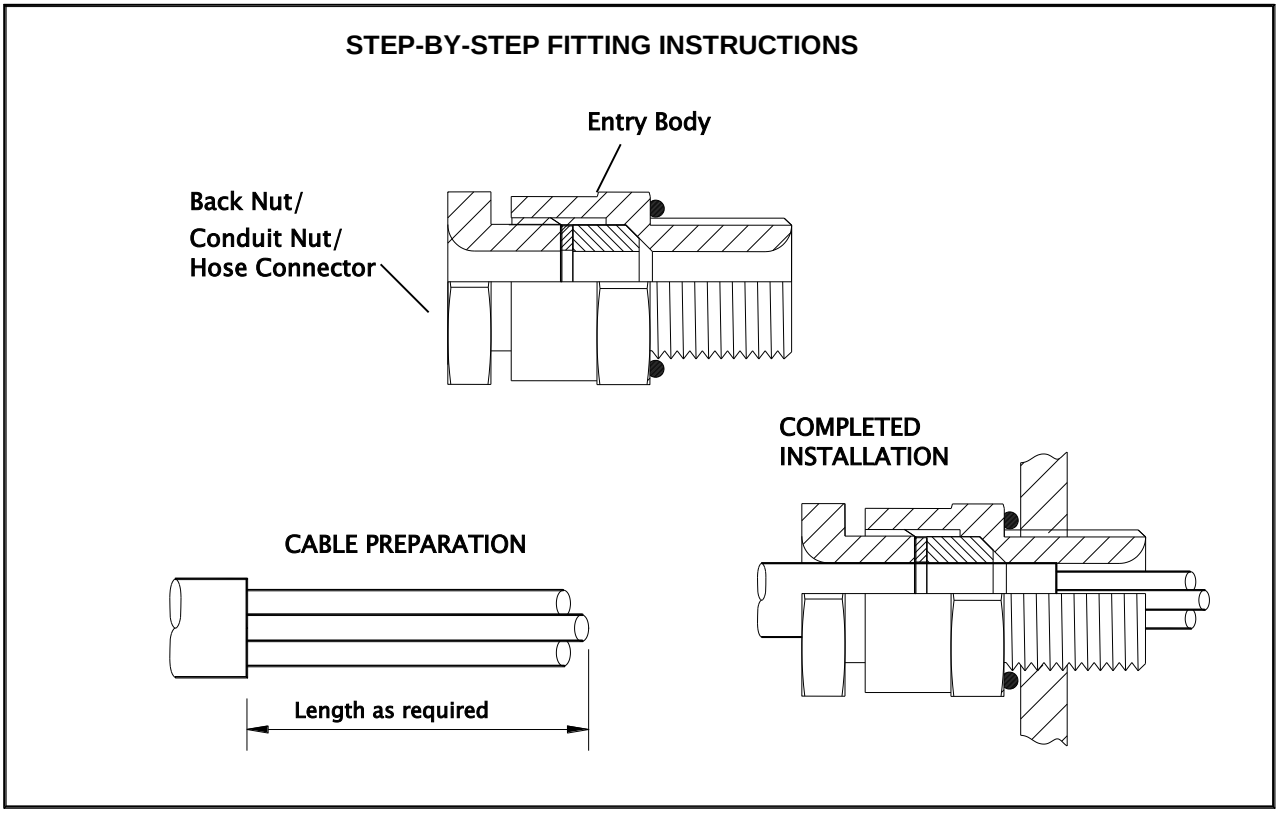
A*L** & A*LC*** Type Cable Glands – ASSEMBLY INSTRUCTIONS

Brief Description
Peppers A*L** and A*LC*** type cable glands are for outdoor use in the appropriate Hazardous Areas with unarmoured, braided or armoured cable where the braid or armour is to be terminated inside the enclosure. They provide a displacement seal on the cable outer sheath and give environmental protection to IP66/IP68 (50 metres for 7 days) and deluge.

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 Check there is no tension in the threads. It is not necessary to dismantle the gland.
2 Fit Entry Body, allowing for any installation accessories, and fully engage the thread into the equipment. Hand-tighten, then suitably secure with a wrench.
3 Prepare cable as required for the installation. If required, fit the shroud over the cable.
4 Insert cable through the cable gland. Position the cable correctly. The seal must grip the outer jacket of the cable when the cable gland is tightened.
5 Tighten Back Nut/Conduit Nut to the Entry Body. Ensure the seal makes full contact with cable sheath and then tighten the Back Nut/Conduit Nut by the additional turns detailed in Table 1. Support the cable to prevent it from twisting during tightening. If fitted, pull shroud over gland assembly.
6 (A*LCF**/A*LCM** options) Fasten mating conduit/equipment to the Conduit Nut to complete the installation.
(A*LCH** option) Push hose onto the connector and secure with a suitable hose clip to complete the installation.

Note - Cable Glands featuring Lead Sheath Option (A1L and A4L types)
To ensure that continuity is provided for the lead sheath and the installation is completed correctly the cable gland should be installed as follows: -

- A section of the cable outer sheath should be stripped back to expose the lead sheath. It should be stripped back in a position suitable to terminate the conductors correctly and for the internal cable gland seal to secure the cable outer sheath.
- The continuity washer within the gland should make full contact with the lead sheath of the cable.
- The gland should then be installed as per the above instructions.
- Contact Peppers for further advice if required.

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Table 1 - Installation Data and Cable Sizes (mm)

Gland Size	Back Nut Turns – Step 5	Outer Sheath	
		Min	Max
12	¼	0.9	6.0
16	2	4.0	8.4
20S	1	7.2	11.7
20	2	9.4	14.0
25	2	13.5	20.0
32	2	19.5	26.3
40	2	23.0	32.2
50S	1.5	28.1	38.2
50	2	33.1	44.1
63S	1.5	39.2	50.1
63	2	46.7	56.0
75S	2	52.1	62.0
75	2	58.0	68.0
80	1.5	62.2	72.0
85	1.5	69.0	78.0
90	1.5	74.0	84.0
100	2	82.0	90.0

Interpretation of Markings

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

A-a-L-b-c-d-eee-fff-ggg nn

a =	Seal Type	1 = Neoprene & Continuity Washer 2 = Neoprene 3 = Silicone 4 = Silicone & Continuity Washer
b =	Design Option	No characters = single seal gland CF = Female Connection Thread CM = Male Connection Thread CH = Hose Connector
c =	Gland Material	B = Brass S = Stainless Steel A = Aluminium alloy
d =	Design Option	F = Dual Certified Ex db and Ex eb E = Ex eb certified only
eee =	Connector Option	e.g. M20 (A*LC*** options only)
fff =	Gland Shell Size	e.g. 20
ggg =	Entry Thread	e.g. M20
nn =	Year of Manuf.	e.g. 21

Approvals and Certification

Approval	Certificate Number	Protection Concept / Type
ATEX (2014/34/EU)	CML 19ATEX1345X	Ex II 1D 2G Ex db IIC Gb / Ex eb IIC Gb / Ex ta IIIC Da
	CML 19ATEX4109X	Ex II 3G Ex nR IIC Gc
IECEx	IECEx CML 19.0103X	Ex db IIC Gb / Ex eb IIC Gb / Ex nR IIC Gc / Ex ta IIIC Da
CSA - Canada	1356011	Ex d IIC Gb / Ex e IIC Gb / CL I Div 2 Gr ABCD / CL II Gr EFG / CL III Type 4X
CSA - US	2627370	Class II, Division 1, Groups EFG / Class III; Type 4X Class I Zone 1 AEx e IIC Gb / Class II, Zone 20 AEx ta IIIC Da IP66 IP68
INMETRO	NCC 13.2012 X	Ex db IIC Gb / Ex eb IIC Gb / Ex nR IIC Gc / Ex ta IIIC Da
EAC	RU C-GB.BH02.B.00693/18	1Ex d IIC Gb X / 1Ex e IIC Gb X / 2Ex nR IIC Gc X / Ex ta IIIC Da X
UKRAINE	СЦ 18.0325 X	II 1D 2G 3G Ex db IIC Gb / Ex eb IIC Gb / Ex nR IIC Gc / Ex ta IIIC Da
NEPSI	GYJ16.1399X	Ex d IIC / Ex e IIC
CCoE / PESO	P365300/2 & P365300/5	Ex d IIC Gb (Zone 1) / Ex e IIC Gb (Zone 2) /Ex nR IIC Gc (Zone 2)
ABS	20-LD1944057-PDA	Specified ABS Rules – See certificate
Lloyd's Register	10/00056(E2)	Ex db IIC Gb / Ex eb IIC Gb / Ex nR IIC Gc / Ex ta IIIC Da
Russian Maritime	19.00189.278	Ex d IIC Gb / Ex e IIC Gb / Ex ta IIIC Da

Installation Guidance

Point	Advice			
1	EN/IEC 60079-10	EN/IEC 60079-14	National Electrical Code (NEC 500 – 505)	Canadian Electrical Code (CSA C22.1)
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 in 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. Any thread sealant used should be non-hardening. 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	Clearance holes: these shall be 0.5mm (+/-0.2mm) larger than the nominal diameter of the external entry thread. The product should be secured with a Peppers locknut and the threads tightened to ensure the cable gland is secure. A Peppers sealing washer should be used to maintain IP ratings. A Peppers serrated washer should be used for additional installation protection.			
7	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 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 in Peppers document CT0012 which can be found on our 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.			
8	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 in Peppers document CT0017 which can be found on our 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.			
9	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.			
10	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 compression nut, mid cap and back nut are correctly tightened to ensure the cable is secure.			
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.			

Specific Conditions of Use

1. These cable glands shall not be used in enclosures where the temperature at the point of contact exceeds -35°C to +90°C using neoprene (black) seals, or -60°C to +180°C using silicone (white) seals.
2. These cable glands are only suitable for fixed installations. The cable must be effectively clamped to prevent pulling or twisting.
3. These cable glands, when installed in accordance with the manufacturer's instructions and with an appropriate enclosure on which they are fitted, are capable of providing an ingress protection of IP66 and IP68 (50 metres 7 days).
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