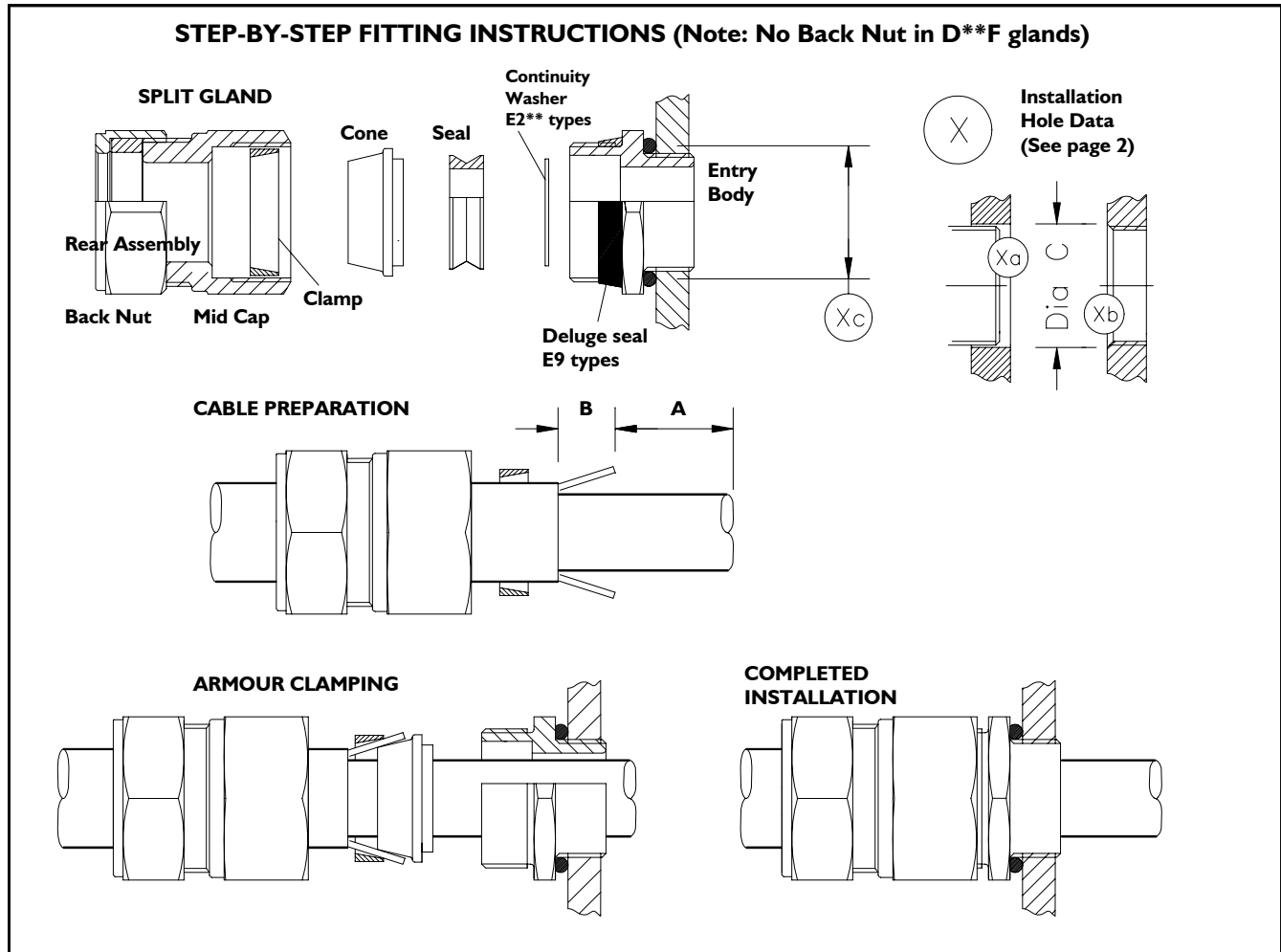


**Brief Description** The Peppers E\*\*F type cable gland is for outdoor use in the appropriate Hazardous Areas with armoured cable. It gives environmental protection to IP66/67. The type IE option has an earth stud on the entry body. D\*\*F type glands are for indoor use and offer IP54 environmental protection. A termination suitable for EMC protection can be made using armoured cables with these glands. Clamp options allow woven steel wire and steel tape armours. A variant giving electrical continuity to a lead sheath is available.



**Warning**

PLEASE STUDY CAREFULLY BOTH PAGES OF THESE INSTRUCTIONS BEFORE INSTALLATION. These glands should not be used in any application other than those mentioned here or in our Data Sheets, unless Peppers states in writing that the product is suitable for such application. Peppers can take no responsibility for any damage, injury or other consequential loss caused where the glands are not installed or used according to these instructions. This leaflet is not intended to advise on the selection of cable glands. Further guidance can be found in the standards listed overleaf.



**STEP-BY-STEP FITTING INSTRUCTIONS (NOTE: No Back Nut in D1W gland)**

- 1 Split gland as shown. Remove Seal to reduce cable damage. E2 types:- remove Continuity Washer. E9 types:- remove Deluge Seal.
- 2 Check Clamp:- FOR KITS E1L/D1L/E9L ETC:- Use PLAIN clamp ring for wire armour. Use GROOVED clamp ring IN BAG for woven steel wire or tape armour.
- 3 Fit Entry Body. For correct torque see page 2. DO NOT EXCEED MAX TORQUE FOR ENCLOSURE.
- 4 Slide Rear Assembly including Clamp onto cable as shown.
- 5 Prepare cable as shown in diagram.
  - A Strip outer jacket and armour, length to suit installation. For lead sheathed cable the lead sheath must pass through the Continuity Washer when installation is complete.
  - B Expose armour approx. 20mm long.
- 6 Slide Cone onto inner sheath and under armour. Slide Clamp onto exposed armour.
- 7 Insert cable through Entry Body. DO NOT RE-FIT SEAL OR CONTINUITY WASHER.
- 8 Tighten Mid Cap to Entry Body to make-off armour. FOR CORRECT TORQUE SEE PAGE 2.
- 9 Loosen off Mid Cap to visually check armour is securely locked. Pull out cable from Entry Body.
- 10 RE-FIT SEAL (AND CONTINUITY WASHER ON E2 TYPES) (AND DELUGE SEAL ON E9 TYPES). Re-insert cable through Continuity Washer, Seal and Entry Body. For lead sheathed cable the Continuity Washer must be in contact with the lead sheath and must be in front of the seal.
- 11 Re-tighten Mid Cap to correct torque.
- 12 Hold Mid Cap with wrench and tighten Back Nut onto cable. Ensure Seal makes full contact with cable sheath, then tighten Back Nut 1 extra turn

**X INSTALLATION HOLE DATA**

- Xa** Diameter C for clearance holes (NOT EExd)  
**Xb** Diameter C countersink for threaded holes (EExd)     **Xc** Diameter O of O-ring seat

X Hole data (see overleaf)		Cable Sizes (mm), Armour Acceptance (mm) & Assembly Torques (Nm)								NOTE:- ** Type 3 seals only to 11.0mm diameter					
		Gland Size	Torque Settings	Inner Sheath		Outer Sheath		Reduced Bore		Armour Acceptance Ranges					
Dia Xc	Dia Xa/Xb			Min	Max	Min	Max	Min	Max	Wire		Tape Armour		Woven steel wire	
18.5	16.5	16	32.5	3.5	8.4	8.4	13.5	4.9	10.0	0.9		0.15	0.35	0.2	0.3
22.2	20.5	20S	32.5	8.0	11.7	12.9	16.0	9.4	12.5	0.9	1.25	0.15	0.35	0.2	0.3
22.2	20.5	20	32.5	6.7**	14.0	15.5	21.1	12.0	17.6	0.9	1.25	0.15	0.5	0.2	0.3
27.9	25.5	25	47.5	13.0	20.0	20.3	27.4	16.8	23.9	1.25	1.6	0.15	0.5	0.2	0.45
35.5	32.5	32	55.0	19.0	26.3	26.7	34.0	23.2	30.5	1.6	2.0	0.15	0.55	0.3	0.45
43.5	40.5	40	65.0	25.0	32.2	33.0	40.6	28.6	36.2	1.6	2.0	0.2	0.6	0.3	0.45
53.5	50.5	50S	80.0	31.5	38.2	39.4	46.7	34.8	42.4	2.0	2.5	0.2	0.6	0.3	0.45
53.5	50.5	50	80.0	36.5	44.1	45.7	53.2	41.1	48.5	2.0	2.5	0.5	0.8	0.3	0.45
66.5	63.5	63S	95.0	42.5	50.1	52.1	59.5	47.5	54.8	2.5		0.5	0.8	0.3	0.45
66.5	63.5	63	95.0	49.5	56.0	58.4	65.8	53.8	61.2	2.5		0.5	0.8	0.3	0.45
78.5	75.5	75S	110.0	54.5	62.0	64.8	72.2	60.2	68.0	2.5		0.5	1.0	0.3	0.45
78.5	75.5	75	110.0	60.5	68.0	71.1	78.0	66.5	73.4	2.5		0.5	1.0	0.3	0.45
83.5	80.5	80	150.0	62.2	72.0	77.0	84.0	N/A	N/A	3.15	0.5	1.0	0.45		
83.5	80.5	80H	150.0	62.2	72.0	79.6	90.0	N/A	N/A	3.15	0.5	1.0	0.45		
88.5	85.5	85	150.0	69.0	78.0	79.6	90.0	75.0	85.4	3.15	0.5	1.0	0.45		
93.5	90.5	90	225.0	74.0	84.0	88.0	96.0	N/A	N/A	3.15	0.5	1.0	0.45		
93.5	90.5	90H	225.0	74.0	84.0	92.0	102.0	N/A	N/A	3.15	0.5	1.0	0.45		
103.5	100.5	100	225.0	82.0	90.0	92.0	102.0	87.4	97.4	3.15	0.5	1.0	0.45		

**Installation Guidance**

Point	Advice
1	<ul style="list-style-type: none"> <li>◆ BS EN 60079-10 Classification of Hazardous Areas</li> <li>◆ BS EN 60079-14 Electrical Installations in hazardous areas (other than mines)</li> <li>◆ BS 6121, Part 5 Selection, Installation and Maintenance of Cable Glands</li> </ul>
2	Installation should only be carried out by a competent electrician, skilled in cable gland installation.
3	NO INSTALLATION SHOULD BE CARRIED OUT UNDER LIVE CONDITIONS.
4	To maintain Ingress Protection ratings above IP54, use IP washers or O-rings for parallel threads. For taper threads use thread sealant. Also see page 1 diagram and Hole Data above.
5	The surface of the enclosure should be sufficiently flat and rigid to make both the IP joint, and earth contact where needed. With painted enclosures, a star washer should be fitted to break through the paint and make a satisfactory earth contact.
6	Once installed do not dismantle except for occasional inspection. If necessary, dismantle by reversing the Fitting Instructions given above. The gland is not serviceable and spare parts are not supplied.
7	Parts are not interchangeable with any other design. If manufacturers' parts are mixed, certification will be invalidated.


**Limitations on Usage.** Be sure your installation complies with the following:-

Feature	Comment																									
Enclosure entry thread	The female thread in the enclosure must comply with clause 5.3 of EN 50018, or clause 5.3 of IEC 79-1, as appropriate. Do not damage threads on assembly. Check the number of full turns of thread engaged is at least 5.																									
Cable construction	The glands should only be used with substantially round and compact cables with extruded bedding (i.e. effectively filled cables).																									
Installation conditions	<table border="1"> <thead> <tr> <th>Gas Group?</th> <th>Internal Ignition Source?</th> <th>Enclosure Volume?</th> <th>Which Zone?</th> <th>Use Type E**F/D**F Gland?</th> </tr> </thead> <tbody> <tr> <td>IIC</td> <td>NO</td> <td>2 litres or less</td> <td>Zone 1 or 2</td> <td>YES</td> </tr> <tr> <td>IIB, IIA, II</td> <td>NO</td> <td>Any</td> <td>Zone 1 or 2</td> <td>YES</td> </tr> <tr> <td>IIB, IIA, II</td> <td>YES</td> <td>Any</td> <td>Zone 2</td> <td>YES</td> </tr> <tr> <td>IIB, IIA, II</td> <td>YES</td> <td>2 litres or less</td> <td>Zone 1</td> <td>YES</td> </tr> </tbody> </table>	Gas Group?	Internal Ignition Source?	Enclosure Volume?	Which Zone?	Use Type E**F/D**F Gland?	IIC	NO	2 litres or less	Zone 1 or 2	YES	IIB, IIA, II	NO	Any	Zone 1 or 2	YES	IIB, IIA, II	YES	Any	Zone 2	YES	IIB, IIA, II	YES	2 litres or less	Zone 1	YES
	Gas Group?	Internal Ignition Source?	Enclosure Volume?	Which Zone?	Use Type E**F/D**F Gland?																					
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IIB, IIA, II	YES	Any	Zone 2	YES																						
IIB, IIA, II	YES	2 litres or less	Zone 1	YES																						

**Interpretation of Markings.** Markings on the outside of this gland carry the following meanings: **Cable Gland Type & Size E-a-b-IE-c-FR-ddd-eee-IP67-nn**  
**a** = Seal Type 1 = Neoprene (black - temp range -20° to +85°C) 2 = Neoprene with Continuity washer for lead sheathed cable 3 = Silicone (white or red - temp range -60° to +180°C) ;  
**b** = Armour clamping **W** = single wire armour **XZ** = woven steel wire/tape **L** = Kit for W and XZ  
**IE** = Integral Earth stud option  
**c** = Main component material **none** = brass **S** = stainless steel ;  
**R** = Optional reduced bore outer seal (red silicone)  
**ddd** = Gland size ;  
**eee** = Entry thread type and size ;  
**IP67** = Ingress Protection code  
**nn** = year of manufacture

**Protection Concept and Gas Groups EEx d IIC / EEx e II (CENELEC & ATEX) ; Ex d IIC / Ex e II (IEC) ;** Ex d = Flameproof ; Ex e = Increased Safety ; IIC = suitable for Gas Group IIC (e.g. hydrogen) ignitable gas/air mixtures, and also Groups IIB and IIA ; II = combined Gas Group

**Certificate Numbers** (ATEX) **SIRA 01ATEX1271X** The 'X' suffix denotes 'Special Conditions for Safe Use' (see below)  
 (IEC) **IECEx SIR 05.0020X** The 'X' suffix denotes 'Conditions of Certification' (see below)

**ATEX (EU Directive 94/9/EC) Markings**  **II 2 GD** - Equipment Group II (Non-Mining) for Category 2 (Zone 1) with potentially explosive gas mixtures or combustible dusts

**ATEX Special Conditions for Safe Use**

- (1) These glands must not be used with EExd IIC enclosures with a volume greater than 2 litres.
- (2) These glands must not be used with enclosures where the temperature at the point of mounting exceeds -20°C to +85°C using neoprene seals, or -60° to +180°C using silicone seals.

**IEC Ex Conditions of Certification**

- (1) These glands are certified with one specific size of flameproof sealing ring per gland size as supplied.
- (2) These glands must not be used with enclosures where the temperature at the point of mounting exceeds -20°C to +85°C using neoprene seals, or -60° to +180°C using silicone seals.