

UL-X* Marine Shipboard Cable Gland – ASSEMBLY INSTRUCTIONS FOR SAFE USE

Brief Description

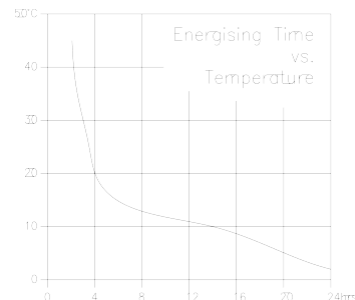
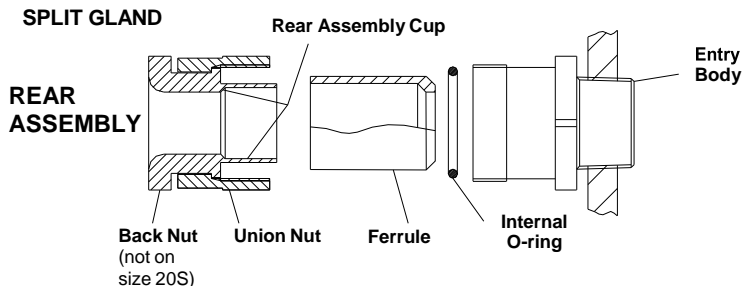
Peppers UL-X* 胶泥填充电缆接头适用于室外适当危险场所使用带有托盘电缆和非铠装船用电缆（CEC 和 NEC 应用）以及任何结构的非铠装电缆（IEC 应用），带或不带胶泥的编织物或屏蔽，编织物或屏蔽电缆。它们达到 IP66、IP68 和 4X 型防护等级的效果。Peppers UL-X* Compound-filled cable glands are for outdoor use in the appropriate Hazardous Locations with Tray cable and unarmoured Marine Shipboard cables (CEC and NEC applications) and any unarmoured cables of any construction (IEC applications), with or without braids or screens, where the braids or screens pass through the compound. They give environmental protection to IP66, IP68 and Type 4X.

Warning 警告

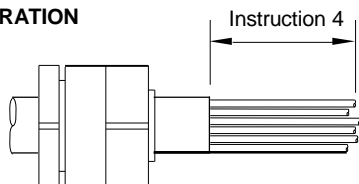
请仔细阅读这些说明。除非在我们这里的数据表中有详细说明，或经 Peppers 书面确认，否则这些产品不应在其它应用中使用。Peppers 对未按照本说明书安装或使用产品所造成的任何损坏、伤害或其他间接损失概不负责。本说明书并非针对产品的选择提供建议。进一步的指导可在网页列出的标准或现行操作规程中找到。电缆接头中使用的胶泥有应用限制，可能会受到某些溶剂蒸汽的不利影响。如果电缆接头运行时可能存在此类蒸汽，则应采取必要的预防措施。Peppers 技术数据表可从我们的网站下载，以获得进一步指导。使用前，应将储存在原包装中的胶泥存放在温度为 5°C 和 21°C 的干燥区域中。Please read these 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. 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.

STEP-BY-STEP FITTING INSTRUCTIONS

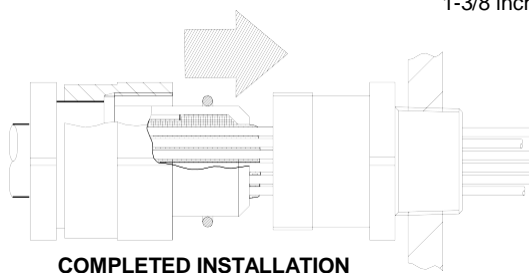
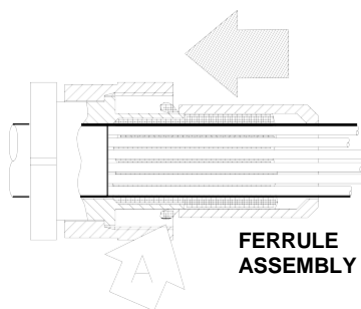
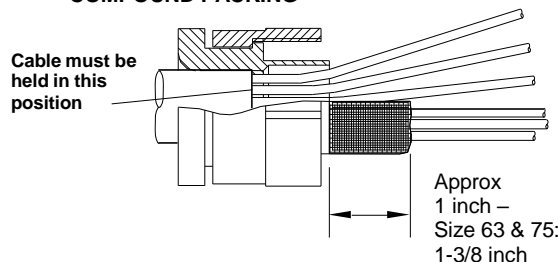
SPLIT GLAND



CABLE PREPARATION



COMPOUND PACKING



装配步骤分解 STEP-BY-STEP FITTING INSTRUCTIONS

- 1 如图所示分解接头 Split gland as shown
- 2 安装入口主体，允许安装任何附件，并将螺纹完全啮合到设备中。用手拧紧，然后用扳手适当加固。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 如图所示滑动后部组件（和护套，如果需要的话）到电缆上。将套圈和内部 O 形圈放在一边。Slide Rear Assembly (and shroud if required) onto cable as shown. Put Ferrule and Internal O-ring to one side.
- 4 **电缆准备 CABLE PREPARATION**
剥离外套，使芯线完全暴露在胶泥填充腔体内，长度适合安装。从芯线周围和芯线之间移除保护箔和所有绳索/填充物。注意不要割断芯线的绝缘套管。使用列出的套管、尾光纤和套管滤网任何屏蔽穿过胶泥和入口主体。Strip jacket so that cores are fully exposed in the compound chamber, length to suit installation. Remove protective foils, and any cords/fillers from around and between the cores level with the trimmed jacket. 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.

健康和警告化合物中使用的树脂会引起眼睛和皮肤刺激。为保护您的人身安全，请在接触化合物时戴上提供的手套。全面的安全数据表可从我们的网站下载。HEALTH AND SAFETY WARNING. HEALTH AND SAFETY WARNING. The resin used in the compound can cause eye and skin irritation. For your

- 5 检查胶泥未超过其“使用日期”。它在 16-27°C (60-80°F) 时的工作寿命约为 30 分钟，在这段时间内，它可以被加工和整形，然后才开始固化。完全固化需要保持 16-27°C (60-80°F) 24 小时。温度越低，固化时间越长。例如，在 3°C (37°F) 完全固化大约需要 7 天。建议混合油灰，并在 20°C (68°F) 时装配填充。最低混合/包装温度为 10°C。最低固化温度为 3°C。Check compound has not passed its "Use By" date. It has a work life of about 30 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 (60-80°F). Lower temperatures will give a longer cure time. E.g. at 3°C (37°F) full cure takes about seven days. See Energising Time data. It is recommended to mix the putty and pack the fitting at 20°C (68°F). Minimum mixing/packing temperature is 10°C. Minimum curing temperature is 3°C.
- 6 胶泥棒末端修剪任何硬化件。通过滚动、折叠和粉碎混合胶泥。把胶泥棒切成两半以便于混合。完全混合的胶泥颜色均匀无条纹。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.
- 7 支起电缆和后部组件至大致同心。正确放置后部组件让电缆外套可以在后部组件的正后方。电缆必须被稳固握住（如图）。把芯线分开。Support the cable and Rear Assembly so that they are roughly concentric. Position the Rear Assembly so that the cable jacket is just behind the Rear Assembly cup. Cable must be held firmly (see diagram). Splay out the cores.
- 8 从中间开始，通过在芯周围和芯之间填充少量卷出的胶泥来填充后装部组件。重新拉直每个芯线直到所有的间隙填满。包裹外芯的外面。向下推胶泥，确保后部组件杯充满。Starting at the middle, fill the Rear Assembly cup by packing small amounts of rolled-out compound around and between the cores. Re-straighten

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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 filled.

- 9 类似地在突出的芯线内和周围堆上胶泥。尽可能将胶泥涂抹在轧制带中，以便形成未破裂的层。如果填料中出现结点或存在可疑孔，则继续混合胶泥以确保密闭的密封。胶泥的气缸应突出约 1 in/25mm（或 1 1/4 in/35mm，尺寸 63 和 75-见图）。取下套圈卡箍并将其穿过芯线。定位套圈并将其压到锥形上，然后去除任何挤压出的胶泥（箭头 A）。把芯线穿过 o 形圈和入口主体。把 O 形圈放在套圈上。将套圈接合到入口主体中，然后拧上短接螺母。用扳手拧紧套圈组件。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 there are suspected holes, work the compound together to ensure a gas-tight seal. The cylinder of compound should project approx 1 in (or 1 1/4 in for sizes 63 & 75 - see diagram). Retrieve Ferrule and pass it over cores. Locate and press Ferrule onto Cone, and remove squeezed-out compound (arrow A). Pass cores through O-ring and Entry Body. Fit O-ring over Ferrule. Engage Ferrule in Entry Body and screw on Union Nut. Tighten with wrench to close up the Ferrule Assembly
- 10 松开短接螺母，检查电缆单元。如果芯线离开套圈，突出的胶泥不得污染入口主体。用电缆扎带、绳索或胶带捆扎芯线，以防干扰。等待其固化。芯线可能在 1 小时后受到干扰。Slacken off Union Nut to inspect Cable Unit. Where the cores exit the Ferrule, projecting compound must not foul the Entry Body. Bundle cores with cable-tie, cord or tape so they are not disturbed. Leave to cure. Cores may be disturbed after 1 hour.
- 11 重新组装电缆单元至入口主体，确保 o 形圈固定在套圈外侧。使用扳手完全拧紧短接螺母。Re-assemble Cable Unit to Entry Body ensuring the o-ring is seated on the outside of the ferrule. Tighten Union Nut using wrench.

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Gland trade sizes, cable sizes (inch) & construction

Gland Size	Standard Trade Size		Max No of Cores	Max No of Cores	Max Diameter Over Cores		Outer Jacket Size Max	
	NPT	Metric			Inch	mm	Inch	mm
			1	2				
20S	½" & ¾"	M20 & M25	8	40	10.4	0.409	0.461	11.7
20	½" & ¾"	M20 & M25	16	60	12.5	0.492	0.551	14.0
25	¾" & 1"	M25 & M32	30	80	17.8	0.701	0.787	20.0
32	1" & 1 ¼"	M32 & M40	60	130	23.5	0.925	1.035	26.3
40	1 ¼" & 1 ½"	M40 & M50	5	400	28.8	1.134	1.268	32.2
50	2"	M50 & M63	4	425	39.4	1.551	1.736	44.1
63	2 ½"	M63 & M75	4	425	50.0	1.969	2.205	56.0
75	3"	M75	4	425	60.8	2.394	2.677	68.0

¹ UL Approvals ² All Other Approvals

Figure 1



Approvals and Certification

Approval	Certificate Number	Protection Concept / Type
ATEX	CML 19ATEX1349X	Ex db I Mb / Ex db IIC Gb / Ex eb I Mb / Ex eb IIC Gb / Ex ta IIIC Da
	CML 19ATEX4114X	Ex db I Mb / Ex db IIC Gb / Ex eb I Mb / Ex eb IIC Gb / Ex nR IIC Gc
IECEx	IECExCML 19.0107X	Ex db I Mb / Ex db IIC Gb / Ex eb I Mb / Ex eb IIC Gb / Ex nR IIC Gc / Ex ta IIIC Da
CCC	2021312313000425	Ex d I Mb / Ex e I Mb / Ex d IIC Gb / Ex e IIC Gb / Ex nR IIC Gc / Ex ta IIIC Da IP66

安装指引 Installation Guidance

要点	建议 Advice
1	EN/IEC 60079-10 EN/IEC 60079-14 National Electrical Code (NEC 500 – 505) Canadian Electrical Code (CSA C22.1)
2	有关合规标准的全面详情，请参阅产品证书，该证书可从我们的网站下载。Comprehensive details of the compliance standards can be found on the product certificates which are available for download
3	只能由精通电缆密封套安装的合格电工进行安装。Installation should only be carried out by a competent electrician, skilled in cable gland installation.
4	不得在带电的条件下进行安装。NO INSTALLATION SHOULD BE CARRIED OUT UNDER LIVE CONDITIONS.
5	安装后，除例行检查外，不得拆卸。应根据 IEC/EN 60079-17 执行检查。检查后，应按照规定重新组装压盖，确保压紧螺母、中部螺母和尾部螺母正确拧紧，以确保电缆牢固安全。Once installed do not dismantle except for routine inspection. An inspection should be conducted as per IEC/EN 60079-17 or the prevailing code of conduct. After inspection the gland should be re-assembled as instructed, ensuring the mid cap and back nut are correctly tightened to ensure the cable is secure.
6	为保持产品的防护等级，入口孔必须垂直于外壳表面。表面应足够平整和坚硬，以支撑组件并形成 IP 接口。根据一般机器加工技术，该产品包含一圈螺纹旋出，整个长度上没有完整的螺纹，因此入口螺纹应具有适当的引入倒角，以确保保持密封。进一步的指导可以在我们的网站上的 Peppers 文件 CT0012 中找到。用户/安装人员有责任确保外壳和电缆密封套之间的接口适当密封，以满足应用要求。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.
7	螺纹孔：产品可以直接安装到螺纹孔中。螺纹孔应符合相关适用标准，并具有引入倒角，以允许螺纹完全啮合。未能提供足够的引入倒角可能导致入口密封有问题。对于 Ex db 应用，至少需要使用 5 个完全啮合的平行螺纹。公制螺纹配有 O 形圈，可保持 IP66 和 IP68。其他并行接头螺纹将保持 IP64 的 IP 等级。使用 Peppers 密封垫圈以保持所有 IP 额定值大于 IP64。使用的任何螺纹密封剂应为不可硬化型。虽然带锥形螺纹的 Peppers 产品在安装到接头螺纹时，经测试证明无需任何额外的密封剂即可保持 IP66，但由于锥形螺纹使用的计量公差不同，如果要求 IP 等级高于 IP64，建议使用不可硬化螺纹密封剂。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.
8	如果需要接地连接，应使用 Peppers 接地垫片。Peppers 接地垫片经过独立测试，符合 IEC 62444 中给出的 B 类值。进一步的指导可以在我们的网站上的 Peppers 文件 CT0017 中找到。Peppers 接地垫片应安装在外壳内外部的入口螺纹上。如果安装在内部，则必须用 Peppers 锁紧螺母和可选的 Peppers 锯齿垫圈固定。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 公制外螺纹符合 ISO 965-1 和 ISO 965-3 标准，公差为 6g。Peppers 标准公制螺纹螺距为 1.5mm（适用于 M75 以下的螺纹），2.0mm（适用于 M80 及以上的螺纹）。可根据要求提供其他螺纹螺距。Peppers 外 NPT 螺纹符合 ASME B1.20.1 的要求，并根据第 8.1 条进行计量。所有螺纹符合 IEC 60079-1 第 5.3 条的螺纹接头要求。其他螺纹类型的信息可以在产品证书中找到。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. 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	不要损坏组件上的外壳入口螺纹。检查啮合螺纹的完整圈数是否为 5 圈（平行螺纹为 8 圈）Do not damage enclosure entry threads on assembly. Check the number of full turns of thread engaged is 5 (8 for parallel threads)
11	使用无护套电缆时，可能会降低环境和进入保护等级 Environmental and ingress protection may be reduced when using unjacketed cable
12	如果需要，可以使用润滑剂来辅助装配和常规检查。润滑剂应符合现行操作规程，并应注意确保润滑剂不会与电缆接头密封条接触，因为这可能会影响性能。If required an anti-seize lubricant may be used to aid assembly of gland threads. 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.

Approved Temperature Range

ATEX / IECEx / CCC
-60°C to +135°C / -76°F to +275°F

Environmental Protection

ATEX / IECEx / INMETRO / EAC / NEPSI / UKRAINE
IP66 / IP68 (100 metres for 7 Days)

图示标签说明. 接头外示意图标签代表如下 Interpretation of Markings. Markings on the outside of this

gland carry the following meanings: - Markings: UL-X-a-bbb-ccc-nn; where: -

UL =	壁垒接头产品范围 Barrier Gland Product Range	a =	主要部件材质 B = 黄铜 S = 不锈钢 Main component material	ccc =	螺纹孔类型和尺寸 Entry thread type and size
X =	含有环氧树脂基化合物的非铠装电缆-胶泥树脂 Unarmoured cable incorporating an epoxy –resin based compound	bbb =	接头尺寸 Gland size	nn =	制造年份 Year of manufacture

Specific Conditions of Use

- 电缆接头不得用于入口/安装点温度超出-60° C 至+135° C 范围的 ATEX / IEC 应用中和-25° C 至 +85° C 范围的 UL 应用中。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 for ATEX / IEC applications and -25°C to +85°C for UL applications.
- 确保符合本证书所用标准所需的入口防护等级是通过测试安装在具有光滑平坦安装表面的代表性外壳中的装置来确定的。实际上，接头外螺纹与其祥光的外壳之间的接口无法确定，因此，用户有责任确保这些接口保持适当的入口保护级别。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.
- 平行螺纹入口部件螺纹将采用适用于将连接接头的相关设备的方法进行适当密封。这将符合相关的安装实践规范，并将确保保持任何进入保护和限制呼吸密封要求。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 and restricted breathing sealing requirements are maintained.
- 安装在粉尘爆炸中的螺纹接口部件螺纹无接口 O 形密封圈，螺纹入口内，应仅安装在具有以下任一特性的外壳中。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:
- 平行引入线，确保至少保持 5 个螺纹完全、充分接触，这符合 EN 60079-31:2014/IEC 60079-31:2013 第 5.1.2 条的要求 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,

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- 锥形入口，确保至少保持 3 ½ 螺纹完全充分接触，这符合 EN 60079-31:2014/IEC 60079-31:2013 第 5.1.2 条的要求 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.

5. 这些电缆接头的入口主体和前套圈之间采用圆柱形隔爆接口。此接口不用于维修。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.

