

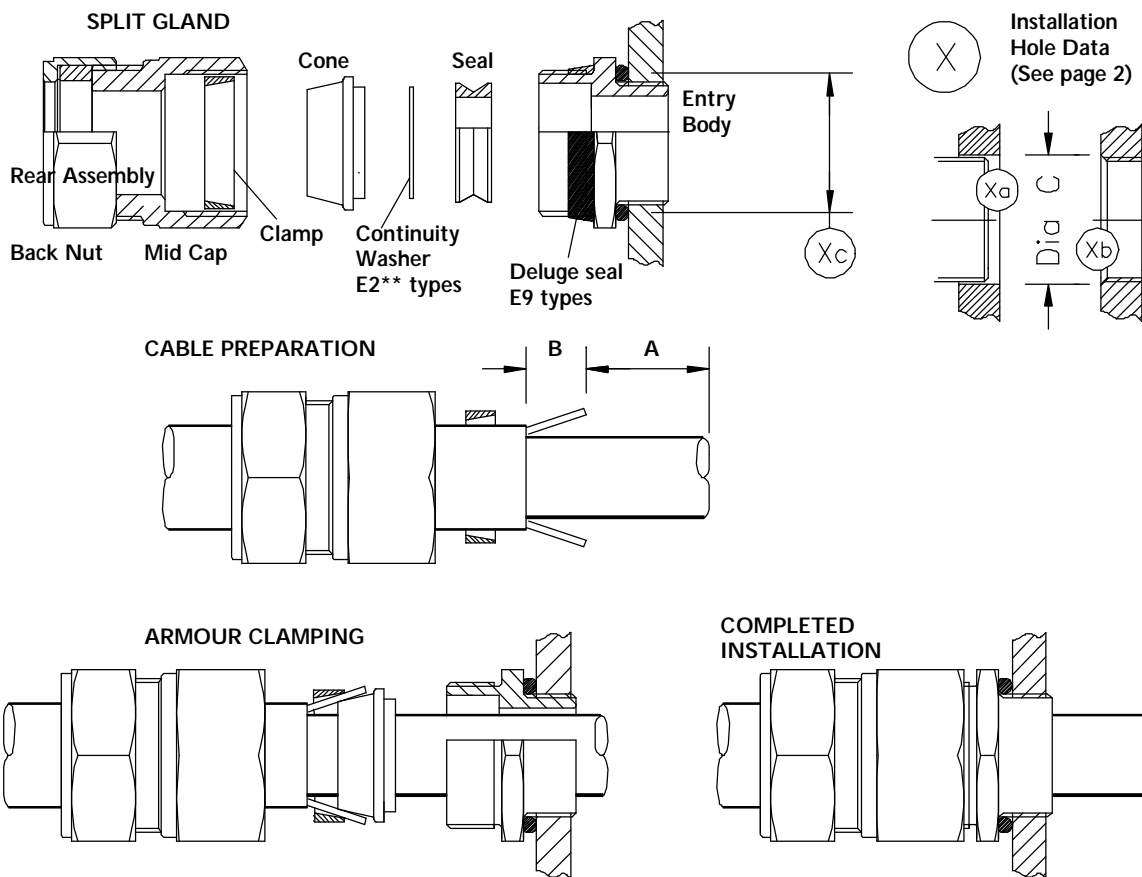


**Brief Description** The Peppers E\*\*F type cable gland is for outdoor use in the appropriate Hazardous Areas with armoured cable. It gives environmental protection to IP66/67. The type IE option has an earth stud on the entry body. D\*\*F type glands are for indoor use and offer IP54 environmental 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. They are suitable for normal industrial environments of temperature, humidity and vibration. Construction materials include steel, brass, aluminium alloy and neoprene, nitrile and silicone rubbers. To minimise galvanic corrosion, the metallic gland components are made from similar materials. Material compatibility under chemical corrosion or attack by aggressive substance must be considered before installation.

**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 D\*\*F glands)**



**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 O-ring with special orders only.
- 4 Fit Entry Body. For correct torque see page 2. DO NOT EXCEED MAX TORQUE FOR ENCLOSURE.
- 5 Slide Rear Assembly including Clamp onto cable as shown.
- 6 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.
- 7 Slide Cone onto inner sheath and under armour. Slide Clamp onto exposed armour.
- 8 Insert cable through Entry Body. DO NOT RE-FIT SEAL OR CONTINUITY WASHER.
- 9 Tighten Mid Cap to Entry Body to make-off armour. FOR CORRECT TORQUE SEE PAGE 2.
- 10 Loosen off Mid Cap to visually check armour is securely locked. Pull out cable from Entry Body.
- 11 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.
- 12 Re-tighten Mid Cap to correct torque.
- 13 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 O	Dia C			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: 2003 Classification of Hazardous Areas</li> <li>BS EN 60079-14:1997 Electrical Installations in hazardous areas (other than mines)</li> <li>BS 6121, Part 5:1993 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	An O-ring or sealing washer should always be used with enclosures rated at above IP54. If a star washer is used, it should not be installed in such a way that it reduces the IP rating.
5	The surface of the enclosure should be sufficiently flat and rigid to make both the IP joint, and (where necessary) a suitable earth contact. In the case of 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 50018:2000, 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 (at least 6 for taper threads).																									
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
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IIB, IIA, II	YES	2 litres or less	Zone 1	YES																						

**Interpretation of Markings.** Stampings on the outside of this gland carry the following meanings (See also 'Brief Description' page 1): -

Cable Gland Type & Size	
<b>E</b>	Gland type provides sealing to 2 sheaths & clamps armour
<b>1</b>	Seal Type :- 1 = Neoprene (Temp range -20 to +85C) 2 = Neoprene with Continuity Washer for lead sheathed cable 3 = Silicone (Temp range -60 to +180C) 9 = Deluge (Temp range -20 to +80C)
<b>W</b>	Clamps wire armour. XZ = woven steel wire/tape; L = kit for W & XZ; X = woven steel wire only
<b>S</b>	Metal parts code :- No code = brass; S = stainless steel
<b>F</b>	Dual certified Flameproof/Increased Safety
<b>20S</b>	Gland size (typical example)   <b>IE</b>   Has integral earth stud
<b>PG16</b>	Entry thread type and size (typical example)

ATEX (EU Directive 94/9/EC) Markings	
<b>Ex</b>	EU Explosive Atmosphere Symbol
<b>II</b>	Equipment Group ( II = Non-Mining )
<b>2</b>	Equipment Category for Zones 1, 2, 21 and 22
<b>G</b>	For use with potentially explosive gas mixtures
<b>D</b>	For use with combustible dusts

CENELEC Certification Markings	
<b>E</b>	Conformity with European Standard
<b>Ex</b>	Explosion Protection symbol
<b>d</b>	Protection type code :- d = Flameproof; e = Increased Safety
<b>IIC</b>	Gas Group Code suitable for Group IIC ignitable gas/air mixtures e.g. hydrogen, and also Groups IIB and IIA. II = non-ignitable (e-protection code).
<b>SIRA</b>	Certifying Body
<b>01</b>	Year of Certification
<b>ATEX</b>	Certified compliant with ATEX Directive 94/9/EC
<b>1271</b>	Certificate Serial Number
<b>X</b>	<b>Special Conditions for Safe Use :-</b> (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° to +85°C using neoprene seals, or -60° to +180°C using silicone seals.

Other Markings	
<b>IP67</b>	Ingress Protection Rating
<b>Year Code:</b>	XX