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

Certificate No.: **IECEx IMQ 21.0003X**

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Certificate history:
Issue 0 (2021-03-10)

Status: **Current**

Issue No: 1

Date of Issue: 2022-12-02

Applicant: **CORTEM S.p.A**
Via Aquileia 10
34070 Villesse
Gorizia
Italy

Equipment: **Socket and Plug, series PYN and SPYN**

Optional accessory:

Type of Protection: **Plug: Ex eb, Ex tb; Socket: Ex db, Ex eb, Ex tb**

Marking: Plug

Ex eb IIC T6...T3 Gb

Ex tb IIIC T85°C...T140°C Db

Socket

Ex db eb IIC T6...T3 Gb

Ex tb IIIC T85°C...T140°C Db

Approved for issue on behalf of the IECEx Certification Body: **Mr. Mauro CASARI**

Position: **IMQ ExCB Manager**

Signature:
(for printed version)

Date:
(for printed version)

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Certificate issued by:

Istituto Italiano del Marchio di Qualità S.p.A
Via Quintiliano 43
20138 Milano
Italy

IECEx Certificate of Conformity

Manufacturer: **CORTEM S.p.A**
Via Aquileia, 10
I - 34070 Villesse (GO)
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 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-1:2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-31:2022-01 Edition:3.0	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-31:2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7:2017 Edition:5.1	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

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:

IT/IMQ/ExTR21.0003/01

Quality Assessment Report:

IT/CES/QAR06.0002/16

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The PYN Series sockets and plugs Series SPYN are suitable for cable connection in potentially explosive areas.
Sockets are made in “Ex eb db” and “Ex tb” execution while plugs are made in “Ex eb” and “Ex tb” execution.

Models with rated current of 16A and 32A
The switching of the circuit is performed by rotating the plug, when full inserted in the socket.
A mechanical interlock system ensures that plug and socket can be energized only when they are engaged and interlocked.
The equipment is composed by a metallic body (aluminum alloy or stainless steel) complete with two threaded entries, a threaded cover and a coupling that contains the socket with an insulated part in which are inserted electrical receptacles and the female pins.
The coupling is mounted to the socket outlet body, by means of two threaded joints complete with a cover (bayonet type) and gasket. One of these threaded joints is sealed to the socket outlet body.
The plug is composed by a cylindrical metallic body (aluminum alloy or stainless steel) with one cover fixed by two screws.
The cover of the plug has a threaded entry suitable for cable connection by means of cable gland.
A ring (bayonet type) complete with gasket is located on the plug body guaranteeing the mechanical coupling
and IP protection degree with the socket-outlet once inserted.
The internal part, which hold male-pins, is made by a polymeric material that realize the insulation.
The geometry of this internal part has been designed according to IEC 60079-7.

Models with rated current of 63A and 125A
They are screwed on a box (CCA-03E) already IECEx certified which contains magnetoelectric switch or disconnector.
The switching of the circuit is performed by acting on external handle (series M-0…) already IECEx certified, placed on the side of the box in which the socket is screwed.
A mechanical interlock system ensures that plug and socket can be connected/disconnected only when they are not energized.
A plastic ring (complete with gasket) is located on the plug body to guarantee the mechanical coupling and the degree of protection with the socket once coupled.
The socket enclosure in made of aluminum alloy or stainless steel. It has an insulated part in which are inserted electrical receptacles and the female pins.
The plug body is made of aluminum alloy or stainless steel. It has a threaded entry suitable for cable connection by means of cable gland.
The internal part, which hold male-pins, is made by a polymeric material that realize the insulation.
The geometry of this internal part has been designed according to IEC 60079-7.

Ratings, ambient temperature ranges, temperature class and maximum surface temperatures are detailed in Annex to Certificate.

Full details in Annex to Certificate.

Trade mark: CORTEM, ELFIT, CORTEM GROUP

SPECIFIC CONDITIONS OF USE: YES as shown below:
After de-energizing, delay 30 minutes before opening
Do not open when an explosive atmosphere is present
The cap of the socket shall be properly installed when plug and socket are not mated.
Use screws of quality A2-70 with tensile strength of at least 700 N/mm2
Flameproof joints are not intended to be repaired
Use cable with minimum rated continuous operating temperature of:

- 80°C for 16A model
- 100°C for 32A model
- 75°C for 63A model
- 120°C for 125A model

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Issue 1

- Addition of new range (125A) with same mechanical design as for 63A
- Addition of new ranges (16A and 32A) with new mechanical design (which is different from 63A)
- Range of ambient temperature has been extended to -60°C
- Name of Series has been changed (now PYN / SPYN)
- Possibility of use enclosure GUB-03 has been removed (for 63A and 125A)
- Standard update (IEC 60079-31 Ed. 3.0)

Annex:

IECEx IMQ 21.0003 X issue No. 1 Annex_1.pdf

General description

The PYN Series sockets and plugs Series SPYN are suitable for cable connection in potentially explosive areas.
Sockets are made in “Ex eb db” and “Ex tb” execution while plugs are made in “Ex eb” and “Ex tb” execution.

Models with rated current of 16A and 32A

The switching of the circuit is performed by rotating the plug, when full inserted in the socket.
A mechanical interlock system ensures that plug and socket can be energized only when they are engaged and interlocked.
The equipment is composed by a metallic body (aluminum alloy or stainless steel) complete with two threaded entries, a threaded cover and a coupling that contains the socket with an insulated part in which are inserted electrical receptacles and the female pins.
The coupling is mounted to the socket outlet body, by means of two threaded joints complete with a cover (bayonet type) and gasket. One of these threaded joints is sealed to the socket outlet body.
The plug is composed by a cylindrical metallic body (aluminum alloy or stainless steel) with one cover fixed by two screws.
The cover of the plug has a threaded entry suitable for cable connection by means of cable gland.
A ring (bayonet type) complete with gasket is located on the plug body guaranteeing the mechanical coupling and IP protection degree with the socket-outlet once inserted.
The internal part, which hold male-pins, is made by a polymeric material that realize the insulation.
The geometry of this internal part has been designed according to IEC 60079-7.

Models with rated current of 63A and 125A

They are screwed on a box (CCA-03E) already IECEx certified which contains magnetoelectric switch or disconnector.
The switching of the circuit is performed by acting on external handle (series M-0…) already IECEx certified, placed on the side of the box in which the socket is screwed.
A mechanical interlock system ensures that plug and socket can be connected/disconnected only when they are not energized.
A plastic ring (complete with gasket) is located on the plug body to guarantee the mechanical coupling and the degree of protection with the socket once coupled.
The socket enclosure in made of aluminum alloy or stainless steel. It has an insulated part in which are inserted electrical receptacles and the female pins.
The plug body is made of aluminum alloy or stainless steel. It has a threaded entry suitable for cable connection by means of cable gland.
The internal part, which hold male-pins, is made by a polymeric material that realize the insulation.
The geometry of this internal part has been designed according to IEC 60079-7.

Model identification

Socket

DIGITS ① ② ③ ④

	Description
PYN	Socket

	Description
2	2P+E
3	3P+E
4	3P+N+E

	Description
16	Rated current (A)
32	Rated current (A)
63	Rated current (A)
125	Rated current (A)

	Description
B	Blue
R	Red
G	Yellow
N	Black
NN	Black (version 690V)
RR	Red (version 440 to 460V)
GR	Grey
GRR	Grey in version > 250V

Plug

DIGITS ① ② ③ ④

	Description
SPYN	Plug

	Description
2	2P+E
3	3P+E
4	3P+N+E

	Description
16	Rated current (A)
32	Rated current (A)
63	Rated current (A)
125	Rated current (A)

	Description
B	Blue
R	Red
G	Yellow
N	Black
NN	Black (version 690V)
RR	Red (version 440 to 460V)
GR	Grey
GRR	Grey in version > 250V

Ratings:

Maximum rated voltage: 690 V
Rated current: 16 A or 32 A or 63 A or 125 A
Rated frequency: 50 Hz or 60 Hz

Protection degree: IP66 (according to IEC 60079-0 and IEC 60529)

Temperature class and Maximum surface temperature:

Tamb ranges:

from -60°C to +55°C (or +49°C)	*for 125A model*
from -60°C to +60°C	*for other models*

Temperature class and Maximum surface temperature:

T6 and **T85°C**	*for 16A and 63A models*
T4 and **T100°C**	*for 32A model*
T4 and **134°C**	*for 125A model and Tamb of 49°C*
T3 and **140°C**	*for 125A model and Tamb of 55°C*

Installation conditions:

Cable entry devices shall have at least an IP 66 degree of protection, EPL (Gb and Db) and following operating temperature range:

- From -60°C to 80°C for 16A model
- From -60°C to 100°C for 32A model
- From -60°C to 75°C for 63A model
- From -60°C to 120°C for 125A model

In addition:

For socket enclosure:

They shall be certified according to IEC 60079-0, IEC 60079-1 and IEC 60079-31 standards.

For plug:

They shall be certified according to IEC 60079-0, IEC 60079-7 and IEC 60079-31 standards.

Unused cable entries shall be closed through a blanking element with the same characteristics as reported for cable entry devices.

Warning:

“Do not open when energized” *is written in relief on lid of the enclosure.*

"Do not open when energized" *is written in relief on the cover of the socket.*

“See installation instruction document” *on the marking plate*

“Warning – Attention to electrostatic charges. Clean only with a wet cloth or antistatic products” *on the cap of the socket or can be in relief on it*

When non-conductive paint is used:

“Warning – Attention to electrostatic charges. Clean only with a wet cloth or antistatic products” *on each enclosure*

Specific conditions of use (X):

After de-energizing, delay 30 minutes before opening

Do not open when an explosive atmosphere is present

The cap of the socket shall be properly installed when plug and socket are not mated.

Use screws of quality A2-70 with tensile strength of at least 700 N/mm2

Flameproof joints are not intended to be repaired

Use cable with minimum rated continuous operating temperature of:

- 80°C for 16A model
- 100°C for 32A model
- 75°C for 63A model
- 120°C for 125A model

Routine tests:

The manufacturer shall carry out the routine test prescribed at clauses 27 of the IEC 60079-0.

The routine overpressure test shall be carried out on the socket with the static method (clause 15.2.3.2 of IEC 60079-1 standard) at:

- 17.5 for 10 s for 16A and 32A models
- 19 bar for 10 s for 63A and 125A models

The manufacturer shall carry out the dielectric routine test prescribed at clause 7.1 of the IEC 60079-7 standard, the applied voltage shall be at least at (1 000 + 2U) Vac or 1 500 Vac, whichever is greater, where “U” is the r.m.s. working voltage.

Alternatively, the test shall be carried out at 1.2 times the test voltage, but maintained for at least 100 ms.