Peppers Cable Glands Ltd. Stanhope Road Camberley GU15 3BT UK.

EC2-C*** Eclipse Compound-Filled Armoured Cable Gland- ASSEMBLY INSTRUCTIONS

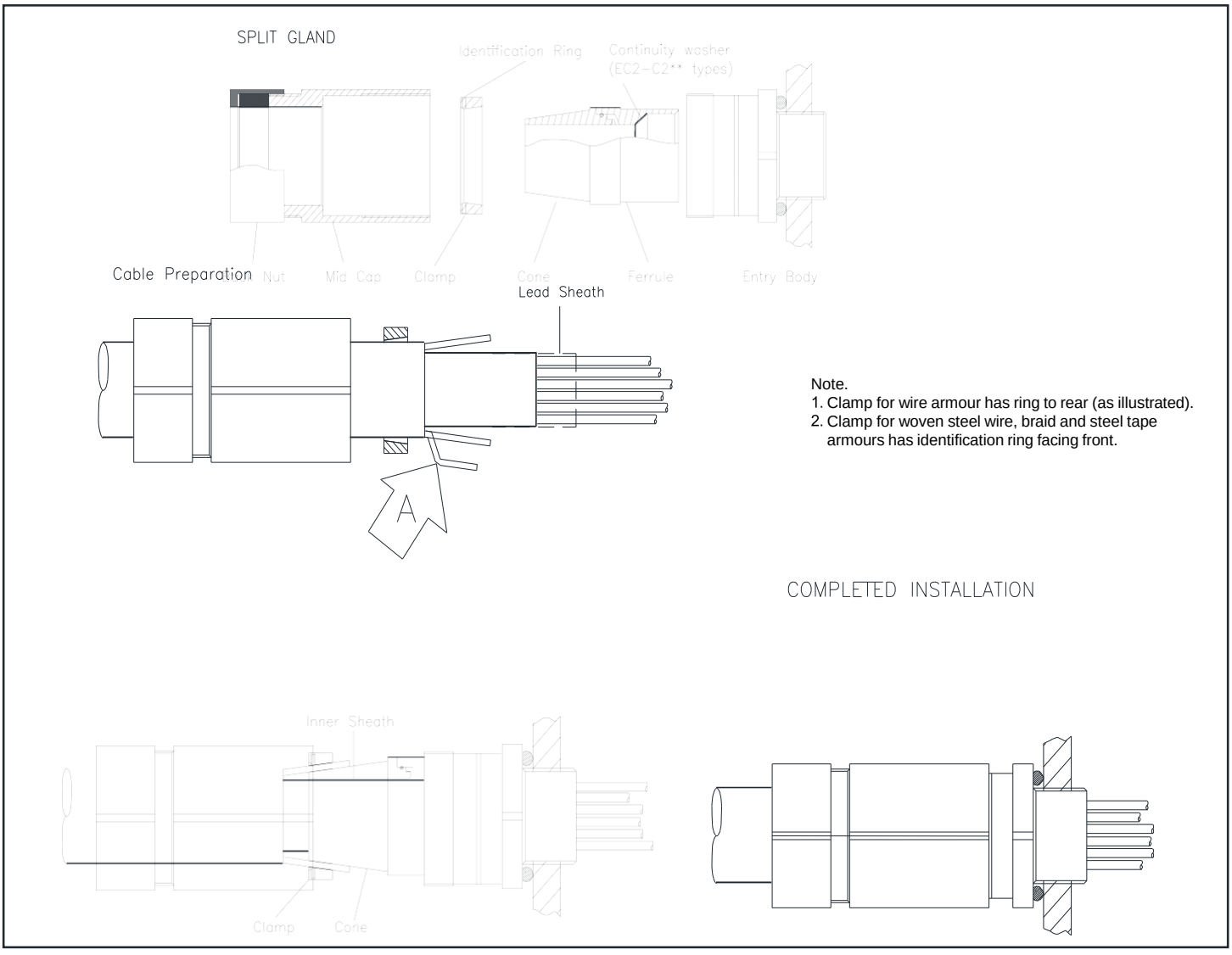
概要信息 Brief Description

Peppers EC2-C***型胶泥填充电缆接头具有多铠装夹环的特点，它适用于户外适当的危险区域使用的圆形软线/钢丝/钢带铠装、编织、屏蔽和非铠装电缆。它还可以使铅包电缆保持电流持续性。他们达到防护等级 IP66、 IP68 (100 米 7 天)，IP69 和防洪涌的效果。 该接头的铠装电缆可以制作适合 EMC 保护的终端。 The Peppers EC2-C*** type compound filled cable gland featuring a multi-armour clamping is for outdoor use in the appropriate Hazardous Areas with circular pliable wire/ steel wire/ steel tape armoured, braided, screened and unarmoured cable. 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. A termination suitable for EMC protection can be made using armoured cables with this gland.

Warning 警告

请仔细阅读这些说明。除非在我们这里的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。进一步的指导可在背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℃和 30° 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 a dry area at temperatures between 5°C and 30°C.

STEP-BY-STEP FITTING INSTRUCTIONS



STEP-BY-STEP FITTING INSTRUCTIONS

1 如图所示分开接头。把棉花填充物放在一边。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. Put cotton filling to one side. 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 effect the operation of the releasing agent.

2 安装入口主体或固定以便于铠装夹紧 。Fit Entry Body or secure to facilitate armour clamping.

3 如图所示，将尾部螺母、中部螺母和夹环（后部组件）滑到电缆上。确保夹环的铠装方向正确，钢丝铠装的识别环朝向后方，胶带和编织铠装的识别环朝向前方 Slide Back Nut, Mid Cap and Clamp, (Rear Assembly) onto cable as shown. Ensure Clamp is in correct orientation for armour, identification ring to rear for wire armour, ring facing forward for tape and braided armour.

4 **电缆准备剥离外套到合适安装的长度 CABLE PREPARATION** Strip off outer jacket, length to suit installation

对于铠装电缆 For armoured cable:- **A** Expose armour approx. 20mm long 露出大概 20mm 长的铠装

B Where sheath sizes are near minimum, wire armour may require forming to facilitate clamping (arrow A) 当护套尺寸接近最小值时，形成铠装以便于夹紧（箭头 A）。

For all cables:- **C** Trim back inner sheath, for exposed lengths see Table 2. Lead sheath must be cut to push through the continuity washer, for approximate lengths see table 2. Remove protective foils, and any cords/fillers from around and between the cores. Take care not to cut insulating sleeves of the cores. Pigtail and sleeve screens to be passed through compound. 修剪后内护套，外露长度见表 2。切割铅护套以穿过垫片，近似长度见表 2。从芯线周围和芯线之间移除保护箔和所有绳索/填充物。注意不要切割芯线的绝缘套管。尾光纤和套管屏蔽要穿过胶泥。

5 Separate the Cone from the Ferrule and slide Cone onto cable towards armour. 将锥形体与套圈分开，并将锥形体滑向铠装电缆。

6 将棉花填充物包裹在电缆周围，推入锥形体后部，将锥形体推到铠装下，从锥形体前部填充填充物，以填充任何间隙。将套圈推到电缆上并与锥形体接合。注意，棉花填充物应填充电缆护套和金属部件之间的任何间隙，以防止注入时胶泥从电缆上经过。这将确保填充充满且形式正确，见图 2Pack cotton filling around cable and push into rear of the cone, push cone under armour and fill any gaps by filling from the front of the cone. Push Ferrule onto cable and engage with cone. Note, the cotton filling should fill any gaps between the cable sheath and the metal component to prevent the compound from travelling past the cable when injected. This will ensure a full fill and correct form, see Figure 2.

7 将后部组件和电缆内护套推过锥形体。铠装必须置于锥形体上方并且朝向锥形体肩部。对于铅护套，穿过垫片，确保接触。将夹环滑到裸露的铠装上。确保夹环处于铠装类型的正确方向。夹环的位置应确保识别环远离钢丝铠装的圆锥体，朝向编织钢丝、编织带或胶带的圆锥体。Push Rear Assembly and inner sheath of cable through Cone. Armour must be positioned over Cone and to the cone shoulder. For lead sheath push through the continuity washer ensuring contact is made. Slide Clamp onto exposed armour. Ensure the Clamp is in the correct orientation for armour type. The clamp should be positioned so that the identification ring is away from the cone for wire armour and towards the cone for woven wire, braid or tape.

8 向前推动电缆以保持铠装接触。确保铠装与锥形体表面接触 Push cable forward to maintain armour contact. Ensure the armour is in contact with the face of the cone.

9 要将铠装夹紧到锥形体上，用手将中部螺母拧紧到入口主体上，然后用扳手再拧紧 1 圈。具有最大直径钢丝铠装的电缆可能需要额外的½ 转一圈。To clamp armour onto Cone, hand-tighten Mid Cap to Entry Body then using wrench tighten a further 1 turn. Cable with maximum diameter wire armour may require an additional ½ to 1 turn.

10 拧松中部螺母，目视检查铠装是否牢固夹紧。拔出电缆和锥体。如果铠装没有夹紧，重复夹紧过程 Unscrew Mid Cap to visually check armour is securely clamped. Pull out cable and Cone. If armour has not clamped repeat the clamping process.

11 一旦铠装被夹住，重新组装入口主体至 7 整圈 Once armour is clamped re-assemble Entry body to 7 full turns.

健康和安全警告胶泥中的树脂会引起眼睛和皮肤刺激。为保护您的人身安全，请在接触胶泥时戴上提供的手套。全面的安全数据表可从我们的网站下载。HEALTH AND SAFETY WARNING The compound can cause eye and skin irritation. For your personal protection, wear the gloves supplied whilst in contact with the

12 检查胶泥未超过其“使用日期”。从阀芯上取下盖子并组装喷嘴 Check compound has not passed its "Use By" date. Remove cap from cartridge and assemble nozzle.

Peppers Cable Glands Ltd. Stanhope Road Camberley GU15 3BT UK.

EC2-C*** Eclipse Compound-Filled Armoured Cable Gland - ASSEMBLY INSTRUCTIONS

13 推动柱塞并分配少量胶泥以填充喷嘴。这样可以清除喷嘴中的空气。否则会影响固化。Push plunger and dispense a small amount of compound to fill the nozzle. This clears the nozzle of air. **Failure to do so can affect cure.**

14 支起电缆和后部电缆组件。对于非铠装电缆，保持锥形体和电缆大致同心。把芯线展开。从中间开始，在芯线之间注入胶泥，大约在内孔的一半。重新拉直芯线，并用芯线或胶带捆扎（见图 1），使其不受干扰。继续在外芯线周围注入胶泥，使其刚好低于入口主体表面。如果电缆有大量芯线，应确保将其捆扎在接头入口螺纹附近，以便在固化后抽出 Support the cable and rear gland assembly. With unarmoured cable, hold Cone and cable roughly concentric. Splay out the cores. Starting at the middle, inject the compound between the cores approximately halfway up internal bore. Re-straighten the cores and bundle with cord or tape (see Figure 1) so they are not disturbed. Continue to inject the compound around the outer cores to just below the Entry Body face. Where cable has large quantity of cores ensure they are bundled near to the gland entry thread to allow withdrawal after cure.

15 如果在胶泥固化前发生过多填充，则清除入口主体螺纹上多余的胶泥。胶泥在 23°C（68）°F 时固化时间为 60 分钟。Clean off any excess compound from Entry Body thread if overfill has occurred before the compound cures. Compound will cure from 60 minutes @ 23°C (68°F).

15 在释放检查前，测试胶泥的边缘，以确认不再粘着。在进行释放检查前，胶泥必须坚硬且无粘性。Before releasing for inspection test the edge of the compound to confirm no longer tacky. Compound must be hard and non-tacky before release for inspection is performed.

16 松开接口进行检查，请拧下中部螺母。用扳手轻轻转动锥形体，使其从入口主体上松开。轻轻地前后旋转，同时将后部组件从入口主体上拉开。这将从入口阀体中释放胶泥。不要过度旋转，否则会损坏电缆芯或编织层。拉出锥形体和胶泥进行检查。胶泥应如图 2 所示，没有间隙、孔或裂缝。To release the joint for inspection unscrew the Mid Cap. Using a wrench on the Cone, slightly rotate the Cone to loosen from Entry Body. Gently rotate 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 cores or braid. Pull the cone and compound out for inspection. The compound should appear as in Figure 2 with no gaps, holes or cracks.

17 用手拧紧中部螺母以重新制作接口。然后参考下表，用扳手拧紧到给定的量 Hand-tighten Mid Cap to remake the joint. Then refer to table below and tighten using wrench to the given amount.

18 用扳手握住中部螺母并将尾部螺母拧紧到电缆上。确保密封件与电缆护套完全接触，然后再拧回尾部螺母 1 圈。Hold Mid Cap with wrench and tighten Back Nut onto cable. Ensure seal makes full contact with cable sheath, and then tighten Back Nut 1 extra turn.

19 安装入口主体。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。设备现在可以通电。Fit Entry Body. 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. The equipment can now be energised.

Figure 1

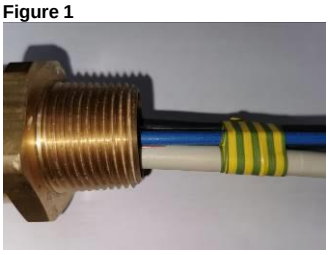


Figure 2

Table 2 - Tightening information (Point 14), cable sizes (mm), construction and armour acceptance (mm)

Gland Size	Entry Body Tightening Torque	Tighten Mid Cap using wrench up to	Max Ø over cores	Max No of Cores	Inner Sheath	Inner Sheath	Outer Sheath		Reduced Bore		Armour Dia/Thickness		Inner Sheath Length	Lead Sheath Length
	Point 16				Min	Max	Min	Max	Min	Max	Braid/Tape	Wire	Point 4C	
16S	5Nm	½-turn	8.9	12	4.0	10.0	8.4	13.5	6.7	10.3	0.2 – 0.8	0.8 – 1.25	12	18
16	5Nm	½-turn	10.4	15	4.0	11.7	8.4	13.5	6.7	10.3	0.2 – 0.8	0.8 – 1.25	12	18
20S	5Nm	½-turn	10.4	15	4.0	11.7	11.5	16.0	9.4	12.5	0.2 – 0.8	0.8 – 1.25	12	18
20	5Nm	½-turn	12.5	20	4.0	14.0	15.5	21.1	12.0	17.6	0.2 – 0.8	0.8 – 1.25	12	18
25	5Nm	½-turn	16.5	30	8.0	18.5	20.3	27.4	16.8	23.9	0.3 - 1.2	1.25 - 1.6	14	18
32	10Nm	½-turn	23.5	50	14.0	26.3	26.7	34.0	23.2	30.5	0.3 – 1.2	1.6 – 2.0	17	24
40	10Nm	½-turn	28.8	65	16.0	32.2	33.0	40.6	28.6	36.2	0.3 – 1.2	1.6 – 2.0	17	24
50S	10Nm	½-turn	34.2	100	20.0	38.2	39.4	46.7	34.8	42.4	0.3 – 1.6	2.0 – 2.5	22	31
50	10Nm	½-turn	39.4	100	20.0	44.1	45.7	53.2	41.1	48.5	0.3 – 1.6	2.0 – 2.5	22	31
63S	10Nm	½-turn	44.8	130	30.0	50.1	52.1	59.5	47.5	54.8	0.3 – 1.6	2.0 – 2.5	23	32
63	10Nm	½-turn	50.0	130	30.0	56.0	58.4	65.8	53.8	61.2	0.3 – 1.6	2.0 – 2.5	23	32

安装指引 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 available for
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 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, IP68 & IP69. 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	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。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倾倒角，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	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的外部入口螺纹上。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.
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	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 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	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.
11	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 lubricant comes into contact with
12	有关耐化学性信息，请参阅 Peppers T2000 胶泥数据表。可根据要求提供。For chemical resistance information please refer to Peppers T2000 Compound data sheet. Available on request.

许可和证书 Approvals and Certification

许可 Approval	证书号码 Certificate Number	保护概念/类型 Protection Concept / Type
ATEX	CML 19ATEX1113X	Ⓔx 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	Ⓔx 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

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 EC2-C-2-a-R-bbb-ccc-nn; where: -

2 =	可选铅护套电缆的垫片选件 Optional Continuity Washer option for lead	R =	可选减缩密封件（红色硅胶）Optional reduced	ccc =	螺纹孔类型和尺寸 Entry thread
a =	主要部件材质 B = 黄铜 S = 不锈钢 Main component material B =	bbb =	接头尺寸 Gland size	nn =	制造年份 Year of manufacture

Special Conditions for Safe Use

1. 对于 Peppers T2000 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+120°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 +120°C for Peppers T2000 Compound.
2. 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 user's responsibility to ensure that the appropriate ingress protection level is maintained at these interfaces.
3. 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.
4. 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
   - 锥形入口，确保至少保持 3½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. 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.

CE 2776 Ⓔx IECEx CCC