



1 **TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 09ATEX1221X** Issue: **0**

4 Equipment: **Cable Glands, Barrier Glands and Stopper Boxes**
(Refer to Description of Equipment for specific types)

5 Applicant: **Peppers Cable Glands Limited**

6 Address: Stanhope Road
Camberley
Surrey GU15 3BT
UK

7 This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

8 Sira Certification Service certifies that this equipment has been found to comply with the Essential Health and Safety Requirements that relate to the design of Category 3 equipment, which is intended for use in potentially explosive atmospheres. These Essential Health and Safety Requirements are given in Annex II to European Union Directive 94/9/EC of 23 March 1994.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 60079-0:2006 EN 60079-15:2005 EN 61241-0:2006 EN 61241-1:2004

10 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This TYPE EXAMINATION CERTIFICATE relates only to the design of the specified equipment, and not to specific items of equipment subsequently manufactured.

12 The marking of the equipment shall include the following:



II 3GD
Ex nR II
Ex tD A21 IP6*

C Ellaby
Certification Officer

Project Number 51A20257
C. Index 07

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13 DESCRIPTION OF EQUIPMENT

TYPE CR** CABLE GLANDS**

The Type CR**** may be supplied in gland sizes M16 to M100, with entry thread sizes M20 to M100 or with the equivalent size NPT, NPSM, BSPT, PG or ET entry thread forms. They are intended for use with effectively fitted and circular armoured, unarmoured, braided or screened sheathed cables and comprise the following components:

- An entry component
- An elastomeric inner sealing ring
- A metal inner skid washer
- A compression nut
- An armour clamping cone
- A tapered clamp ring
- A middle nut
- An elastomeric outer sealing ring
- A nylon outer skid washer
- A back nut

Assembly options are described by the following designations:

C	R	*	*	*	*
		D	1	B	R
			2	S	
			3		

Where:

- D = Omission Of Outer Seal
- 1 = Neoprene Seals
- 2 = Lead Sheath Cable Continuity Washer
- 3 = Silicone Seals
- B = Brass Material
- S = 316 Stainless Steel Material
- R = Reduced Bore Option

The CR1*, CR2*, CR3*, CRD1* and CRD3* cable glands may be marked IP68; this indicates that they have been tested at a depth up to 25 m for a duration of 30 minutes when fitted into either threaded entries or 'Ex e' enclosures that have plain hole entries with 0.5 mm clearances.

Type CR2* Cable Glands:

The Type CR2* Cable Glands are used with lead inner sheathed cables. They are formed by using a brass continuity washer within the Type CR1* Cable Glands. The Type CR2* Cable Glands are available with ISO metric entry threads of M20 to M100 (alternative thread forms are available in equivalent sizes) in cable gland sizes 20s through to 100, they can be made from either brass (B), stainless steel (S) and fitted with an optional reduced bore outer seal (R).

Type CRD1*, Type CRD2* & Type CRD3* Cable Glands

The Type CRD1*, CRD2* and CRD3* Cable Glands are used with armoured, unarmoured, braided or screened sheathed cables. They are formed by removing the outer cap, outer seal and outer skid washer from the Type CR** cable glands and fitting an alternative middle cap component, in addition these glands are fitted with an O-ring entry body seal. The Type CRD1*, CRD2* and CRD3* Cable Glands are available with ISO metric entry threads of M20 to M100 (alternative thread forms are available in equivalent sizes) in cable gland sizes 16 through to 100, they can be made from either brass (B) or stainless steel (S).



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A8*F, D8X*F & E8X*F CABLE GLANDS

These cable glands are intended for use with flat profile cables. The A8*F range may be used with any cable type where sealing and retention is required by gripping the outer sheath (this includes armoured/screened/braided cables, the armour/screen/braid being clamped inside the terminating equipment). The D8X*F and E8X*F have an additional clamp to grip copper braid and woven steel wire armour. The D8X*F seals and grips the inner sheath and the E8X*F seals and grips the inner and outer sheaths. Construction materials are brass, mild steel or stainless steel. In all cases, the seal materials are silicone.

Glands are available in the size range 20S, 20R and 20 with an M20 x 1.5 metric entry thread. Alternative equivalent size entry thread forms are available.

Assembly options are described by the following designations:

A	8	*	F	Where:	
		B		B = Brass Material	
		S		S = 316 Stainless Steel Material	
D	8	X	*	F	Where:
			B		B = Brass Material
			S		S = 316 Stainless Steel Material
E	8	X	*	F	Where:
			B		B = Brass Material
			S		S = 316 Stainless Steel Material



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E****F* & D****F CABLE GLANDS

The E****F* and D****F ranges of cable glands are intended for use with SWA/Tape/Woven Steel Wire armoured cables. Each comprises a threaded entry body, elastomeric sealing ring, armour cone, clamp ring and compression cap. The entry body is available with an optional outer deluge seal or an integral earthing clamp. D****F glands have a single flameproof seal and the E****F* glands have a double seal arrangement of flameproof and outer IP seal with extra compression cap and skid washer to suit. Seals are available in silicone, neoprene, conductive neoprene or lead. Each gland type is available with an optional earth clamp arrangement on the entry body.

Glands are available in the size range 16 to 100 with ISO metric entry threads of M16 to M100 respectively. Glands with lead seals are only available in sizes up to 50 mm. Alternative thread forms and sizes ISO metric, NPT, NPSM, BSPT, BSPP, PG and ET are available. The E****F*, and D****F glands have an IP66/68 rating and the C**L**E* glands have an IP66 rating.

Assembly options are described by the following designations:

E	*	*	*	*	F	*
	1	W	B	IE		R
	2	X	S			
	3	Z				

Where:

- 1 = Neoprene Seals
- 2 = Lead Sheath Cable Continuity Washer
- 3 = Silicone Seals
- W = Steel Wire Armour Option
- X = Woven Steel Wire Armour Option
- Z = Steel Tape Armour Option
- B = Brass Material
- S = 316 Stainless Steel Material
- IE = Integral Earth Option
- R = Reduced Bore Option

D	*	*	*	*	F
	1	W	B	IE	
	2	X	S		
	3	Z			

Where:

- 1 = Neoprene Seals
- 2 = Lead Sheath Cable Continuity Washer
- 3 = Silicone Seals
- W = Steel Wire Armour Option
- X = Woven Steel Wire Armour Option
- Z = Steel Tape Armour Option
- B = Brass Material
- S = 316 Stainless Steel Material
- IE = Integral Earth Option
- R = Reduced Bore Option



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Type A*L*** CABLE GLANDS

The type A*L*** range of cable glands is intended for use with any cable type where sealing and retention is required by gripping the outer sheath (this includes armoured/screened/braided cables, the armour/screen/braid being clamped inside the terminating equipment). Construction materials are brass, mild steel, stainless steel or aluminium alloy. Glands are available in a single or double seal configuration and utilise a silicone or neoprene seal. The single seal configuration is available with a compression nut, which will accept either male or female conduit.

Glands are available in the size range 16 to 100 mm with ISO metric entry threads of M20 to M100 respectively. Alternative thread forms are available.

Assembly options are described by the following designations:

A	*	L	*	F	Where:
	2		B		2 = Neoprene Seals
	3		S		3 = Silicone Seals
	4		A		4 = Lead Sheath Cable Continuity Washer
					B = Brass Material
					S = 316 Stainless Steel Material
					A = Aluminium

A	*	L	DS	*	F	Where:
	2			B		2 = Neoprene Seals
	3			S		3 = Silicone Seals
	4			A		4 = Lead Sheath Cable Continuity Washer
						B = Brass Material
						S = 316 Stainless Steel Material
						A = Aluminium

A	*	L	*	*	F	Where:
	2		CF	B		2 = Neoprene Seals
	3		CM	S		3 = Silicone Seals
	4			A		4 = Lead Sheath Cable Continuity Washer
						CF = Conduit Female Entry
						CM = Conduit Male Entry
						B = Brass Material
						S = 316 Stainless Steel Material
						A = Aluminium

The A*L*** cable glands may be marked IP68; this indicates that they have been tested at a depth up to 25 m for a duration of 30 mins when fitted into either threaded entries or 'Ex e' enclosures that have plain hole entries with 0.5 mm clearances.



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CR**** BARRIER CABLE GLANDS AND STOPPER BOXES

The **CR**** Barrier Cable Glands & Stopper Boxes** are metallic and are intended for use with differing cables or conductors dependant on their type. They allow the entry of the cable or conductors into flameproof 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 CR**** Range of Barrier Cable Glands & Stopper Boxes, when installed with the silicone 'O' ring provided by the manufacturer, have an ingress protection rating of IP68 (tested at a depth of 100 m for 30 minutes).

Glands are available in the size range 20 to 100 mm with ISO metric entry threads of M20 to M100 respectively. Alternative thread forms are available.

The **CR-U** Barrier Cable Glands** are suitable for use with unarmoured cables; they comprise:

- a threaded entry body to tighten into an associated enclosure; this is fitted with a silicone O-ring and internally coated with a release agent
- a ferrule, fitted with an external nitrile O-ring, which fits into the entry body to make a part chamber into which a two-part "elastomeric" epoxy putty setting compound is applied to provide an inner seal around the conductors
- a union nut that couples the entry body and ferrule together
- a seal housing, enclosing a white silicone, elastomeric, cable outer sheath seal and a plastic skid washer, that is screwed and secured into the ferrule with Loctite 2701 adhesive
- a back nut that screws into the seal housing to compress the outer sheath seal

Assembly options are described by the following designations:

C	R	U	*	*	Where:
			2	B	2 = Lead Sheath Cable Continuity Washer
				S	B = Brass Material
					S = 316 Stainless Steel Material

The **CR-X** Barrier Cable Glands** are suitable for use with, unarmoured, braided and screened cables; they comprise:

- a threaded entry body to tighten into an associated enclosure; this is fitted with a silicone O-ring and internally coated with a release agent
- a ferrule, fitted with an external nitrile O-ring, which fits into the entry body to make a part chamber into which a two-part "elastomeric" epoxy putty setting compound is applied to provide an inner seal around the conductors.
- a union nut that couples the entry body and ferrule together
- a back nut that is screwed and secured into the ferrule with Loctite 2701 adhesive

Assembly options are described by the following designations:

C	R	X	*	*	Where:
			2	B	2 = Lead Sheath Cable Continuity Washer
				S	B = Brass Material
					S = 316 Stainless Steel Material



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The **CR-C*** 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 fitted with a silicone O-ring and internally coated with a release agent.
- a cone, fitted with an external nitrile O-ring, which fits into the entry component to make a part chamber into which a two part "elastomeric" epoxy putty setting 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 mid-cap component that fastens to the entry body to captivate the clamp ring, cone and epoxy putty.
- 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.

Assembly options are described by the following designations:

C	R	C	*	*	*	Where:
			2	B	R	2 = Lead Sheath Cable Continuity Washer
				S		B = Brass Material
						S = 316 Stainless Steel Material
						R = Reduced Bore Option

The **CR-S* Conduit Stopper Boxes** are suitable for use with conductors carried in conduit, providing a flameproof barrier entry into enclosures and as a line bushing for terminating flying leads; they comprise:

- a threaded entry body to tighten into an associated enclosure, this is fitted with a silicone O-ring and internally coated with a release agent
- a ferrule, fitted with an external nitrile O-ring, which fits into the entry body to make a part chamber into which a two-part "elastomeric" epoxy putty setting compound is applied to provide an inner seal around the conductors.
- a union nut that couples the entry body and ferrule together
- a conduit nut that is screwed and secured into the ferrule with Loctite 2701 adhesive.

Assembly options are described by the following designations:

C	R	S	*	Where:
			B	B = Brass Material
			S	S = 316 Stainless Steel Material

The **CX-C*** Barrier Cable Glands** are versions of the CR-C** size 20s and 20 cable glands that are fitted with an alternative, cone component. These glands are only suitable for braided cables.

Assembly options are described by the following designations:

C	X	C	*	*	*	Where:
			2	B	R	2 = Lead Sheath Cable Continuity Washer
				S		B = Brass Material
						S = 316 Stainless Steel Material
						R = Reduced Bore Option



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14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report No.	Comment
1	13 August 2009	R51A20257A	The release of the prime certificate.

15 SPECIAL CONDITIONS FOR SAFE USE

15.1 The following conditions apply to the Type CR** Cable Glands.**

15.1.1 Glands fitted with neoprene sealing rings (black) shall not be used in enclosures where the temperature, at the point of mounting, is outside the range of -20°C to +85°C. Glands fitted with silicone sealing rings (white or red) shall not be used in enclosures where the temperature, at the point of mounting, is outside the range of -60°C to +180°C.

15.1.2 When the gland is used with increased safety and/or dust protected equipment, the entry thread shall be suitably sealed to maintain the ingress protection rating of the associated enclosure.

15.1.3 If the CR1*, CR2*, CR3*, CRD1* and CRD3* types of cable glands only grip the outer sheath of the cable and do not clamp the cable armour or if they are used to terminate unarmoured, braided or screened cables, then they shall only be used for fixed installations, hence, the cables shall be effectively clamped to prevent pulling or twisting.

15.1.4 An ingress protection rating of IP68 is assigned to the CR**** range of cable glands provided that at the interface the surface is flat, the hole for the equipment is drilled straight to an appropriate diameter, the limiting temperature is not exceeded and the chemical resistance properties of the O-rings or sealing washers are suitable for the intended application.

15.2 The following conditions apply to the A8*F, D8X*F & E8X*F Cable Glands.

15.2.1 The A8*F, D8X*F and E8X*F ranges of cable glands shall not be used in enclosures where the temperature, at the point of mounting, is outside the range of -60°C to +180°C.

15.2.2 The A8*F, D8X*F and E8X*F range of cable glands shall only be used for fixed installations, in addition, the cables must be effectively clamped to prevent pulling or twisting.

15.2.3 Although the interface is not covered by this certificate, when fitted in accordance with the manufacturer's instructions, the manufacturer declares an IP rating of IP68 and ensures the temperature range and chemical resistance properties of the O-rings or sealing washers are suitable for the intended application. This indicates that they have been tested at a depth of 25 m for a duration of 30 minutes when fitted into either threaded entries or Ex e enclosures that have plain hole entries with 0.5mm clearances.

15.2.4 An ingress protection rating of IP68 is assigned to the A8*F, D8X*F and E8X*F range of cable glands provided that at the interface the surface is flat, the hole for the equipment is drilled straight to an appropriate diameter, the limiting temperature is not exceeded and condition 15.2.3 is met.

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- 15.3 The following conditions apply to the **E****F* & D****F Cable Glands**.
- 15.3.1 The E****F* and D****F range of cable glands shall not be used in enclosures where the temperature, at the point of contact exceeds the following temperature.
- 20°C to +85°C for neoprene seal variants
 - 60°C to +180°C for the silicone seal variants
- 15.3.2 Although the interface is not covered by this certificate, when fitted in accordance with the manufacturer's instructions, the manufacturer declares an IP rating of IP68 on E****F*, and D****F gland types and ensures the temperature range and chemical resistance properties of the O-rings or sealing washers are suitable for the intended application. This indicates that they have been tested at a depth of 25 m for a duration of 30 minutes when fitted into either threaded entries or Ex e enclosures that have plain hole entries with 0.5 mm clearances.
- 15.3.3 An ingress protection rating of IP66 and IP68 is assigned by the manufacturer to the E****F* and D****F range of cable glands, provided that at the interface the surface is flat, the hole for the equipment is drilled straight to an appropriate diameter, the limiting temperature is not exceeded and conditions 15.3.1 or 15.3.2 are met.
- 15.4 The following conditions apply to the **A*L*** Cable Glands**.
- 15.4.1 The A*L*** cable glands shall not be used in enclosures where the temperature at the point of entry/mounting exceeds the following.
- 20°C to +85°C for the Neoprene (black) seal variants
 - 60°C to +180°C for the Silicone (white) seal variants
- 15.4.2 The cable entries are only suitable for fixed installations. Cables must be effectively clamped to prevent pulling or twist.
- 15.4.3 An ingress protection rating of IP66 and IP68 is assigned to the A*L*** range of cable glands provided that at the interface the surface is flat, the hole for the equipment is drilled straight to an appropriate diameter, the limiting temperature is not exceeded and the temperature range and the chemical resistance properties of the O-rings or sealing washers are suitable for the intended application.
- 15.5 The following conditions apply to the **CR**** Barrier Cable Glands and Stopper Boxes**
- 15.5.1 The cable glands shall not be used in enclosures where the temperature, at the point of mounting, is outside the range of -60°C to +85°C.
- 15.5.2 An ingress protection rating of IP68 is assigned to the CR**** range of cable glands provided that at the interface the surface is flat, the hole for the equipment is drilled straight to an appropriate diameter, the limiting temperature is not exceeded and the chemical resistance properties of the O-rings or sealing washers are suitable for the intended application
- 16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS (EHSRs)**
- The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed reports listed in Section 14.2.
- 17 **CONDITIONS OF CERTIFICATION**
- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.
- 17.2 Holders of Type Examination Certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.

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Sira Certification Service

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Certificate Annexe

Certificate Number: Sira 09ATEX1221X
Equipment: Cable Glands, Barrier Glands
and Stopper Boxes
Applicant: Peppers Cable Glands Limited



Issue 0

Drawing	Sheets	Rev.	Date	Title
PCG/ATX/CRD	1 of 1	3	23 Jul 09	CR-D** Family General arrangement
PCG/ATX/CR	1 of 1	5	23 Jul 09	CR-*** Family General arrangement
PCG/ATX/UF	1 of 1	4	23 Jul 09	Type A8*F General Arrangement
PCG/ATX/BF	1 of 1	4	23 Jul 09	Types D8*F and E8*F General Arrangement
PCG/ATX/E1W	1 of 4	5	23 Jul 09	E****F and D****F Family General Arrangement
PCG/ATX/E1W	2 of 4	5	23 Jul 09	E****F and D****F Family General Arrangement
PCG/ATX/A2L	1 of 1	6	23 Jul 09	A*L*** Family General Arrangement
PCG/ATX/CR-C	1 of 1	5	23 Jul 09	CR-C Family General Arrangement
PCG/ATX/CR-U	1 of 1	4	23 Jul 09	CR-U and CR-X Family General Arrangement
PCG/ATX/CR-S	1 of 1	3	23 Jul 09	CR-S Family General Arrangement

In addition to the above drawings, other documents associated with the existing certification identified in report number R51A20257A are also relevant.

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