

EC1-X** Eclipse Compound-Filled Cable Gland – ASSEMBLY INSTRUCTIONS

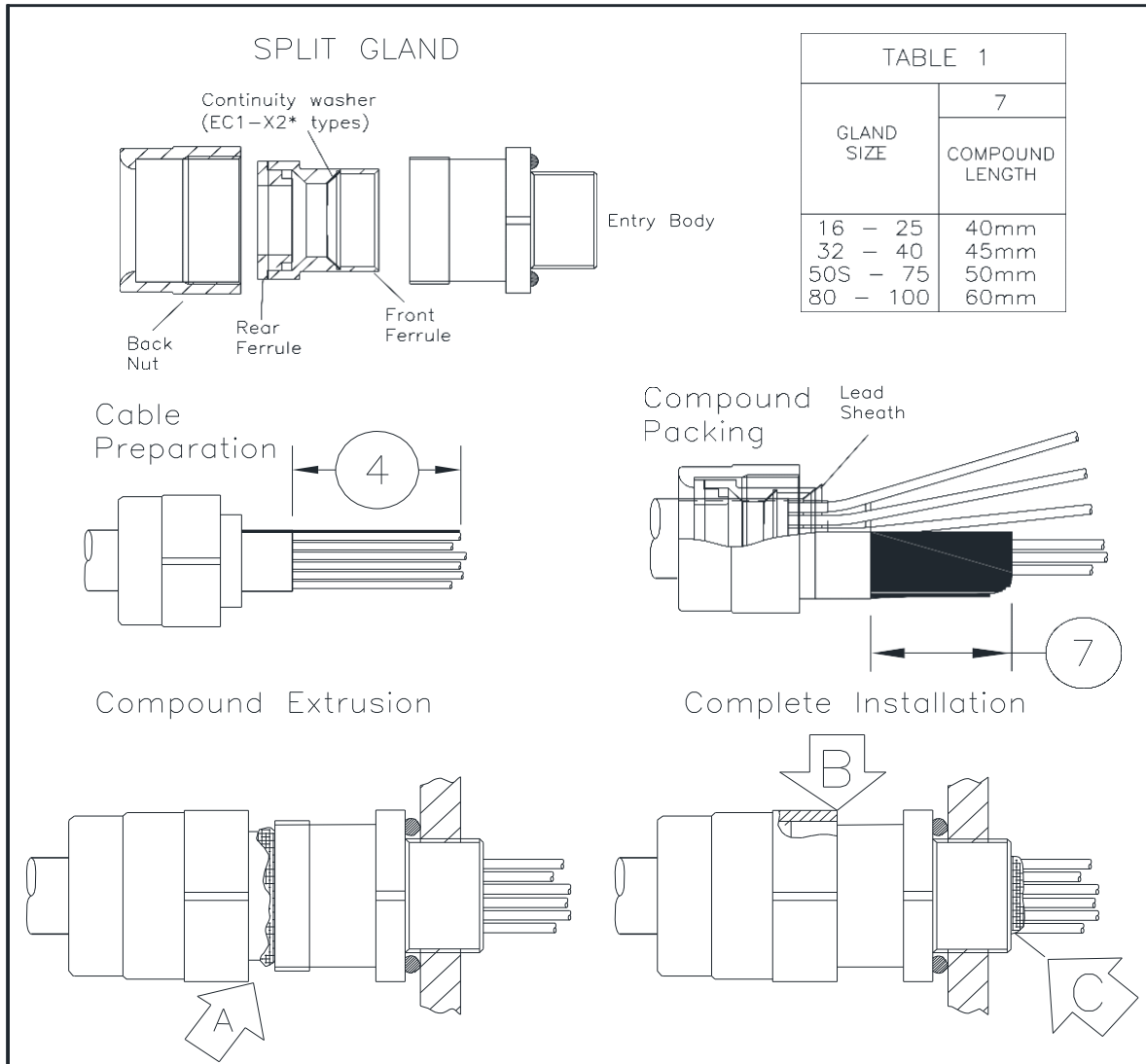
概要信息 Brief Description

Peppers EC1-X**型胶泥填充电缆接头适用于户外适当危险区域的带任何结构的非铠装电缆，带或不带穿过胶泥的编织物或屏蔽电缆。它并可作终止飞线或直接连接相关外壳的线路套管。它可以使铅包电缆保持电气连续性，达到防护等级 IP66, IP68 (7 天 100 米), IP69 和防洪涌的效果。The Peppers EC1-X** type Compound-filled cable gland is for outdoor use in the appropriate Hazardous Areas with unarmoured cable of any construction, with or without braids or screens, where the braids or screens pass through the compound. It may also be used as a line bushing for terminating flying leads or for the direct inter-connection of associated enclosures. A variant giving electrical continuity to a lead sheath is available. It gives environmental protection to IP66, IP68 (100 metres for 7 days), IP69 and Deluge.

警告 Warning

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 advice on the selection of product. Further guidance can be found in the standards listed overleaf or the prevailing code of practice. The compound used within this cable gland 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. Prior to use 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



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

- 1 如图所示分开接头。警告。该电缆接头的入口主体涂有脱模剂，以确保固化后可以检查胶泥形式。入口主体不应使用任何润滑剂处理或暴露于任何溶剂中。不得损坏入口主体的内孔。正常安装过程中的任何操作都不会影响脱模剂的功能。Split gland as shown. Warning. The entry body of this cable gland is coated with a releasing agent to ensure the compound form can be inspected after curing. The entry body should not be treated with any lubricant or be exposed to any solvents. The internal bore of the entry body must not be damaged. Any handling during the course of normal installation will not affect the operation of the releasing agent.
- 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。有关 O 形圈的入口主体安装扭矩，请参考表 2。锥形螺纹应采用扳手拧紧。有关进一步的密封和扭矩信息，请访问我们的网站。Fit Entry Body, allowing for any installation accessories, and fully engage the thread into the equipment. For Entry Body installation torque for O-rings please refer to Table 2. Tapered threads shall be made up wrench tight. For further sealing and torque information please refer to our website.
- 3 如图所示滑动后部组件到电缆上。Slide Rear onto cable as shown.
- 4 **电缆准备 CABLE PREPARATION**
剥离外套，使芯线完全暴露胶泥填充腔体内，长度适合安装。铅套必须切割才可以穿过垫片。从芯线周围和芯线之间移除保护箱和所有绳索/填充物。注意不要割断芯线的绝缘套管。任何屏蔽的尾光纤和套管都要穿过胶泥。Strip jacket so that cores are fully exposed in the compound chamber, length to suit installation. Lead sheath must be cut to push through the continuity washer. Remove protective foils, and any cords/fillers from around and between the cores. Take care not to cut the insulating sleeves of the cores. Pigtail and sleeve any screens to be passed through compound.

健康和安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 The resin used in the compound can cause eye and skin irritation. For your personal protection, wear the gloves supplied

- 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 45 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。建议混合胶泥，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. 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 修剪胶泥棒末端的任何硬皮。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。完全混合的胶泥呈均匀的黄色并且无条纹。正确混合后的胶泥见图 1。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 yellow colour with no streaks See Figure 1 for correctly mixed compound.

- 7 支撑电缆和后部组件，握住他们直到大致同心。任何铅护套都应穿过垫片-确保已接触。把芯线分开。从中间开始，在芯之间包上少量的卷出的胶泥。重新拉直每个芯直到所有的间隙填满。用绳索或胶带捆扎芯（见图 2），以防干扰。在外芯外侧包装，以填充后部组件杯。用轻微的锥度在芯部外侧裹上胶泥，胶泥长度近似值如图和表 1 第 7 栏所示。如果电缆有大量芯，应确保将其捆扎在接头螺纹孔附近。Support the cable and Rear Assembly, holding them roughly concentric. Any lead sheath is pushed through the continuity washer - ensure that contact has been made. Splay out the cores. Starting at the middle, pack small amounts of rolled-out compound between the cores. Re-straighten each core and work outwards until all gaps are filled. Bundle the cores with cord or tape (see figure 2) so they are not disturbed. Pack around the outside of the outer cores to completely fill the Rear Assembly cup. Build up compound around the outside of the cores, with a slight taper & to approximate compound length shown in diagram & Table 1 column 7. Where cable has large quantity of cores ensure they are bundled near to the gland entry thread.
- 8 将芯穿过胶泥并将胶泥推入入口主体，直到与后部组件接合。去除箭头 A 处挤出的胶泥。将短接螺母拧 7 个整圈到入口主体上（箭头 B）。确保胶泥从螺纹孔处溢出（箭头 C）。Pass cores through & push compound into Entry Body until Rear Assembly engages. Remove squeezed out compound at arrow A. Support the Back Nut and screw Union Nut 7 full turns onto Entry Body (arrow B). Ensure that compound emerges at entry thread (arrow C).
- 9 清除入口主体上多余的胶泥，以便固化后取出（箭头 C）。芯可能在 1 小时后受到干扰。21°C 是固化时间为 4 个小时。Clean off excess compound from Entry Body to allow withdrawal when cured (arrow C). Cores may be disturbed after 1 hour. Leave to cure for 4 hours when working at 21°C.

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- 10 松开拉回接口进行检查，请按下短接螺母。用扳手在中部螺母上前后转动，同时将后部组件从入口主体上拉开。这将从入口主体中释放化合物。不要过度旋转，否则会损坏电缆芯线或编织层。拉出尾部螺母和胶泥进行检查。胶泥应如图3所示，没有间隙、孔或裂缝。 To release and pull back joint for inspection, unscrew Union Nut. Using a wrench on the Back Nut, rotate the Back Nut back and forth whilst pulling the rear assembly away from the entry body. This will release the compound from the entry body. Do not over rotate as this may damage cable conductors. Pull the Back Nut and compound out for inspection. The compound should appear as in Figure 3 with no gaps, holes or cracks.
- 11 用手拧紧短接螺母以重新制作接头。然后参考表2，用扳手拧紧短接螺母到给定的量。 Hand-tighten Union Nut to remake joint. Then refer to Table 2 and tighten using wrench to the given amount.
- 12 当在 21° C 作业时，在化合物固化至少 4 小时之前，不得对设备进行通电。请参阅图表“通电时间与温度”以获取更多指导。 The equipment should not be energised until the compound has been left to cure for at least 4 hours when working at 21° C. See chart 'Energising Time vs. Temperature' for further guidance.

Figure 1



Figure 2

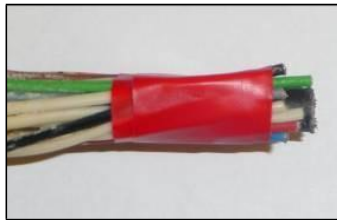
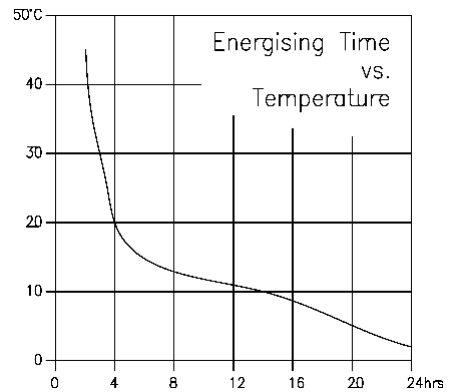


Figure 3



Table 2. Tightening information (In struction 11), cable sizes (mm) & permitted cores

Gland Size	Entry Body Tightening Torque Point 2	Tighten Union Nut using wrench up to	Max Diameter over Cores	Max No of Cores	Max Outer Sheath
16S	5Nm	½-turn	8.9	12	10.0
20S	5Nm	½-turn	10.4	35	11.7
20	5Nm	½-turn	12.5	40	14.0
25	5Nm	½-turn	16.5	60	18.5
32	5Nm	½-turn	23.5	80	26.3
40	10Nm	½-turn	28.8	130	32.2
50S	10Nm	½-turn	34.2	200	38.2
50	10Nm	½-turn	39.4	400	44.1
63S	10Nm	½-turn	44.8	400	50.1
63	10Nm	½-turn	50.0	425	56.0
75S	10Nm	½-turn	55.4	425	62.0
75	25Nm	½-turn	60.8	425	68.0
80	25Nm	¾-turn	64.4	425	72.0
85	30Nm	¾-turn	69.8	425	78.0
90	40Nm	¾-turn	75.1	425	84.0
100	40Nm	¾-turn	80.5	425	90.0



Approvals and Certification

Approval	Certificate Number	Protection Concept / Type
ATEX	CML 19ATEX1113X	Ex 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
	CML 19ATEX4114X	Ex II 3G Ex nR IIC Gc
IECEX	IECEX CML 19.0035X	Ex db I Mb / Ex db IIC Gb / Ex eb I Mb / Ex eb IIC Gb / Ex ta IIIC Da / Ex nR IIC Gc
CCC	2021312313000446	Ex db I Mb / Ex eb I Mb / Ex db IIC Gb / Ex eb IIC Gb / Ex nR IIC Gc / Ex ta IIIC Da IP66

Installation Guidance

Point	Advice
1	EN/IEC 60079-10 EN/IEC 60079-14
2	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.
3	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
4	不得在带电的条件下进行安装 NO INSTALLATION SHOULD BE CARRIED OUT UNDER LIVE CONDITIONS.
5	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“防火”和“防尘”应用，如果不使用密封方法，则至少需要 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 和 IP69。其他并行接头螺纹将保持 IP64 的 IP 等级。使用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并遵守现行操作规程。 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 'flameproof' and 'dust' applications, where no sealing method is used, a minimum of 5 fully engaged parallel threads is required. Metric threads are supplied with an o-ring and will maintain IP66, IP68 & IP69. Other parallel entry threads will maintain an IP rating of IP64. A sealing washer should be used to maintain all IP ratings greater than IP64. Any thread sealant used should be non-hardening and comply with the prevailing code of practice.
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 接头。表面必须干净干燥。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，因此螺纹孔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 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 our website. It is the users/installers responsibility to ensure that the interface between the enclosure and breather drain is suitably sealed for the required application.
7	虽然带锥形螺纹的 Peppers 产品在安装到螺纹孔时，经过测试可保持 IP66 的保护等级，无需任何额外的密封剂，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，建议使用非硬化螺纹密封剂。使用的任何密封剂都应符合现行规范。 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. Any sealant used should comply with the prevailing code of practice.
8	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，应按照说明重新组装压盖，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. 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.
9	安装在套圈外径上的 o 形圈（如图 2 所示）用于防止胶泥在装配过程中进入接头内部。它没有其他功能，也不影响电缆密封套的保护概念或进入保护等级。 The o-ring that is fitted to the outer diameter of the Ferrule (visible on figure 2) is to prevent compound from travelling inside the gland during the assembly process. It has no other function and does not contribute to the protection concept or ingress protection rating of the cable gland.
10	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 and routine inspection. The lubricant should comply with the prevailing code of practice and care should be taken to ensure no
11	有关耐化学性信息，请参阅 Peppers T1000 胶泥数据表。可根据要求提供。 For chemical resistance information please refer to Peppers T1000 Compound data sheet. Available on

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:

电缆接头类型和尺寸 Cable Gland Type & Size EC1-X-2-a-bbb-ccc-nn; where: -

2 =	可选铅包电缆持续性垫圈选项 Optional Continuity Washer option	bbb =	电缆尺寸 Gland size	nn =	制造年份 Year of
a =	主要部件材质 B = 黄铜 S = 不锈钢 Main component material B =	ccc =	螺纹孔类型和尺寸 Entry thread		

安全使用的具体条件 Special Conditions for Safe Use

- 对于 Peppers T1000 胶泥电缆接头/胶泥填充式接头不得用于入口/安装点温度超出-60°C 至+135° C 范围的外壳中。The cable glands/stopper boxes shall not be used in enclosures where the temperature, at the point of entry/mounting, is outside of the range of -60°C to +135°C for Peppers T1000 Compound.
- 当电缆接头安装在具有光滑平坦安装表面的代表性外壳上时，接口密封件符合本报告所列标准的要求。实际上，接头外螺纹与其相关外壳之间的接口无法确定，因此，用户有责任确保在这些接口处保持适当的入口保护等级。The interface seals comply with the requirements of the standards listed in this report when the cable glands are fitted to 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 users' responsibility to ensure that the appropriate ingress protection level is maintained at these interfaces.
- 平行螺纹孔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孔部件螺纹无接口 o 形密封圈，螺纹孔内，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
 - 锥形入口，确保至少保持 3%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
- 尺寸为 16S、20S 和 20 的电缆接头不得用于 I 组 EPL Mb 应用中存在“高”机械损坏风险的地方 Cable glands with sizes 16S, 20S and 20 shall not be used for Group I, EPL Mb applications where there is a 'high' risk of mechanical damage.

