maximum

Motor TM series:

- S2-15 minutes and S4-25% 60 starts/hour maximum.
- S2-30 minutes and S4-25% 600 starts/hour maximum for ICON3000 3-ph or XTE3000 3-ph version.
- S4-50% 1200 starts/hour maximum for ICON3000AD or XTE3000AD.

Operating rate of the motors for direct current:

Supply voltage: from 24 to 120 V

Max. power of motors: 0.4 kW

Operating rate DM series: S2-15' or S4-25% 600 starts/hour or S4-50% 1200 starts/hour maximum

Operating rate LP series: S4-50% 1200 starts/hour maximum

Characteristics of thermal probe equipping the motor:

Threshold of release: 140°C+/-5°C or 160°C+/-5°C for actuator with motor SM serie.

Threshold of release: 100°C+/-5°C for actuator with motor DM serie.

Threshold of release: 140°C+/-5°C or 160°C+/-5°C or 180°C+/-5°C for actuator with motor TM serie.

Electrical characteristic of the cell located in the Ex d compartment:

- Manufacturer : SAFT
- Type : LS 14500
- Supply voltage : 3.6 V
- Nominal capacity : 2.6 Ah

Electrical characteristic of the cell located in the Ex ia compartment:

- Manufacturer : SAFT
- Type : battery pack LS 9 V
- Supply voltage : 9 V
- Nominal capacity : 1.2 Ah

Optional electrical heater kit

An optional electrical heater kit, composed by one or two electrical heaters, can be added inside the housing. The first electrical heater has a maximum power of 15W, the second heater has a maximum power of 50W.

The two resistors are intended to be turned on for temperatures below or equal to 0°C and to turn off at +10°C, each heater has a thermal probe that turns on the heater at 0°C and turns it off at +10°C.

## MARKING

Marking has to be readable and indelible; it has to include the following indications:

- BIFFI ITALIA s.r.l  
I-29017 Fiorenzuola d'Arda (PC)
- BIFFI ICON3000 (\*) or BETTIS XTE3000 (\*)
- IECEx INE 23.0073X



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- (Serial number)
- Ex db eb h or db eb h ia IIB T4 Gb
- Ex h tb IIIC T135°C Db IP66/68
- T.Cable: 90°C
- Tamb : -20°C to +60°C
- Cable entry: see instructions.
- WARNINGS:  
DO NOT OPEN WHEN ENERGIZED.  
DO NOT OPEN IF AN EXPLOSIVE ATMOSPHERE IS PRESENT.  
POTENTIAL ELECTROSTATIC CHARGING – SEE INSTRUCTIONS

(\*) Type is completed by numbers and/or letters corresponding to alternatives of execution.

## ROUTINE EXAMINATIONS AND TESTS

- In accordance with clause 7.1 of the IEC 60079-7 standard, each pieces of equipment defined above has to have successfully passed, before delivery a dielectric test strength on each of the different circuits of the connection units, performed according to the relevant standards.
- The tables below specify the overpressure tests required in production depending on the material of the enclosures:

ICON 3000 and XTE 3000 made in LOW COPPER ALLOY (ASTM B108/108M-19 Grade A356.0):				
COMPONENT	ALLOY	Routine overpressure test		
		Sizes 010 and 020	Size 030	Sizes 040 and 050
HOUSING	ASTM B108/108M-19 Grade A356.0	Batch test at 29.4 bar <sup>(1)</sup>	Batch test at 32.1 bar <sup>(1)</sup>	Batch test at 26.4 bar <sup>(1)</sup>
MOTOR COVER				
TERMINAL BOARD	LATAMID 66 H2 G/50- V0HF1	100% production at 29.4 bar <sup>(2)</sup>	100% production at 32.1 bar <sup>(2)</sup>	100% production at 26.4 bar <sup>(2)</sup>
PUSHBUTTON LOCAL INTERFACE COVER	ASTM B108/108M-19 Grade A356.0	Batch test at 29.4 bar <sup>(1)</sup>	Batch test at 32.1 bar <sup>(1)</sup>	Batch test at 26.4 bar <sup>(1)</sup>
MOTOR SHAFT FLANGE				
ENCODER SHAFT FLANGE	EN AC 46100 UNI EN 1706 or ASTM B108/108M-19 Grade A356.0	Batch test at 29.4 bar <sup>(1)</sup>	Batch test at 32.1 bar <sup>(1)</sup>	Batch test at 26.4 bar <sup>(1)</sup>
GLASS HOLDING RING				

- (1) In accordance with clause 16.6 of the IEC 60079-1 standard, this part of the equipment has undergone a static type test at 3 times the reference pressure. The routine overpressure test could be replaced by a batch test according to the criteria specified in this clause. The samples of the production batch must have successfully passed an overpressure test, during at least 10 seconds under the value defined in the table.
- (2) In accordance with clause 16.1 of the IEC 60079-1 standard, this part of the equipment has to have successfully passed; before delivery an overpressure test during at least 10 seconds under the value defined in the table.

ICON 3000 and XTE 3000 made in other alloys			
COMPONENT	Routine overpressure test		
	Sizes 010 and 020	Size 030	Sizes 040 and 050
HOUSING	100% production at 29.4 bar <sup>(1)</sup>	100% production at 32.1 bar <sup>(1)</sup>	100% production at 26.4 bar <sup>(1)</sup>
MOTOR COVER			
TERMINAL BOARD			
PUSHBUTTON LOCAL INTERFACE COVER			
MOTOR SHAFT FLANGE			
ENCODER SHAFT FLANGE			
GLASS HOLDING RING			

- (1) In accordance with clause 16.1 of the IEC 60079-1 standard, this part of the equipment has to have successfully passed; before delivery an overpressure test during at least 10 seconds under the value defined in the table.