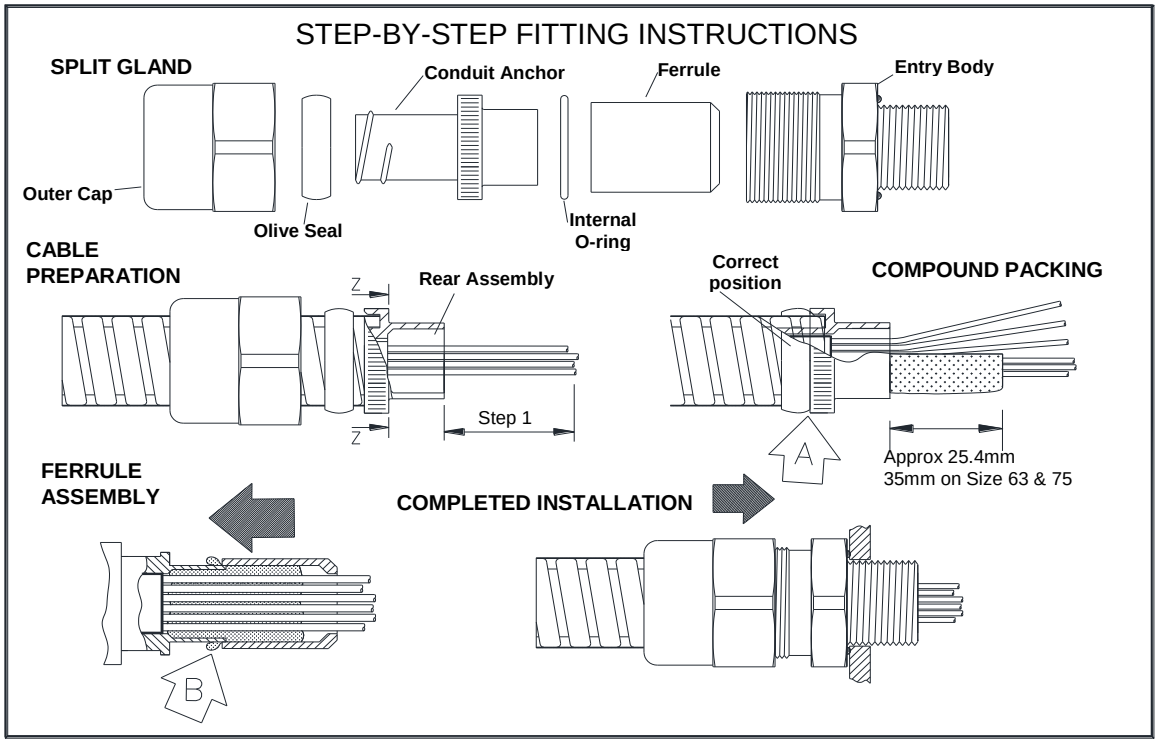
LT-C* Barrier Gland for Liquid Tight Conduit – ASSEMBLY INSTRUCTIONS FOR SAFE USE

Brief Description

Peppers LT-C* Compound-filled cable glands are for indoor or outdoor use in the appropriate Hazardous Locations with any unarmoured cable construction, with or without braids or screens, where the braids or screens pass through the compound. They provide an anchored connection for a range of liquid tight flexible metallic conduit whilst ensuring environmental protection to IP66 and IP68.

Warning

Please read these instructions carefully. These products should not be used in applications except as detailed here or in our datasheets, unless confirmed in writing by Peppers. Peppers take no responsibility for any damage, injury or other consequential loss caused where products are not installed or used according to these instructions. This leaflet is not intended to advise on the selection of product. Further guidance can be found in the standards listed overleaf or the prevailing code of practice.



STEP-BY-STEP FITTING INSTRUCTIONS

1 **Conduit and Cable Preparation**
Cut conduit square using a hacksaw with a minimum of 30 teeth per inch. Strip cable outer sheath so that the cores are fully exposed and to a length suitable for the installation. Remove protective foils and any cords/fillers from around the cores to level with the trimmed outer sheath. Take care not to cut the insulating sleeves of the cores. Using Listed sleeving, pigtail and sleeve any screens to be passed through compound and Entry Body.

2 Split gland as shown.

3 Fit Entry Body, allowing for any installation accessories, and fully engage the thread into the equipment. Hand-tighten, then suitably secure with a wrench. Further guidance can be found in Peppers document CT0030 which can be found on our website.

4 Slide Rear Assembly (Outer Cap and Olive Seal) onto conduit as shown.

5 Put the Internal O-ring to one side. Pass the Conduit Anchor over the individual cores and screw into the conduit. Pass the individual cores through Ferrule and Entry Body. Engage the Outer Cap onto the Entry Body until hand-tight. The Olive should be secured in place between the Conduit Anchor and the Ferrule components. Refer to Table 1 below and tighten Outer Cap on to the Entry Body using a wrench to the specified torque ensuring that at least the stated number of turns has been achieved. Disassemble Outer Cap to inspect Olive Seal. There should be no gap (indicated at arrow A) between the components. Once clamped remove ferrule.

HEALTH AND SAFETY WARNING The resin used in the compound can cause eye and skin irritation. For your personal protection, wear the gloves supplied whilst in contact with the compound. **A COMPREHENSIVE MATERIAL SAFETY DATA SHEET IS AVAILABLE FOR DOWNLOAD FROM OUR WEBSITE.**

6 Check compound has not passed its "Use By" date. It has a work life of about 45 minutes at 16-27°C (60-80°F), during which time it can be worked and shaped before it begins to cure. Full cure takes 24 hours at 16-27°C (60-80ºF). Lower temperatures will give a longer cure time. E.g. at 3°C (37°F) full cure takes about seven days. It is recommended to mix the putty and pack the fitting at 20ºC (68ºF). Minimum mixing/packing temperature is 10°C. Minimum curing temperature is 3°C.

7 Trim any hardened pieces from ends of stick. Mix the compound by rolling, folding and breaking. Ease mixing by cutting large sticks in half. Fully mixed compound has a uniform colour with no streaks See Figure 1 for correctly mixed compound.

8 Support the conduit and cable assembly. Ensure that the Conduit Anchor is positioned so that the cable outer sheath is positioned at the bottom of the Rear Assembly Cup as indicated at Z - Z. Splay out the cores.

9 Starting at the middle, fill the Rear Assembly Cup by packing small amounts of rolled-out compound around and between the cores. Re-straighten each core and work outwards until all gaps are filled. Pack around the outside of the outer cores. Push compound down to make sure the Rear Assembly Cup is completely filled.

10 Similarly build up compound in and around the protruding cores. Apply the compound in rolled-out strips wherever possible so that unbroken layers are formed. Where joins occur in the fill or where there are suspected holes, work the compound together to ensure a gas-tight seal. The cylinder of compound should project approx 25mm (1") (or 35mm (1⅜") for sizes 63 & 75) - see diagram.

11 Retrieve the Ferrule and pass it over the cores. Locate and press Ferrule onto the Rear Assembly Cup. Remove squeezed-out compound (arrow B) and ensure the Ferrule completely covers the Rear Assembly Cup. Pass cores through the O-ring and Entry Body. Fit O-ring over Ferrule – when the assembly is complete the o-ring should be seated on top of the Ferrule and adjacent to the Conduit Anchor. Engage Ferrule in Entry Body and screw on the Outer Cap. Tighten the Outer Cap with wrench to close up the assembly

12 Slacken off Outer Cap to inspect the Cable Unit assembly. Where the cores exit the Ferrule any protruding compound must be trimmed and cleared away to ensure the compound does not foul the Entry Body. See Figure 2 for clear Ferrule. Bundle cores with cable-tie, cord or tape so they are not disturbed – see Figure 3. Leave to cure for 4 hours when working at 21ºC (70°F). Cores may be disturbed after 1 hour.

13 Re-assemble Cable Unit to the Entry Body ensuring the o-ring is seated correctly at the base of the ferrule – see Figure 4. Tighten Outer Cap using a wrench until it comes to an effective stop.

14 The equipment should not be energised until the compound has been left to cure for at least 4 hours when working at 21º C. See chart 'Energising Time vs. Temperature' for further guidance.

Figure1

Figure 2

Figure 3

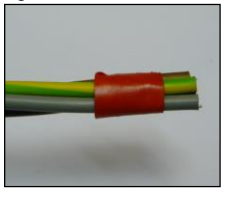


Figure 4

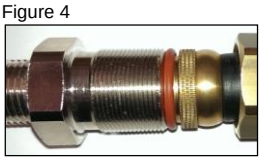


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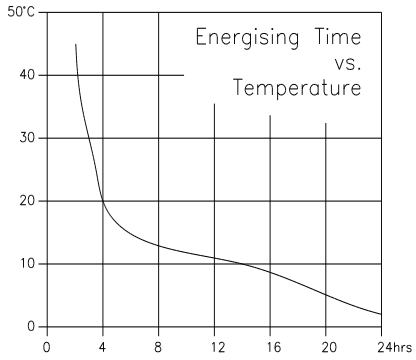
Table 1 - Gland sizes, trade sizes, cable / conduit data and Energising Times

Gland Size	Standard Trade Size		Outer Cap Assembly for Olive Clamping – Point 5		Max Diameter Over Cores	Max No. of Cores	Max Cable Outer Sheath	Typical Conduit I/D	Max Conduit Outer Sheath
	Metric	NPT	Torque	Turns			mm	mm	mm
20S-1	M20	½"	38	3	5.0	9	5.0	6.2 - 7.1	11.4 - 12.9
20S-2	M20	½"	47	2.5	7.8	20	7.8	9.8 - 10.3	14.2 - 15.6
20-1	M20	½"	38	2	10.4	35	10.4	12.1 - 13.0	17.0 - 19.1
20-2	M20	½"	32	2	12.5	40	13.3	15.8 - 16.3	20.8 - 22.3
25-1	M25	¾"	47	2	17.8	60	18.0	20.8 - 21.3	26.0 - 27.8
32-1	M32	1"	38	1.5	23.5	80	23.6	26.0 - 27.1	32.7 - 34.5
40-1	M40	1¼"	121	1.5	28.8	130	31.8	34.8 - 35.8	41.1 - 43.3
50-1	M50	2"	180	1.5	37.0	200	37.0	40.0 - 40.6	47.3 - 49.4
63-1	M63	2½"	142	1.5	48.0	300	48.0	50.5 - 51.9	59.4 - 61.4
75-1	M75	3"	186	2	59.3	325	59.3	62.9 - 63.9	72.1 - 74.1
75-2	M75	3"	246	2	60.8	425	68.0	77.8 - 78.7	87.8 - 90.0



Approvals

Approval	Certificate Number	Protection Concept / Type
ATEX	CML 19ATEX1344X / CML 21UKEX1034X	I M2 II 1D 2G Ex db I Mb / Ex db IIC Gb / Ex eb I Mb / Ex eb IIC Gb / Ex ta IIIC Da
UKCA (SI 2016 No. 1107)	CML 19ATEX4114X / CML 21UKEX4037X	II 3G Ex nR IIC Gc
IECEx	IECEx CML 19.0049X	Ex db I Mb / Ex db IIC Gb / Ex eb I Mb / Ex eb IIC Gb / Ex nR IIC Gc / Ex ta IIIC Da
INMETRO	NCC 16.0275 X	Ex db I Mb / Ex db IIC Gb / Ex eb I Mb / Ex eb IIC Gb / Ex nR IIC Gc / Ex ta IIIC Da IP66 IP68
EAC	RU C-GB.BH02.B.00693/18	1Ex d IIC Gb X / 1Ex e IIC Gb X / 2Ex nR IIC Gc X / PB Ex d I Mb / Ex ta IIIC Da X
UKRAINE	CЦ 18.0324 X	II 1D 2G 3G Ex db IIC Gb / Ex eb IIC Gb / Ex nR IIC Gc /Ex ta IIIC Da
CCC	2021312313000426	Ex d I Mb / Ex d IIC Gb / Ex e I Mb / Ex e IIC Gb / Ex nR IIC Gc / Ex tD A20 IP66
CCoE / PESO	P494321/16 & P494321/20	Ex db I Mb / Ex db IIC Gb / Ex eb I Mb / Ex eb IIC Gb / Ex nR IIC Gc
ABS	20-LD1944057-PDA	Specified ABS Rules – See certificate
Lloyd's Register	LR2124442TA	Ex db I Mb / Ex db IIC Gb / Ex eb I Mb / Ex eb IIC Gb / Ex nR IIC Gc / Ex ta IIIC Da IP66 IP68

Installation Guidance

Point	Advice
1	BS/EN/IEC 60079-10 BS/EN/IEC 60079-14
2	Installation should only be carried out by a competent electrician, skilled in cable gland installation.
3	Comprehensive details of the compliance standards can be found on the product certificates which are available for download from our website
4	NO INSTALLATION SHOULD BE CARRIED OUT UNDER LIVE CONDITIONS.
5	Threaded entries: the product can be installed directly into threaded entries. Threaded entries should comply with the relevant applicable standards and have a lead-in chamfer to allow for full engagement of the threads. Failure to provide a sufficient lead-in chamfer may lead to ingress sealing issues. For Ex db applications a minimum of 5 fully engaged parallel threads is required. Metric threads are supplied with an o-ring and will maintain IP66 and IP68. Other parallel entry threads will maintain an IP rating of IP64. A Peppers sealing washer should be used to maintain all IP ratings greater than IP64. Whilst Peppers products with tapered threads, when installed into a threaded entry, have been tested to maintain IP66 without any additional sealant, due to the differing gauging tolerances associated with the use of tapered threads it is recommended to use a non-hardening thread sealant if an IP rating higher than IP64 is required.
6	To maintain the Ingress Protection rating of the product, the entry hole must be perpendicular to the surface of the enclosure. The surface should be sufficiently flat and rigid to support the assembly and make the IP joint. The surface must be clean and dry. The product incorporates a thread run out according to general machining techniques and will not have a full form thread for the entire length and as such entry threads should have a suitable lead-in chamfer to ensure a seal is maintained. Further guidance can be found on Peppers website. It is the user's/installer's responsibility to ensure that the interface between the enclosure and cable gland is suitably sealed for the required application. Any thread sealant used shall be suitable for use in hazardous area locations, be suitable for the temperature range at the point of mounting, shall not contain evaporating solvent and cannot cause corrosion at the threaded interface when used for dissimilar materials.
7	Where a bonding connection to earth is required a Peppers earth tag should be used. Peppers earth tags have been independently tested to comply with the Category B values given in IEC 62444. Further guidance can be found on Peppers website. Peppers earth tags should be fitted over the external entry thread from either inside or outside the enclosure. If fitted internally they must be secured with a Peppers locknut and optionally a Peppers serrated washer.
8	Peppers external metric entry threads comply with ISO 965-1 and ISO 965-3 with a 6g tolerance fit. Peppers standard metric thread pitch is 1.5mm for threads up to M75 and 2.0mm for size M80 and above. Alternative thread pitches are available upon request. Peppers external NPT threads are in accordance with ASME B1.20.1 with gauging to clause 8.1. All threads comply with the threaded joint requirements of clause 5.3 from IEC 60079-1. Information on other thread types can be found in the product certificates.
9	Once installed do not dismantle except for routine inspection. An inspection should be conducted as per IEC/EN 60079-17. After inspection the gland should be re-assembled as instructed, ensuring the Outer Cap is correctly tightened to ensure the assembly is secure.
10	The compound has application limitations and may be adversely affected by some solvent vapours. If such vapours are likely to be present when the cable gland is in service, necessary precautions should be taken. Peppers Technical Datasheet can be downloaded from our website for further guidance. The compound should be stored in its original packaging in a dry area at temperatures between 5°C and 21°C
11	If required an anti-seize lubricant may be used to aid assembly and routine inspection. The lubricant should comply with the prevailing code of practice and care should be taken to ensure no lubricant comes into contact with the cable gland seals as this may impair performance.

Interpretation of Markings. Markings on the outside of this gland carry the following meanings:

Cable Gland Type & Size LT-C-a-bbb-ccc

a =	Main component material B = brass S = stainless steel	bbb =	Gland size	ccc =	Entry thread type and size

Specific Conditions of Use

1. These cable glands 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
2. The Ingress Protection rating that is required to ensure compliance with the standards used in this certificate was determined by testing the devices fitted into 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 user's responsibility to ensure that the appropriate Ingress Protection level is maintained at these interfaces.
3. 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 requirements are maintained.
4. 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 EN 60079-31:2014./IEC 60079-31:2013
   - 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 EN 60079-31:2014./IEC 60079-31:2013.
5. These cable glands are manufactured with a cylindrical flameproof joint between the entry body and the front ferrule. This joint is not intended for repair.
6. After initial assembly, the Outer Cap shall be released to enable inspection of the Olive Seal. There shall be no gap between the Olive Seal and the Ferrule Anchor. This ensures that all internal components are correctly sited and prevents the possibility of generating a source of ignition due to the release of an internal ignition. If there is a gap between the Olive Seal and the Ferrule Anchor, the Olive Seal shall be replaced. Contact Peppers for further advice.