4058

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

Ex COMPONENT CERTIFICATE

Certificate No.: **IECEx CES 14.0011U**

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Certificate history:
Issue 0 (2014-10-09)

Status: **Current**

Issue No: 1

Date of Issue: 2023-08-24

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

Ex Component: Flexible conduits series SP..

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 enclosures 'd'; Dust ignitionprotection "t"**

Marking: **Ex db IIB Gb**

Ex db IIC Gb

Ex tb IIIC Db

IP66/67

PAD C3018032 (3065516) - 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) 2023-08-24

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Certificate issued by:

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

IECEx Certificate of Conformity

Certificate No.: **IECEx CES 14.0011U**

Date of issue: 2023-08-24 Issue No: 1

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/ExTR14.0012/00 IT/CES/ExTR14.0012/01

Quality Assessment Reports:

IT/CES/QAR06.0002/17 IT/CES/QAR13.0001/10

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

The flexible conduits series **SP...** are used to connect equipment that are offset, Ex-d housing or equipment subject to vibrations such as electrical motors. The flexible conduits series **SP...** are manufactured in agreement to standard ISO 10807:1994 "Corrugated flexible metallic hose assemblies for the protection of electrical cables in explosive atmospheres".

The flexible conduits can be also installed with ambient temperature from -60°C to +150°C. For the temperature -60°C, the fittings must be manufacturing only in stainless steel.

The flexible conduits series **SP...** are composed of:

- Continuous wall conduit ribbed with parallel spirals made of stainless steel AISI 321 or AISI 316L.
- Stainless steel AISI 304 plait sheaths.
- Revolving or fixed fittings made of EN 10025 S355JR (ASTM A105) or stainless steel AISI 303, AISI 304, AISI 316, AISI 316L.

The flexible conduits series SP.. characteristics are further described in the Annexe of this certificate.

SCHEDULE OF LIMITATIONS:

- The coupling of the Flexible conduit series . 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 Flexible conduit are mounted.
- The Flexible conduit series . shall be mounted at the electrical apparatus in such a way that accidental rotation and loosening will be prevented.
- The Flexible conduit series . shall be installed in such a way that the temperature at the mounting point will remain within the following service temperature ranges:

  - from -20 up to +150 °C for types **SPH, SPG** and **SPZ** made of Galvanized steel and/or Stainless Steel.

  - from -60 up to +150 °C for types **SPH, SPG** and **SPZ** made of Stainless Steel only.

  - from -20 up to +60 °C for types **SPN, SPI, SPY, SPD, SPP, SPE** and **SPT** with revolving fitting type **B..** made of Galvanized steel and/or Stainless Steel.

  - from -60 up to +60 °C for types **SPN, SPI, SPY, SPD, SPP, SPE** and **SPT** with revolving fitting type **B..** made of Stainless Steel only.

  - from -20 up to +60 °C for types **SPRN, SPRI, SPRY, SPRD, SPRP, SPRE** and **SPRT** with revolving fitting type **R..** made of Galvanized steel and/or Stainless Steel.

  - from -60 up to +60 °C for types **SPRN, SPRI, SPRY, SPRD, SPRP, SPRE** and **SPRT** with revolving fitting type **R..** made of Stainless Steel only.

  - from -60 up to +150 °C for types **SPRN, SPRI, SPRY, SPRD, SPRP, SPRE** and **SPRT** with revolving fitting type **RB..** made of Stainless Steel only.

- The IP 66/67 mechanical protection of the Flexible conduit series . with revolving fittings type **B..**, **R..** or **RB..** 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, depending on the maximum service temperature.
- If the Flexible conduit series . are intended for use with dust protection "Ex tb" the holes into Flexible conduit 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 flexible conduit series **SP..** and the associated enclosure meet all the requirements of the applicable standards for the assembly.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Details of change (for issue 1. of certificate IECEx CES 14.0011U):

Variation 1.1
The flexible conduit series SP...originally assessed in compliance with IEC 60079-0: 2011, IEC 60079-1:2007 and IEC 60079-31: 2008, 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 1.2
Upgrade of marking.

Variation 1.3
Upgrade minimum ambient temperature from -50°C to -60°C.

Variation 1.4
Added brand ELFIT S.p.A. as "Additional Manufacturing location".

Unchanged the other constructional characteristics of these flexible conduit series SP....

Annex:

Cortem IECEx CES 14.0011U Issue 1 - ANNEX - flex conduit SP.pdf

IECEx Certificate of Conformity

Prot: C3018032

Annex to certificate: **IECEx CES 14.0011U Issue No.:1** of 2023-08-24
Applicant: **CORTEM S.p.A.**
Via Aquileia 10, I - 34070 Villesse (GO), Italy
Electrical Apparatus: **Flexible conduits, series SP...**

General product information:
The flexible conduits series **SP...** are used to connect equipment that are offset, Ex-d housing or equipment subject to vibrations such as electrical motors. The flexible conduits series **SP...** are manufactured in agreement to standard ISO 10807:1994 "Corrugated flexible metallic hose assemblies for the protection of electrical cables in explosive atmospheres".

The flexible conduits can be also installed with ambient temperature from -60°C to +150°C. For the temperature -60°C, the fittings must be manufacturing only in stainless steel.

The flexible conduits series **SP...** are composed of:

- Continuous wall conduit ribbed with parallel spirals made of stainless steel AISI 321 or AISI 316L.
- Stainless steel AISI 304 plait sheaths.
- Revolving or fixed fittings made of EN 10025 S355JR (ASTM A105) or stainless steel AISI 303, AISI 304, AISI 316, AISI 316L.

The male and female fittings standard thread 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 threads from the above mentioned are admitted, in conformity with the manufacturer documentation.

Revolving fittings are covered by the IECEx CES 10.0002U certificate.

Type **B...** have ambient temperature -20°C +60°C for group IIB.
Type **B...** have ambient temperature -60°C +60°C for group IIB (only of stainless-steel material).
Type **R...** have ambient temperature -20°C +60°C for group IIC.
Type **R...** have ambient temperature -60°C +60°C for group IIC (only of stainless-steel material).
Type **RB...** have ambient temperature -20°C +150°C for group IIB.
Type **RB...** have ambient temperature -60°C +150°C for group IIB (only of stainless-steel material).

For low temperatures the materials used are made in stainless steel AISI 303, AISI 304, AISI 316, AISI 316L and that is suitable for applications to operating temperatures from -60°C to +150°C.

To guarantee the IP 66/67 degree of protection the flexible conduit series **SP...** 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 O-ring 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.

Types, sizes and threads of flexible conduit series **SP...** are listed on the following Table 1:

Table 1:

Flexible conduit series SP..		
Size code	**NPT Thread**	**ISO pitch 1,5 Thread**
1	1/2"	M 20
2	3/4"	M 25
3	1"	M 32
4	1¼"	M 40
5	1½"	M 50
6	2"	M 63
7	2½"	M 75
8	3"	M 90
9	3½"	--
10	4"	M 100

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Annex to certificate: **IECEx CES 14.0011U Issue No.:1** of 2023-08-24

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

Electrical Apparatus: **Flexible conduits, series SP...**

Identification of flexible conduit series SP..:

SP ** ** * * *

Code of the series

Type of fitting:
- **H, G, Z, RN, RI, RY, RD, RP, RE, RT** (group IIC)
- **N, I, Y, D, P, E, T** (group IIB)

Size of fitting:
- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Type of threads:
- **N:** NPT ANSI/ASME B1.20.1
- **I:** ISO 261 pitch 1,5
- **C:** GAS UNI 228-1
- **Blank:** Gk CEI EN 60079-1 Annex 1

Length of flexible conduit in dm:
ex. 2=200mm; 3=300mm etc.

Fitting material:
- **G:** galvanized carbon steel
- **S:** stainless steel

Examples:

- **SPH3N25G** Flexible conduits with fixed male-male fitting 1" NPT threads, length 250mm, made in galvanized carbon steel for T_{amb} -20°C ÷ +60°C.
- **SPRY7N2S** Flexible conduits with revolving male and fixed female fittings 2½" NPT threads, length 200mm, made in stainless steel for T_{amb} -60°C ÷ +150°C.

Ambient temperature

Flexible conduits are suitable for operating temperature of -60°C +150°C.

The temperature limits are listed in the following **Table 2:**

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

Electrical Apparatus: **Flexible conduits, series SP...**

The temperature limits.

Table 2:

	Flexible conduit type	Exec.	Manufacturing materials		Size	Ambient Temperature
			Fixed fitting	Revolving fitting (gasket)		
Fixed fittings	SPH – SPG SPZ	Ex-d IIC	Stainless steel	/	1/2" ÷ 1"	–20°C +150°C
			Galvanised steel	/	1¼" ÷ 4"	
	SPH – SPG SPZ	Ex-d IIC	Stainless steel	/	1/2" ÷ 4"	–60°C +150°C
Revolving fittings type B..	SPN – SPI SPY – SPD SPP – SPE SPT	Ex-d IIB	Stainless steel	Galvanised steel	1/2" ÷ 1"	–20°C +60°C
			Galvanised steel	Galvanised steel	1¼" ÷ 4"	
	SPN – SPI SPY – SPD SPP – SPE SPT	Ex-d IIB	Stainless steel	Stainless steel	1/2" ÷ 4"	–60°C +60°C
Revolving fittings type R..	SPRN – SPRI SPRY – SPRD SPRP – SPRE SPRT	Ex-d IIC	Stainless steel	Galvanised steel	1/2" ÷ 1"	–20°C +60°C
			Galvanised steel	Galvanised steel	1¼" ÷ 4"	
	SPRN – SPRI SPRY - SPRD SPRP – SPRE SPRT	Ex-d IIC	Stainless steel	Stainless steel	1/2" ÷ 4"	–60°C +60°C
Revolving fittings type RB..	SPRN – SPRI SPRY – SPRD SPRP – SPRE SPRT	Ex-d IIB	Stainless steel	Stainless steel	1/2" ÷ 4"	–60°C +150°C