



IECEX Certificate of Conformity

4020

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

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

Ex COMPONENT CERTIFICATE

Certificate No.: **IECEX CES 10.0002U**

Page 1 of 4

Certificate history:

Status: **Current**

Issue No: 2

Issue 1 (2014-08-21)

Issue 0 (2010-06-30)

Date of Issue: **2023-08-22**

Applicant: **CORTEM S.p.A.**
Via Aquileia 10
I - 34070 Villesse (GO)
Italy

Ex Component: **Three-pieces connection fittings series R., B.. and RB..**

This component is NOT intended to be used alone and requires additional consideration when incorporated into other equipment or systems for use in explosive atmospheres (refer to IEC 60079-0).

Type of Protection: **Flameproof enclosure "d", Dust ignition protection 't'**

Marking: **Ex db IIB Gb for types B, RB or**
Ex db IIC Gb for types R only and
Ex tb IIIC Db, IP66/67 for all types.

PAD C3018029 (3063882) - USO AZIENDALE

Approved for issue on behalf of the IECEx
Certification Body:

Mirko BALAZ

Position:

Deputy Head of IECEx CB

Signature:
(for printed version)

Date:
(for printed version)

2023-08-22

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Certificate issued by:

CESI
Centro Elettrotecnico
Sperimentale Italiano S.p.A.
Via Rubattino 54
20134 Milano
Italy

CESI



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Certificate No.: **IECEX CES 10.0002U**

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Date of issue: 2023-08-22

Issue No: 2

Manufacturer: **CORTEM S.p.A.**
Via Aquileia 10
I - 34070 Villesse (GO)
Italy

Manufacturing locations: **CORTEM S.p.A.**
Via Aquileia 10
I - 34070 Villesse (GO)
Italy

ELFIT S.p.A.
Via Aquileia, 12
I-34070 Villesse (GO)
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 component 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 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-1:2014 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

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 component listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[IT/CES/ExTR10.0006/00](#)

[IT/CES/ExTR10.0006/01](#)

[IT/CES/ExTR10.0006/02](#)

Quality Assessment Reports:

[IT/CES/QAR06.0002/17](#)

[IT/CES/QAR13.0001/10](#)



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Certificate No.: **IECEX CES 10.0002U**

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Date of issue: **2023-08-22**

Issue No: 2

Ex Component(s) covered by this certificate is described below:

The Three-pieces connection fittings series **R..**, **B..** and **RB..** are unions composed of three elements that screw on and turn independently thus allowing the connection of rigid parts (flameproof enclosure, metallic conduit and dust-tight enclosures).

- The Three-pieces connection fittings series . are in execution **Ex db IIC, Ex tb IIIC, IP66/67**.
- The Three-pieces connection fittings series . and **RB..** are in execution **Ex db IIB, Ex tb IIIC, IP66/67**.

The coupling between the Three-pieces connection fittings and the apparatus enclosures is made by means of threaded joints. The unions can be male-male (male ring, nut, male body), male-female (female ring, nut, male body) or female-female (female ring, nut, female body).

The above-mentioned Three-pieces connection fittings can be made in Stainless Steel, Galvanized carbon steel (A 105), Low temperature Steel (A 203), Aluminium alloy and Nickel plated brass.

For the technical data see Annex.

SCHEDULE OF LIMITATIONS:

- The coupling of the Three-pieces connection fittings with the enclosures shall be made as indicated by the manufacturer in the documents annexed to this certificate in order to respect the type of protection of the electrical apparatus on which Three-pieces connection fittings are mounted.
- The Three-pieces connection fittings shall be mounted at the electrical apparatus in such a way that accidental rotation and loosening will be prevented.
- The Three-pieces connection fittings shall be installed in such a way that the temperature at the mounting point will remain within the following service temperature ranges:

Three-pieces connection fittings type	Materials	Gasket	Ambient Temperature
R.. or B..	Galvanised steel (ASTM A105 or A203), Stainless steel, Nickel plated brass, Aluminium alloy	Silicon	-20°C ÷ +60°C
RB..	Galvanised steel (ASTM A105 or A203), Stainless steel, Nickel plated brass, Aluminium alloy	Silicon	-20°C ÷ +150°C
R.. or B..	Stainless steel	Silicon	-60°C ÷ +60°C
RB..	Stainless steel	Silicon	-60°C ÷ +150°C

- The maximum current for each conductor which cross-through the Three-pieces connection fittings shall be established taking into account the heating caused by the current flowing through it, the heating of the enclosure on which the Three-pieces connection fittings are mounted and the maximum permissible ambient temperature.
- The IP 66/67 mechanical protection of the Three-pieces connection fittings is obtained by inserting an O-ring or plain gasket made of silicon rubber, in-between the body and the ring as shown into the safety instruction.
- If the Three-pieces connection fittings series . and **B..** are intended for use with dust protection "Ex tb" the holes into which Three-piece connection fittings are mounted shall maintain the ingress protection rating of the enclosure. To this scope the correct positioning of the gaskets (for cylindrical threads) or the application of sealant on the threads (for tapered threads), shall be done as indicated in the manufacturer instruction.

It is the final assemblers/users responsibility to ensure the threaded joint between the Three-pieces connection fittings and the associated enclosure meet all the requirements of the applicable standards for the assembly.



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Date of issue: 2023-08-22

Issue No: 2

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Details of change (for certificate *IECEX CES 10.0002U*):

Variation 2.1

The Three-pieces connection fittings series **R..**, **B..** and **RB**, originally assessed in compliance with IEC 60079-0: 2004, IEC 60079-1:2007, IEC 61241-0:2004 and IEC 61241-1:2004, have been re-assessed on the basis of the Standards:

- IEC 60079-0: 2011 - Electrical apparatus for explosive atmospheres - Part 0: general requirements.
- IEC 60079-1: 2014 - Part 1: Equipment protection by flameproof enclosures "d"
- IEC 60079-31:2013 - Electrical apparatus for use in the presence of combustible dust - Part 31: protection by enclosures "t".

Upgraded the marking of the components in compliance to the new Standards assessed, including the equipment protection level (EPL) "**Gb**" and "**Db**".

Variation 2.2

Upgrade of marking.

Variation 2.3

To the Three-pieces connection fittings types **R..** and **B..** have been extended the Service temperature ranges and updated to the coding as follows:

- -20°C ÷ + 60 °C for type **B** and **R** for all constructional material.
- -60°C ÷ + 60 °C for type **B** and **R** made of stainless steel only.
- -20°C ÷ + 150 °C for type **RB** for all constructional material.
- -60°C ÷ + 150 °C for type **RB** made of stainless steel only.

Variation 2.4

Added brand ELFIT S.p.A. as "Additional Manufacturing location".

Unchanged the other constructional characteristics of these Three-pieces connection fittings.

Annex:

[CORTEM - IECEX CES 10.0002U Issue 2 - ANNEX - Three-pieces fittings R.. , B.. and RB.pdf](#)



Prot: C3018029

IECEX Certificate of Conformity



Annex to certificate: IECEx CES 10.0002U Issue No: 2 of 2023-08-22
Applicant: CORTEM SPA.
 Via Aquileia, 10 - 34070 Villesse (Gorizia - Italia)
Electrical Apparatus: Three-pieces connection fittings series R., B.. and RB..

Description of the component

The Three-pieces connection fittings series R., B.. and RB.. are unions composed of three elements that screw on and turn independently thus allowing the connection of rigid parts (flameproof enclosure, metallic conduit and dust-tight enclosures).

- The Three-pieces connection fittings series R.. are in execution **Ex db IIC, Ex tb IIIC, IP66/67**.
- The Three-pieces connection fittings series B.. and RB.. are in execution **Ex db IIB, Ex tb IIIC, IP66/67**.

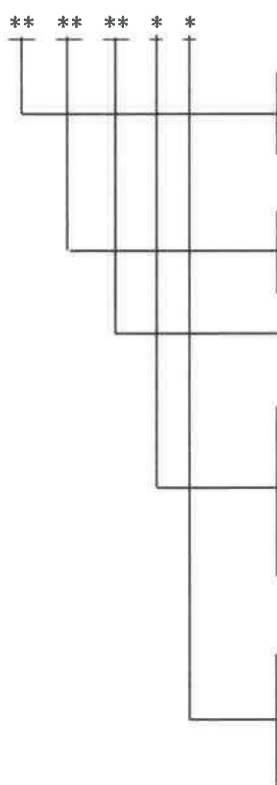
The coupling between the Three-pieces connection fittings and the apparatus enclosures is made by means of threaded joints. The unions can be male-male (male ring, nut, male body), male-female (female ring, nut, male body) or female-female (female ring, nut, female body).

The above-mentioned Three-pieces connection fittings can be made in Stainless Steel, Galvanized carbon steel (A 105), Low temperature Steel (A 203), Aluminium alloy and Nickel plated brass.

The Three-pieces connection fittings standard threads types are NPT ANSI/ASME B1.20.1 from 1/2" up to 4" and cylindrical ISO Metric 965/1 and ISO 965/3 from M20x1.5 up to M100x1.5. Alternative available tapered threads are Gk CEI EN 60079-1, Annex 1, while for cylindrical threads are EN ISO 228/1 or NPSM ANSI/ASME B1.20.1.

To guarantee the IP 66/67 degree of protection the Three-pieces connection fittings series R., B.. and RB.. have an IP 66/67 mechanical protection in-between the body and the ring, obtained by inserting an O-ring or plain gasket made of silicon rubber, while for external male cylindrical threads have a sealing edge machined for fitting a silicon gasket and for all other threads the IP 66/67 degree of protection is achieved with sealant put at least on two complete threads engaged of the threaded coupling.

Identification of Three-pieces connection fittings:



Code which identifies the series:

- **R:** execution Ex db IIC Gb
- **B:** execution Ex db IIB Gb
- **RB:** execution Ex db IIB Gb for high temperature

Types of the two threads:

- **MM:** male-male
- **FF:** female-female
- **MF:** male-female

Size of threads (see table 1)

Type of threads:

- **N:** NPT ANSI/ASME B1.20.1
- **I:** ISO metric pitch 1,5mm
- **NC:** NPSM ANSI/ASME B1.20.1
- **P:** PG DIN 40430
- **C:** GAS UNI 228-1
- **Blank:** Gk CEI EN 60079-1 Annex 1

Manufacturing material:

- **A:** aluminium alloy
- **B:** nickel plated brass
- **S:** stainless steel
- **G:** galvanized carbon steel standard
- **GL:** galvanized steel for low temperatures



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Annex to certificate:

IECEX CES 10.0002U Issue No: 2 of 2023-08-22

Applicant:

CORTEM SPA.

Via Aquileia, 10 - 34070 Villesse (Gorizia - Italia)

Electrical Apparatus:

Three-pieces connection fittings series R.., B.. and RB..

Types, sizes and threads of Three-pieces connection fittings are listed on the following Table 1:

Table 1:

Three-pieces connection fittings type		Size code	NPT Thread	ISO pitch 1,5 Thread
Ex db IIB	Ex db IIC			
B.. or RB..	R..	1	1/2"	M 20
B.. or RB..	R..	2	3/4"	M 25
B.. or RB..	R..	3	1"	M 32
B.. or RB..	R..	4	1 1/4"	M 40
B.. or RB..	R..	5	1 1/2"	M 50
B.. or RB..	R..	6	2"	M 63
B.. or RB..	R..	7	2 1/2"	M 75
B.. or RB..	R..	8	3"	M 90
B.. or RB..	R..	9	3 1/2"	--
B.. or RB..	R..	10	4"	M 100

Ratings:

Rated service temperature range (°C) for Ex Components :

- 20°C ÷ + 60°C for type **B, R** - for all constructional material;
- 60°C ÷ + 60°C for type **B, R** - made of stainless steel only;
- 20°C ÷ + 150°C for type **RB** - for all constructional material;
- 60°C ÷ + 150°C for type **RB** - made of stainless steel only.

Degree of protection: IP 66 / IP67 (IEC 60529).