



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx INE 18.0026X Issue No: 0 Certificate history:
Issue No. 0 (2018-07-17)

Status: Current Page 1 of 4

Date of Issue: 2018-07-17

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

Equipment: **Electrical Actuator type ICON3000....or ICON3000AD.... or ICON3000LP....**
Optional accessory:

Type of Protection: **db h or db h ia and/or h tb**

Marking: Ex db h IIB or IIC T4 Gb or Ex db h ia IIB or IIC T4 Gb
Ex h tb IIIC T135°C Db IP66/68

Approved for issue on behalf of the IECEx
Certification Body:

Dominique CHARPENTIER

Position:

Certification division manager

Signature:
(for printed version)



Date:

17 JUL. 2018

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

INERIS
Institut National de l'Environnement Industriel
et des Risques, BP n2
Parc Technologique ALATA
France

INERIS



IECEX Certificate of Conformity

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

Additional Manufacturing location(s):

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 apparatus 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 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
ISO 80079-36 : 2016 Edition:1.0	Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic methods and requirements
ISO 80079-37 : 2016 Edition:1.0	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"

*This Certificate **does not** indicate compliance with electrical 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/ExTR18.0021/00

Quality Assessment Report:

FR/INE/QAR08.0005/09



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Schedule

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 (in version ICON-010 and ICON-020) or group IIB only (in version ICON-030, ICON-040 and ICON-050) and for dust group IIIC (for all the versions).

The enclosure made in light alloy, is destined 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 battery.

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.

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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Additional information:

Annex:

IECEX INE 18.0026X-00_Annex.pdf



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Annex: IECEx INE 18.0026X-00_Annex.pdf

PARAMETERS RELATING TO THE SAFETY

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:

- S2-30 minutes and S4-25% 600 starts/hour maximum for ICON3000 version
- S4-50% 1200 starts/hour maximum for ICON300AD 3/ph version
- S4-25% 1200 starts/hour maximum for ICON300AD 1/ph version

Operating rate of the motors for direct current:

Supply voltage: from 24 to 120 V

Power of motors: 0.4 kW

Operating rate DM series: S2-15' or S4-25% 600 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 for actuator with motor SM or DM or LP series.

Threshold of release: 160°C +/-5°C for actuator with motor TM series.

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



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This actuator can be used in the following range of ambient temperatures:

Motor TM series:

- For actuator ICON 010 and 020 without extension: from -60°C to +65°C
- For actuator ICON 030, 040 and 050 without extension: from -55°C to +65°C
- For all types of actuator with extension: from -20°C to +65°C

Motor DM, SM and LP series:

- For actuator ICON 010 and 020 without extension: from -60°C to +65°C or +85°C
- For actuator ICON 030, 040 and 050 without extension: from -55°C to +65°C or +85°C
- For all types of actuator with extension: from -20°C to +65°C or +85°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)
- ICON3000(*)
- 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 (***)
- For cable entries dimensions see installation manual.
- WARNINGS
 - DO NOT OPEN WHEN ENERGIZED.
 - DO NOT OPEN IF AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT.

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

(**) IIB: For all Models or

IIC: For Model ICON-010 or ICON-020 only

(***) Indication if ambient temperature is higher than 65°C.

ROUTINE EXAMINATIONS AND TESTS

For the models intended for Group IIB:

All model of actuators with extension for using limited down to -20°C:

In accordance with clause 16.1 of IEC 60079-1 standard, each sample, fitted with the extension, defined above must have successfully passed before delivery, an overpressure test, of a period comprised between 10 and 60 seconds, under 14.9 bar.

All model sizes of actuators without extension for using limited down to -20°C:

In accordance with clause 16.2 of the IEC 60079-1 standard, each sample, without extension, is exempted of routine test due to the fact that it has undergone a static type test at 4 times the reference pressure under 32 bar.



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Actuators model ICON-010 and ICON-020 without extension for using down to -60°C:

In accordance with clause 16.1 of IEC 60079-1 standard, each sample, fitted with the extension, defined above must have successfully passed before delivery, an overpressure test, of a period comprised between 10 and 60 seconds, under 18 bar.

Actuators model ICON-030, ICON-040 and ICON-050 without extension for using down to -55°C:

In accordance with clause 16.1 of IEC 60079-1 standard, each sample, fitted with the extension, defined above must have successfully passed before delivery, an overpressure test, of a period comprised between 10 and 60 seconds, under 20.7 bar.

For the models intended for Group IIC:

Actuators model ICON-010 and ICON-020 without extension for using down to -60°C:

In accordance with clause 16.1 of IEC 60079-1 standard, each sample, fitted with the extension, defined above must have successfully passed before delivery, an overpressure test, of a period comprised between 10 and 60 seconds, under 18 bar.



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INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx INE 18.0026X

Issue No: 1

Certificate history:

Issue No. 1 (2019-01-14)

Issue No. 0 (2018-07-17)

Status: **Current**

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Date of Issue: **2019-01-14**

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

Equipment: **Electrical Actuator type ICON3000....or ICON3000AD.... or ICON3000LP....**

Optional accessory:

Type of Protection: **db h or db h ia and/or h tb**

Marking:

Ex db h IIB or IIC T4 Gb or Ex db h ia IIB or IIC T4 Gb
Ex h tb IIIC T135°C Db IP66/68

Approved for issue on behalf of the IECEx
Certification Body:

Thierry HOUEIX

Position:

Ex Certification Officer

Signature:
(for printed version)

Thierry Houeix

Date:

2019-01-14

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Institut National de l'Environnement Industriel
et des Risques, BP n2
Parc Technologique ALATA
France



IECEX Certificate of Conformity

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

Additional Manufacturing location(s):

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 apparatus 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 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
ISO 80079-36 : 2016 Edition:1.0	Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic methods and requirements
ISO 80079-37 : 2016 Edition:1.0	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"

*This Certificate **does not** indicate compliance with electrical 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/ExTR18.0021/01](#)

Quality Assessment Report:

[FR/INE/QAR08.0005/10](#)



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Schedule

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 (in version ICON-010 and ICON-020) or group IIB only (in version ICON-030, ICON-040 and ICON-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 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):

Purpose of the Issue 1 :

- 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-01_Annex.pdf](#)



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Annex: IECEx INE 18.0026X-01_Annex.pdf

PARAMETERS RELATING TO THE SAFETY

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:

- S2-30 minutes and S4-25% 600 starts/hour maximum for ICON3000 version
- S4-50% 1200 starts/hour maximum for ICON300AD 3/ph version
- S4-25% 1200 starts/hour maximum for ICON3000AD 1/ph version

Operating rate of the motors for direct current:

Supply voltage: from 24 to 120 V

Power of motors: 0.4 kW

Operating rate DM series: S2-15' or S4-25% 600 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 for actuator with motor SM or DM or LP series.

Threshold of release: 160°C +/-5°C for actuator with motor TM series.

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

This actuator can be used in the following range of ambient temperatures:

Motor TM series:

- For actuator ICON 010 and 020 without extension: from -60°C to +65°C
- For actuator ICON 030, 040 and 050 without extension: from -55°C to +65°C
- For all types of actuator with extension: from -20°C to +65°C



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Motor DM, SM and LP series:

- For actuator ICON 010 and 020 without extension: from -60°C to +65°C or +85°C
- For actuator ICON 030, 040 and 050 without extension: from -55°C to +65°C or +85°C
- For all types of actuator with extension: from -20°C to +65°C or +85°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)
- ICON3000(*)
- 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 (***)
- For cable entries dimensions see installation manual.
- WARNING:
 - DO NOT OPEN WHEN ENERGIZED.
 - DO NOT OPEN IF AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT.
 - POTENTIAL ELECTROSTATIC CHARGING – SEE INSTRUCTIONS

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

(**) IIB: For all Models or

IIC: For Model ICON-010 or ICON-020 only

(***) Indication if ambient temperature is higher than 65°C.

ROUTINE EXAMINATIONS AND TESTS

For the models intended for Group IIB:

All model of actuators with extension for using limited down to -20°C:

In accordance with clause 16.1 of IEC 60079-1 standard, each sample, fitted with the extension, defined above must have successfully passed before delivery, an overpressure test, of a period comprised between 10 and 60 seconds, under 14.9 bar.

All model sizes of actuators without extension for using limited down to -20°C (Excepted for enclosures made in light alloy ENAC 44300):

In accordance with clause 16.1 of IEC 60079-1 standard, each sample, fitted with the extension, defined above must have successfully passed before delivery, an overpressure test, of a period comprised between 10 and 60 seconds, under 12 bar.

All model sizes of actuators without extension for using limited down to -20°C made in light alloy ENAC 44300:

In accordance with clause 16.2 of the IEC 60079-1 standard, each sample, without extension, is exempted of routine test due to the fact that it has undergone a static type test at 4 times the reference pressure under 32 bar.

Actuators model ICON-010 and ICON-020 without extension for using down to -60°C:

In accordance with clause 16.1 of IEC 60079-1 standard, each sample, fitted with the extension, defined above must have successfully passed before delivery, an overpressure test, of a period comprised between 10 and 60 seconds, under 18 bar.

Actuators model ICON-030, ICON-040 and ICON-050 without extension for using down to -55°C:

In accordance with clause 16.1 of IEC 60079-1 standard, each sample, fitted with the extension, defined above must have successfully passed before delivery, an overpressure test, of a period comprised between 10 and 60 seconds, under 20.7 bar.

For the models intended for Group IIC:

Actuators model ICON-010 and ICON-020 without extension for using down to -60°C:

In accordance with clause 16.1 of IEC 60079-1 standard, each sample, fitted with the extension, defined above must have successfully passed before delivery, an overpressure test, of a period comprised between 10 and 60 seconds, under 18 bar.