



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 CES 14.0015X** Issue No.: **0** Certificate history:

Status: **Current**

Date of Issue: **2014-06-26** Page 1 of 3

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

Electrical Apparatus: **Barrier Cable Glands, series FB.., FBF.., FBN.. and FGAB..**
Optional accessory:

Type of Protection: **Flameproof enclosures 'd'; increased safety 'e'; Dust ignition protection 't'**

Marking: **Ex d IIC Gb
Ex e IIC Gb
Ex tb IIC Db
IP 66/67**

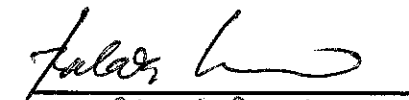
Approved for issue on behalf of the IECEx
Certification Body:

Mirko Balaz

Position:

Head of IECEx CB

Signature:
(for printed version)


26-6-2014

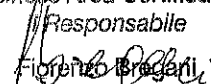
Date:

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:

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

CESI
CESI S.p.A.
Testing & Certification Division
Business Area Certification

Responsabile




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Manufacturer: **CORTEM S.p.A.**
Via Aquileia, 10
I - 34070 Villesse (Gorizia)
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 electrical 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 : 2007-04 Edition: 6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-31 : 2008 Edition: 1	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7 : 2006-07 Edition: 4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*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:

IT/CES/ExTR14.0018/00

Quality Assessment Report:

IT/CES/QAR06.0002/08



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Barrier cable glands series FB.. and FGAB.. are similar to normal cable glands, except a filling compound material is used to seal and clamp the individual cores of the cable, to prevent the transmission of an accidental internal ignition to the outside of the enclosure of the equipment on which they are mounted.

The composition of Barrier Cable Gland series is as follow:

- Type FB.. gland: Sealed cable gland for non armoured cable;
- Type FBF.. gland: Sealed cable gland for non armoured cable with female hub at exit;
- Type FBN.. gland: Sealed cable gland for non armoured cable with male hub at exit;
- Type FGAB.. gland: Sealed cable gland for armoured cable.

The Barrier cable glands type FB.. and FGAB.. have an operating temperature range from -20°C up to +100°C, while the ambient temperature range should be from -20°C up to +60°C.

The barrier cable glands characteristics are further described in the Annexe of this certificate.

CONDITIONS OF CERTIFICATION: YES as shown below:

- The coupling of the Barrier cable glands 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 Barrier cable glands are mounted.
- The Barrier cable glands shall be mounted at the electrical apparatus in such a way that accidental rotation and loosening will be prevented.
- When the cores will be fitted inside the sealing ring by filling compound, the mounting should guarantee a sufficient quantity of compound around each single core to ensure the clamping of the cemented joint. This shall be done as indicated in the manufacturer instruction.
- The Barrier cable glands should be installed within the following service temperature range:
 - from - 20°C up to +100°C.
- The degree of protection IP 66/67 according to the IEC 60529 standard will be guaranteed for the Barrier cable glands if the holes into which Barrier cable glands are mounted are suitably sealed. To this scope the correct positioning of the O-ring (for cylindrical threads) or the application of sealant on the threads (for tapered threads), shall be done as indicated in the manufacturer instruction.



IECEX Certificate of Conformity



Prot: B4016627

Annex to certificate:

IECEX CES 14.0015X Issue No.:0 of 2014-06-26

Applicant:

CORTEM S.p.a.,

Via Aquileia 10, I - 34070 Villesse (GO), Italy

Electrical Apparatus:

Barrier Cable Glands, series FB., FBF., FBN. and FGAB...

General product information:

Barrier cable glands series FB. and FGAB. are similar to normal cable glands, except a filling compound material is used to seal and clamp the individual cores of the cable, to prevent the transmission of an accidental internal ignition to the outside of the enclosure of the equipment on which they are mounted.

The Barrier cable glands series FB. and FGAB. are suitable for inserting single cable or multiple circular cores into Ex-d enclosures having threaded entries and Ex-e or Ex-tb enclosures having either threaded or plane entries. The barrier cable glands series FB. and FGAB... should be also used for intrinsically safe circuits Ex-i. These cable glands should have a part painted light blue.

Attachment of the glands to an enclosure is by means of the male threaded portion on the male body. An epoxy resin is used to facilitate sealing between the cores and gland body and to clamp the cables to prevent pulling or twisting forces being transmitted to the conductors connections. Ingress protection of IP66/67 is maintained when the glands are installed in accordance with the manufacturer's instructions.

The composition of Barrier cable gland series is as follow:

- Type FB. gland: Barrier cable gland for non-armoured cable;
- Type FBF. gland: Barrier cable gland for non-armoured cable with female hub at exit;
- Type FBN. gland: Barrier cable gland for non-armoured cable with male hub at exit;
- Type FGAB. gland: Barrier cable gland for armoured cable.

The Barrier cable glands type FB. and FGAB. have an operating temperature range from -20°C up to +100°C, while the ambient temperature range of installation should be from -20°C up to +60°C.

The Barrier cable glands standard threads types are NPT ANSI/ASME B1.20.1 from 1/2" up to 3" and cylindrical ISO Metric 965/1 and ISO 965/3 from M20x1.5 up to M90x1.5. Alternative available tapered threads are ISO 7/1 while for cylindrical threads are ISO 228/1.

Table 1

Barrier cable glands type FB. and FGAB.							
Size	Thread size		Cable characteristics				
	NPT	ISO pitch 1,5	Cable sheath dia. min. + max.	Armour sheath dia. (for FGAB. only) min. + max.	Conductor size min. + max. (mm ²)	Max. over core dia. (mm)	Max. No. of cores allowed (*)
1	1/2"	M 20	5 + 13	8 + 18	1,0 + 35,0	11,6	7
2	3/4"	M 25	11 + 18	17 - 25	1,5 + 70,0	16,1	12
3	1"	M 32	17 + 24	23 + 32	1,5 + 150,0	21,5	27
4	1 1/4"	M 40	23 + 30	29 + 39	1,5 + 400,0	26,8	37
5	1 1/2"	M 50	29 + 38	36 + 46	50,0 + 630,0	34,0	4
6	2"	M 63	36 + 49	44 + 60	50,0 + 630,0	43,8	5
7	2 1/2"	M 75	44 + 61	51 + 70	150,0 + 630,0	54,6	4
8	3"	M 90	59 + 74	65 + 84	240,0 + 300,0	66,2	4

(*) – For Conductor size - Max. No. of cores limits relationship details, referring to the manufacturer's documents.

PAD B4016627 (1970730) - USO RISERVATO



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Annex to certificate:

Applicant:

Electrical Apparatus:

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CORTEM S.p.a.,

Via Aquileia 10, I - 34070 Villesse (GO), Italy

Barrier Cable Glands, series FB., FBF., FBN. and FGAB...

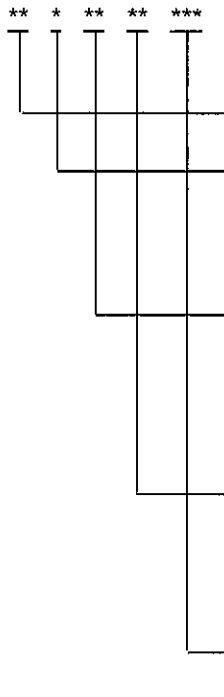
General product information (follows)

To guarantee the IP 66/67 degree of protection the Barrier cable glands series FB. and FGAB. with cylindrical threads have an 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.

The Barrier cable glands are generally made of Nickel plated brass. The alternative materials Galvanized Steel ASTM A203 or Stainless steel (type AISI316, AISI316L, AISI304 and AISI303) or Aluminium alloy can be supplied on demand.

Use of capillaries: The Capillaries made of copper alloy are suitable for temperature and pressure closed measurement system only. They can be used with Barrier cable gland size 1/2" and 3/4" type FB1, FB2, FBF1, FBF2, FBN1 and FBN2. Inside of Barrier cable gland could be mounted from one up to three capillaries (external diameter 1,5 or 1,6 mm). This mounting should be done only by the manufacturer.

Identification of Barrier cable glands



Code which identifies the type:

- **FB:** Barrier cable glands for non-armoured cable
- **FGAB:** Barrier cable gland for armoured cable

Size (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

Manufacturing material:

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

Anti-tearing nut:

- **Blank:** none
- **S:** with anti-tearing nut
- **c2S:** with anti-tearing nut and external gasket