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 CML 19.0035X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 1	Issue 0 (2019-08-14)
Date of Issue:	2021-09-15		
Applicant:	**Peppers Cable Glands Limited** Stanhope Road, Camberley, Surrey, GU15 3BT **United Kingdom**		
Equipment:	**EC**** Range of Barrier Cable Glands and Stopper Boxes**		
Optional accessory:			
Type of Protection:	**Flameproof "db", Increased Safety "eb", Restricted Breathing "nR", Dust Ignition "ta"**		
Marking:	Ex db I Mb Ex eb I Mb Ex db IIC Gb Ex eb IIC Gb Ex ta IIIC Da Ex nR IIC Gc *(Refer to description for service temperature)*		

Approved for issue on behalf of the IECEx Certification Body: **D R Stubbings BA MIET**

Position: **Technical Director**

Signature:
(for printed version)

Date:
(for printed version)

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Certificate issued by:

Eurofins E&E CML Limited
Unit 1, Newport Business Park
New Port Road
Ellesmere Port, CH65 4LZ
United Kingdom

IECEx Certificate of Conformity

Certificate No.: **IECEx CML 19.0035X**

Date of issue: 2021-09-15 Issue No: 1

Manufacturer: **Peppers Cable Glands Limited**
Stanhope Road, Camberley, Surrey, GU15 3BT
United Kingdom

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 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-15:2010 Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
Edition:4

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

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

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 Reports:

GB/CML/ExTR19.0074/00 GB/CML/ExTR21.0160/00

Quality Assessment Report:

GB/CML/QAR19.0022/02

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

The EC**** Range of Barrier Cable Glands & Stopper Boxes are metallic and are intended for use with differing cables or conductors dependent on their type.

Refer to Annex for full description and conditions of manufacture.

SPECIFIC CONDITIONS OF USE: YES as shown below:
Refer to Annex for specific conditions of use.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Refer to Annex for details of the changes

Annex:

Certificate Annex IECEx CML 19.0035X Iss 1_1.pdf

Annexe to:	IECEx CML 19.0035X Issue 1
Applicant:	Peppers Cable Glands Limited
Apparatus:	EC**** Range of Barrier Cable Glands and Stopper Boxes

Description

The **EC**** Range of Barrier Cable Glands & Stopper Boxes** are metallic and are intended for use with differing cables or conductors, dependent on their type. They allow the entry of the cable or conductors into flameproof, increased safety, restricted breathing and dust protected enclosures without compromising the explosion protection provided by the enclosure, in accordance with relevant codes of practice. All types comprise of various entry thread sizes, which are dependent upon gland size and their cable sealing ability range.

The EC**** Range of Barrier Cable Glands & Stopper Boxes, when installed with the silicone O-ring provided by the manufacturer, have an ingress protection rating of IP66 and IP68 (tested at a depth of 100 m for 7 days) and IPX9.

Ts = -60°C to 135°C for Peppers T1000 Compound

Ts = -60°C to 120°C for Peppers T2000 Compound

Design Options for all EC** Range of Barrier Cable Glands & Conduit Stopper Boxes**

Entry component and EC*-S conduit nut internal thread forms:**

- ISO Metric to BS3643-1:2007 (ISO 965-1) and BS 3643-3:2007 (ISO 965-3) 6g fit (male) 6H (female)
- NPT to ANSI/ASME B1.20.1:1983, gauging to clause 8
- NPSM to ANSI/ASME B1.20.1:1983, gauging to clause 9
- BSPT to BS 21:1985 (ISO 7/1) standard threads only clause 5.4, gauging to clause 5A, system A
- BSPP to BS 2779:1986 (ISO 228/1) class A full form external threads
- PG to DIN 40430:1971
- ET to BS 31:1940 (1979) Table A

All entry and conduit threads are within the dimensional parameters of the gland body and comply with clause 5.3 of IEC/EN 60079-1:2014 and Annex C Clause C.2.2.

Alternative metallic materials of manufacture (the asterisk in the type number is replaced with a letter designation for one of the material types below):

- Brass to BS EN 12164 / BS EN 12165 / BS EN 12168 CW614N CuZn39Pb3
- Ecobrass to C69300
- Stainless Steel to EN 10088-3 grades 316S11, 316S31 316L

Additionally, all metallic materials may be surface coated to limit electrolytic reaction between dissimilar materials, providing the coating does not alter the dimensions of the component part.

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The **EC*-U** Range of Barrier Cable** are suitable for use with unarmoured, braided and screened, circular cables; they comprise:

- A threaded entry body to tighten into an associated enclosure; this is optionally fitted with a silicone O-ring and internally coated with a release agent.
- A ferrule fitted with an external O-ring to aid assembly, which fits into the entry body to make a part chamber into which either “Peppers T1000 Compound” or “Peppers T2000 Compound” is applied to provide an inner seal around the conductors.
- A midcap nut that couples the entry body and ferrule together
- A back nut that screws into the seal housing to compress the outer sheath seal

Design options:

- A brass continuity washer may be fitted to all sizes that are used with lead inner sheathed cables, glands with this modification are designated with a ‘2’ in their type number.

Additional assembly options are described by the following designation coding: -

Gland Type:	**EC*-U****					
Available Part No’s.:	**E**	**C**	*****	**U**	*****	*****
			1		**2**	**B**
			2			**S**

Options:	EC1	Peppers T1000 Compound
	EC2	Peppers T2000 Compound
	2	Lead Sheath Cable Continuity Washer
	B	Brass material
	S	Stainless Steel material

Type EC*-U** Compound-Filled Cable Glands

Gland Size	Standard Entry threads		Max Ø over Cores	Max No of Cores		Outer Sheath		Inner Sheath Min T2000 Only
	Metric	NPT		T1000	T2000	Min	Max	
16S	M16	3/8”	8.9	12	12	3.4	8.4	4.0
16	M20	½”	10.4	15	15	3.4	8.4	4.0
20s	M20	½”	10.4	35	15	4.8	11.7	4.0
20	M20	½”	12.5	40	20	9.5	14.0	4.0
25	M25	¾”	16.5	60	30	11.7	18.5	8.0
32	M32	1	23.5	80	50	18.1	26.3	14.0

Gland Size	Standard Entry threads		Max Ø over Cores	Max No of Cores		Outer Sheath		Inner Sheath Min T2000 Only
	Metric	NPT		T1000	T2000	Min	Max	
40	M40	1	28.8	130	65	22.6	32.2	16.0
50s	M50	1	34.2	200	100	28.2	38.2	20.0
50	M50	2”	39.4	400	100	33.1	44.1	20.0
63s	M63	2”	44.8	400	130	39.3	50.1	30.0
63	M63	2 ½”	50.0	425	130	46.7	56.0	30.0
75s	M75	2 ½”	55.4	425	-	52.3	62.0	-
75	M75	3”	60.8	425	-	58.0	68.0	-
80	M80	3”	64.4	425	-	61.9	72.0	-
85	M85	3”	69.8	425	-	69.1	78.0	-
90	M90	3 ½”	75.1	425	-	74.1	84.0	-
100	M100	3 ½”	80.5	425	-	81.8	90.0	-

The **EC*-X** Range of Barrier Cable Glands** are suitable for use with, unarmoured, braided and screened, circular and non-circular cables. They may also be used as a line bushing for terminating flying leads or for the direct inter-connection of associated enclosures; they comprise:

- A threaded entry body to tighten into an associated enclosure; this is optionally fitted with a silicone O-ring and internally coated with a release agent.
- A ferrule fitted with an external O-ring to aid assembly, which fits into the entry body to make a part chamber into which either “Peppers T1000 Compound” or “Peppers T2000 Compound” is applied to provide an inner seal around the conductors.
- A midcap nut that couples the entry body and ferrule together

Design option:

- A brass continuity washer may be fitted in the 20S to 100 sizes that are used with lead inner sheathed cables, glands with this modification are designated with a ‘2’ in their type number.

Additional assembly options are described by the following designation coding: -

Gland Type:	**EC*-X****					
Available Part No's.:	**E**	**C**	*****	**X**	*****	*****
			1		**2**	**B**
			2			**S**

Options:	EC1	Peppers T1000 Compound
	EC2	Peppers T2000 Compound
	2	Lead Sheath Cable Continuity Washer
	B	Brass material
	S	Stainless Steel material

Type EC*-X** Compound-Filled Cable Glands

Gland Size	**Standard Entry threads**		**Max Ø over Cores**	**Max No of Cores**		**Outer Sheath Max**	**Inner Sheath Min T2000 Only**
	Metric	**NPT**		**T1000**	**T2000**		
16S	M16	3/8"	8.9	12	12	10.0	4.0
20s	M20	½"	10.4	35	15	11.7	4.0
20	M20	½"	12.5	40	20	14.0	4.0
25	M25	¾"	16.5	60	30	18.5	8.0
32	M32	1"	23.5	80	50	26.3	14.0
40	M40	1 ¼"	28.8	130	65	32.2	16.0
50s	M50	1 ½"	34.2	200	100	38.2	20.0
50	M50	2"	39.4	400	100	44.1	20.0
63s	M63	2"	44.8	400	130	50.1	30.0
63	M63	2 ½"	50.0	425	130	56.0	30.0
75s	M75	2 ½"	55.4	425	-	62.0	-
75	M75	3"	60.8	425	-	68.0	-
80	M80	3"	64.4	425	-	72.0	-
85	M85	3"	69.8	425	-	78.0	-
90	M90	3 ½"	75.1	425	-	84.0	-

Gland Size	Standard Entry threads		Max Ø over Cores	Max No of Cores		Outer Sheath Max	Inner Sheath Min T2000 Only
	Metric	NPT		T1000	T2000		
100	M100	3 ½”	80.5	425	-	90.0	-

The **EC*-C*** Range of Barrier Cable Glands** are suitable for use with circular, pliable wire, single wire and steel tape armoured cables along with braided/screened and unarmoured cables; they comprise:

- A threaded entry body to tighten into an associated enclosure, this optionally fitted with a silicone O-ring and internally coated with a release agent.
- A cone fitted with an external O-ring to aid assembly, which fits into the entry component to make a part chamber into which either “Peppers T1000 Compound” or “Peppers T2000 Compound” is applied to provide an inner seal around the conductors.
- A clamp ring that secures cable armour to the cone and also provides earth protection.
- A middle cap nut that fastens to the entry body to captivate the clamp ring, cone and compound.
- A back nut, enclosing a white, silicone, elastomeric, cable outer sheath seal and skid washer, that screws onto the external thread of the mid cap.

Design option:

- A brass continuity washer may be fitted in all the sizes that are used with lead inner sheathed cables, glands with this modification are designated with a ‘2’ in their type number.

Additional assembly options are described by the following designation coding: -

Gland Type:	**EC*-C***						
Available Part No’s.:	**E**	**C**	*****	**C**	*****	*****	*****
			1		**2**	**B**	**R**
			2			**S**	

Options:		
	EC1	Peppers T1000 Compound
	EC2	Peppers T2000 Compound
	2	Lead Sheath Cable Continuity Washer
	B	Brass material
	S	Stainless Steel material
	R	Reduced Bore option

Type EC*-C** Compound-Filled Cable Glands

Gland Size	Standard Entry thread		Inner sheath Min	Inner Sheath	Outer Sheath		Reduced Bore		Max dia over cores	Max No of cores T1000	Max No of cores T2000
	Metric	NPT	T2000 Only	Max	Min	Max	Min	Max			
16S	M16	3/8”	4.0	10.0	8.4	13.5	6.7	10.3	8.9	12	12
16	M20	½”	4.0	11.7	8.4	13.5	6.7	10.3	10.4	15	15
20S	M20	½”	4.0	11.7	11.5	16.0	9.4	12.5	10.4	35	15
20	M20	½”	4.0	14.0	15.5	21.1	12.0	17.6	12.5	40	20
25	M25	¾”	8.0	18.5	20.3	27.4	16.8	23.9	16.5	60	30
32	M32	1”	14.0	26.3	26.7	34.0	23.2	30.5	23.5	80	50
40	M40	1 ¼”	16.0	32.2	33.0	40.6	28.6	36.2	28.8	130	65
50S	M50	1 ½”	20.0	38.2	39.4	46.7	34.8	42.4	34.2	200	100
50	M50	2”	20.0	44.1	45.7	53.2	41.1	48.5	39.4	400	100
63S	M63	2”	30.0	50.1	52.1	59.5	47.5	54.8	44.8	400	130
63	M63	2 ½”	30.0	56.0	58.4	65.8	53.8	61.2	50.0	425	130
75S	M75	2 ½”	-	62.0	64.8	72.2	60.2	68.0	55.4	425	-
75	M75	3”	-	68.0	71.1	78.0	66.5	73.4	60.8	425	-
80	M80	3”	-	72.0	77.0	84.0	71.9	79.4	64.4	425	-
85	M85	3”	-	78.0	79.6	90.0	75.0	85.4	69.8	425	-
90	M90	3 ½”	-	84.0	88.0	96.0	82.0	91.4	75.1	425	-
100	M100	3 ½”	-	90.0	92.0	102.0	87.4	97.4	80.5	425	-

The **EC*-S** Range of Conduit Stopper Boxes** are suitable for use with circular cables, non-circular cables or conductors carried in conduit, providing a flameproof barrier entry into enclosures. Additionally, they may be used as a line bushing for terminating flying leads or for the direct inter-connection of associated enclosures; they comprise:

- A threaded entry body to tighten into an associated enclosure, this is optionally fitted with a silicone O-ring and internally coated with a release agent.
- A ferrule fitted with an external O-ring to aid assembly, which fits into the entry body to make a part chamber into which either a “Peppers T1000 Compound” or “Peppers T2000 Compound” is applied to provide an inner seal around the cable conductors or flying leads.
- A union nut that couples the entry body and ferrule together
- A conduit nut that is screwed and secured into the ferrule with adhesive.

Additional assembly options are described by the following designation coding: -

Gland Type:	**EC*-S****					
Available Part No’s.:	**E**	**C**	*** **1 2**	**S**	*** **B S**	*** **C F M**

Options:	1	Peppers T1000 Compound
	2	Peppers T2000 Compound
	B	Brass material
	S	Stainless Steel material
	C	Spiral Conduit Option
	F	Female conduit option
	M	Male conduit option

Type EC*-S** Compound-Filled Cable Glands

Stopper box size	Standard male connection thread size		Standard female connection thread sizes		Max Cable size inside fitting	Max Diameter over Cores	Max No of Cores		Min Cable Inner Sheath T2000 Only
	Metric	NPT	Metric	NPT			T1000	T2000	
16S	M16	3/8”	M16	3/8”	10.0	8.9	12	12	4.0
20	M20	½”	M20	½”	14.0	12.5	40	20	4.0
25	M25	¾”	M25	¾”	18.5	16.5	60	30	8.0

Stopper box size	Standard male connection thread size		Standard female connection thread sizes		Max Cable size inside fitting	Max Diameter over Cores	Max No of Cores		Min Cable Inner Sheath T2000 Only
	Metric	NPT	Metric	NPT			T1000	T2000	
32	M32	1”	M32	1”	26.3	23.5	80	50	14.0
40	M40	1 ¼”	M40	1 ¼”	32.2	28.8	130	65	16.0
50s	M50	1 ½”	M50	1 ½”	38.2	34.2	200	100	20.0
50	M50	2”	M50	2”	44.1	39.4	400	100	20.0
63s	M63	2”	M63	2”	50.1	44.8	400	130	30.0
63	M63	2 ½”	M63	2 ½”	56.0	50.0	425	130	30.0
75s	M75	2 ½”	M75	2 ½”	62.0	55.4	425	-	-
75	M75	-	M75	2 ½”	68.0**	60.8**	425	-	-
75	-	3”	-	3”	68.0	60.8	425	-	-
80	M80	3”	M80	3”	72.0	64.4	425	-	-
85	M85	3”	M85	3”	78.0	69.8	425	-	-
90	M90	3 ½”	M90	3 ½”	84.0	75.1	425	-	-
100	M100	3 ½”	M100	3 ½”	90.0	80.5	425	-	-
100	-	4”	-	4”	90.0	80.5	425	-	-
Note:	* 2 ½” NPT thread option (Max Cable Diameter = 65.0) (Max Diameter over Cores = 58.1) * 2 ½” NPSM thread option (Max Cable Diameter = 67.0) (Max Diameter over cores = 59.9)								

Design options:

1. All gland types may be manufactured with a larger thread size than the standard entry thread listed within the product description.
2. All gland types with the following alternate threaded entry threads complying with the requirements of IEC 60079-1 are intended to be used as replacement entry devices within existing installations with equipment that have threaded entries no longer permitted by the current edition of EN 60079-1
    - NPSM ANSI/ASME B1.20.1:1983
    - BSPT BS21:1985 (ISO 7/1; BS EN 10226-1:2004 ‘standard threads’
    - BSPP BS EN ISO 228-1 :2003; BS EN ISO 2228-2:2003 class A full form ‘external threads’
    - PG DIN 40430:1971

- ET BS 31:1940 (1979) Table ‘B’

All alternative trade size thread forms are manufactured within the dimensional parameter of the standard entry threads of the gland entry body, and relevant constructional compliance length and engagement requirements in accordance with their product markings.

Variation 1

This variation introduces the following modifications:

i. Minor editorial modification to certification drawings.
ii. Modification to EC-C and EC-U and EC-X cable glands internal component.

Conditions of Manufacture

None

Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

i. The cable glands/stopper boxes shall not be used in enclosures where the temperature, at the point of entry/mounting, is outside of the range -60°C to +135°C for Peppers T1000 Compound and, -60°C to +120°C for Peppers T2000 Compound.

ii. The interface seals comply with the requirements of the standards listed in this report when the cable glands are fitted to a representative enclosure having a smooth flat mounting surface. In practice the interface between the male thread of the glands and their associated enclosure cannot be defined, therefore it is the users’ responsibility to ensure that the appropriate ingress protection level is maintained at these interfaces.

iii. The parallel threaded entry component threads will be suitably sealed using a method that is applicable to the associated equipment to which the gland will be attached. This will be in accordance with the relevant installation code of practice and will ensure that any ingress protection and restricted breathing sealing requirements are maintained.

iv. The threaded entry component threads without interface O-ring seals installed in an explosive dust atmosphere, within threaded entries, shall only be fitted into enclosures that have either:

- parallel entries that will ensure that a minimum of 5 full threads of contact will be maintained, this is in accordance with clause 5.1.2 of IEC 60079-31:2014
- tapered entries that will ensure that a minimum of 3 ½ full threads of contact will be maintained, this is in accordance with clause 5.1.2 of IEC 60079-31:2014

v. Cable glands sizes 75 up to 100 are not available with the Peppers T2000 Compound material option.

vi. Cable glands with sizes 16S, 20S and 20 shall not be used for Group I, EPL Mb applications where there is a ‘high’ risk of mechanical damage.

Components covered by Ex Certificates issued to older editions of Standards

None