

controlling risks
for sustainable development



IECEx Certificate of Conformity

Certificate No.: **IECEx INE 18.0026X**

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Date of issue: 2023-04-14

Issue No: 6

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

Manufacturing
locations:

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 60079-1:2014-06 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

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/ExTR18.0021/06](#)

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 IIC (sizes 010 and 020) or Group IIB, IIB+H2 and IIC (sizes 030, 040 and 050) and for dust Group IIIC (for all the versions).

The enclosure made in light alloy, is intended to receive mainly an electric motor and an electronic part. A version is envisaged with a compartment containing an intrinsic safety element equipped with a cell.

The equipment is only "db h" when energized and "db h ia" when de-energized.

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 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/mm².



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Issue 06 :

- Updating of the type and duty cycle of the motors as per follows:
 - The motors types SM00, SM01, SM03, SM04, SM05, SM06, SM10, SM11, SM12, SM13 and SM14 are removed from the scope of the certificates and replaced by the corresponding motors type TM.
 - The motors type TM that replace the motors SM have the same duty cycle (S2 15' - S4 25% 60 st/h) and maximum ambient temperature (+85°C) than the current motors SM.
 - Extension of the duty cycle from S4-25% (max 1200 start/h) to S4-50% (max 1200 start/h) of the motors listed in the tables 6 and 7 of DT2316.
- Addition of motors types SM25, SM26, SM27, TM07, TM08, TM09, TM19, TM25, TM26 and TM27.
- Updating of the manufacturer's documents.

Issue 05 :

- Extension of Gas Group IIC for electrical actuators ICON 3000 and XTE 3000 without extension sizes 030-040-050 in low copper alloy for ambient temperature from -20°C to +60°C.
- Extension of Gas Group IIB+H2 for electrical actuators ICON 3000 and XTE 3000 without extension sizes 030-040-050 in low copper alloy for ambient temperature from -60°C or -20°C to +60°C.
- Update of the routine test specifications for enclosures made in "low-copper" alloy foreseen for Group IIB.

Issue 04 :

- Addition of a new light alloy, "low copper" alloy as defined in the descriptive documents of the manufacturer.
- Update of the minimum ambient temperature for sizes 030-040-050 gas group IIB from -55°C to -60°C.
- Update of the minimum ambient to -60°C for all sizes with extension and Gas Group IIB.
- Addition of new duty cycle for TM motors.
- Update of the maximum ambient temperature for TM motors from +65°C to +75°C.
- Addition of new thermal heater kit (maximum total power of 65W).
- Addition of the new version of the electric actuator ICON3000+UCS and XTE3000+UCS
- Deleted pushbutton cover version in two threaded pieces

Issue 03:

- Introduction of the new optional electronic card in terminal board enclosure
- Application of the last editions of the standards listed in the certificate.
- Exemption to routine tests at -20°C, gas group IIB (only particular alloys)

Issue 02 :

- Introduction a new brand called "BETTIS" including new designation of the products: "XTE".
- New duty cycle S4-50%-1200starts/h max for the electrical actuator size 010 and 020 24VDC.

Issue 01 :

- Introduction of the new references of light alloys as parts of the enclosures.
- Possibility to coat the actuator with passive fire protection in intumescent coating named Kmass.
- Additional hole (6th hole) on the body of the enclosure

Annex:

[IECEx INE 18.0026X-06_Annex.pdf](#)



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PARAMETERS RELATING TO THE SAFETY

Ambient temperatures:

Sizes	Group IIB		Group IIB+H2	Group IIC	Group IIIC
	With extension	Without extension	Without extension	Without extension	With or without extension
010 and 020	-20°C or -60°C ⁽¹⁾ to +75°C or +85°C ⁽²⁾	-20°C or -60°C ⁽¹⁾ to +75°C or +85°C ⁽²⁾	N/A	-60°C ⁽¹⁾ to +75°C or +85°C ⁽²⁾	-60°C ⁽¹⁾ to +60°C or +75°C or +85°C ⁽²⁾
030, 040 and 050	+75°C or +85°C ⁽²⁾	-20°C or -55°C or -60°C ⁽¹⁾ to +75°C or +85°C ⁽²⁾	-60°C ⁽¹⁾ to +60°C ⁽²⁾	-20°C ⁽¹⁾ to +60°C ⁽²⁾	

⁽¹⁾ Depending on the materials of the enclosure

- The actuators expected for minimum ambient temperature down to -55°C or -60°C are provided with fluorosilicon gaskets/O-rings
- The actuators expected for minimum ambient temperature down to -20°C are provided with NBR gaskets/O-rings

⁽²⁾ +60°C for all motor series, +75°C or +85°C for motor DM, SM, TM and LP series according to manufacturer's documentation

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



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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 18.0026X
- (Serial number)
- Ex db h or db h ia II(**) T4 Gb
- Ex h tb IIIC T135°C Db IP66/68
- T.Cable: 90°C
- Tamb : (***)
- 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.

(**) IIB: For all sizes or,
IIB+H2 : For sizes from 030 to 050 without extension or,
IIC: For all sizes without extensions.

(***) For the range of ambient temperature : See "PARAMETERS RELATING TO THE SAFETY"

ROUTINE EXAMINATIONS AND TESTS

The specifications about the overpressure routine tests are detailed in the technical note DT_2316 from the manufacturer.