

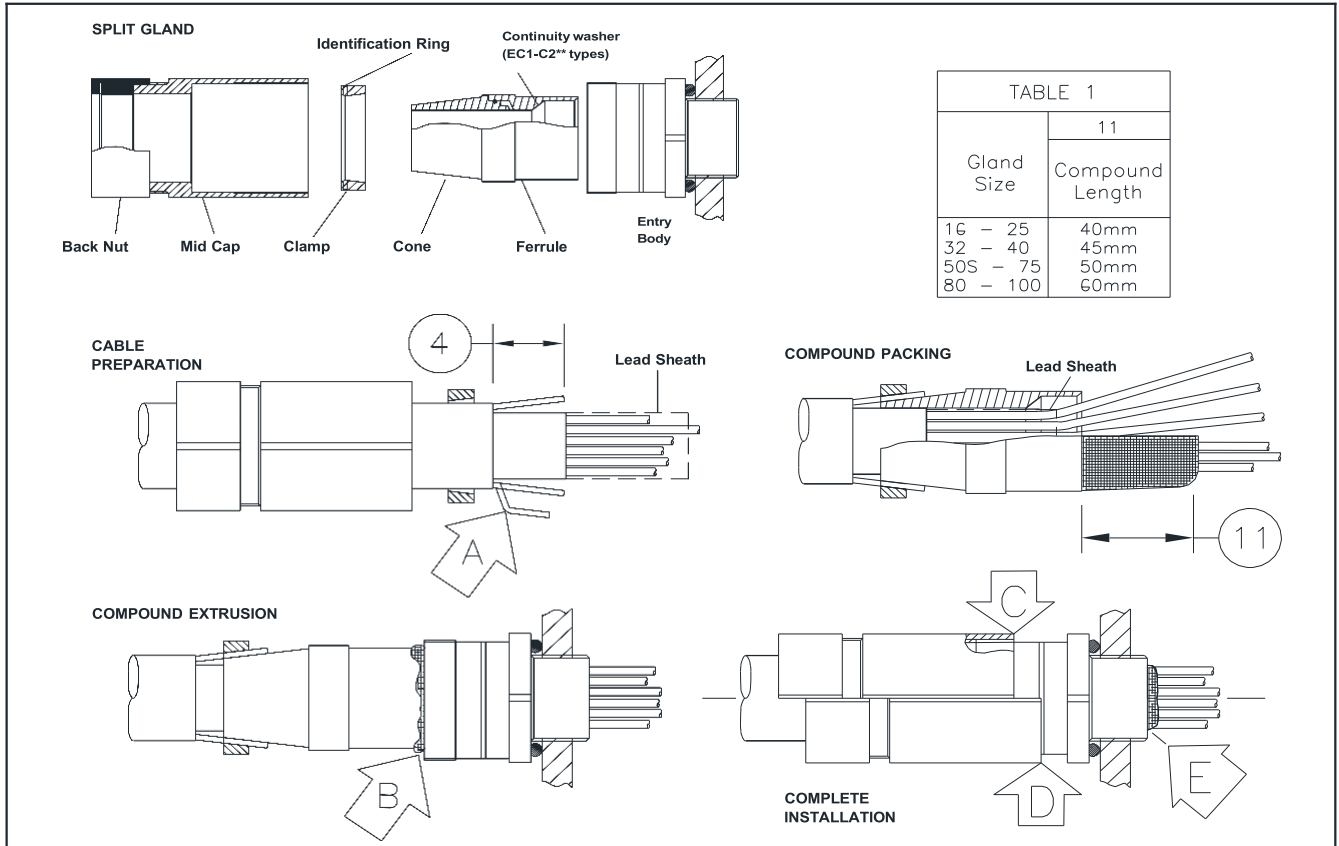
EC1-C*** Eclipse Compound-Filled Cable Gland - ASSEMBLY INSTRUCTIONS

Brief Description 概要信息

Peppers EC1-C*** 型胶泥填充式电缆接头具备多铠装夹持特性，适用于户外适当危险区域的圆形软线/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。它达到防护等级 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 EC1-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

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 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

安装步骤分解 STEP-BY-STEP FITTING INSTRUCTIONS

- 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.
- 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。用手拧紧，然后用扳手适当紧固。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.
- 如图所示滑动尾部螺母，中部螺母和夹环，（后部组件）到电缆上。确保夹环的铠装方向正确，钢丝铠装的识别环朝后方，胶带和编织铠装的识别环朝前方。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.
- 电缆准备剥离外层护套至适合安装的长度 **CABLE PREPARATION** Strip off outer jacket, length to suit installation
 对于铠装电缆: A 裸露铠装大约 20mm For armoured cable:- A Expose armour approx. 20mm long
 B 如果护套尺寸接近最小值，则可能需要钢丝铠装以便于夹紧（箭头 A）B Where sheath sizes are near minimum, wire armour may require forming to facilitate clamping (arrow A)
 对于所有电缆: C 拆除内护套至合适安装的长度 铅护套必须切割才能通过垫片。从芯线周围和芯线之间移除保护管和所有绳索/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化合物。For all cables:- C Remove inner sheath, 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 insulating sleeves of the cores. Pigtail and sleeve screens to be passed through compound.
- 将锥形体滑到内护套和铠装下。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。Slide Cone onto inner sheath and under armour. 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.
- 将电缆穿过入口主体并将锥形体接合到入口主体中。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。Insert cable through Entry Body and engage Cone in Entry Body. Push cable forward to maintain armour contact. Ensure the armour is in contact with the face of the cone.
- 将铠装夹紧到锥形体上，用手将中部螺母拧紧到入口主体，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转 1/2 到 1 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 1/2 to 1 turn.
- 松开中部螺母，肉眼检查铠装层是否已经牢固锁定。拔出电缆和锥形体。如果铠装层没有夹紧，重复夹紧的过程。Unscrew Mid Cap to visually check armour is securely clamped. Pull out cable and Cone. If armour has not clamped repeat the clamping process.

健康和安全的警告 胶泥中未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

- 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. 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.

- 10 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黄色并且无条纹。见表 1 正确混合后的胶泥 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.
- 11 支起电缆和后部组件，同非铠装电缆一起，保持锥形体和电缆大致同心。把芯线分开，从中间开始，在芯线周围填充卷出的胶泥。重新拉直每个芯线直到所有的间隙填满。用绳索或胶带捆扎芯线（见图 2），以防干扰。在外芯外侧包装，以填充锥形杯。在芯线外侧形成有轻微的锥度的胶泥，胶泥长度近似如图和表 1 第 11 栏所示。如果电缆有大量芯线，应确保将其捆扎在接头螺纹孔附近。Support the cable and rear gland assembly. With unarmoured cable, hold Cone and cable roughly concentric. 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 fill the Cone cup. Build up compound around the outside of the cores with a slight taper and to approximate compound length shown in diagram and Table 1 column 11. Where cable has large quantity of cores ensure they are bundled near to the gland entry thread.
- 12 将芯线穿过并将胶泥推入入口主体，直到与锥形体接合。去除箭头 B 处挤出的胶泥。**对于最厚的铠装：**将中部螺母拧 7 个整圈到入口主体上（箭头 C）。**对于胶带铠装/编织带：**螺钉不超过凹槽（尺寸 16 和 20S：螺钉距入口主体六角不超过 6mm[1/4 英寸]）（箭头 D）。确保胶泥从螺纹孔溢出（箭头 E）。Pass cores through & push compound into Entry Body until Cone engages. Remove squeezed out compound at arrow B. **For thickest armour:** Screw Mid Cap 7 full turns onto Entry Body (arrow C). **For tape armours/braids:** screw no further than groove (sizes 16 & 20S: screw no further than 6mm [1/4 inch] from Entry Body hexagon) (arrow D). Ensure that compound emerges at entry thread (arrow E).
- 13 清除入口主体上多余的胶泥，以便固化后取出（箭头 E）。芯线可能在 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 E). Cores may be disturbed after 1 hour. Leave to cure for 4 hours when working at 21°C
- 14 要松开接口进行检查，请拧下中部螺母。用扳手在锥形体上前转动锥体，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胶泥。不要过度旋转，否则会损坏电缆芯线或编织层。拉出锥形体和胶泥进行检查。胶泥应如图 3 所示，没有间隙、孔或裂缝。To release the joint for inspection unscrew the Mid Cap. Using a wrench on the Cone, rotate the Cone 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 3 with no gaps, holes or cracks.
- 15 用手拧紧中部螺母以重新制作接头。然后参考表 2，用扳手拧紧到给定的量 Hand-tighten Mid Cap to remake joint. Then refer to Table 2 and tighten using wrench to the given amount.
- 16 用扳手固定中部螺母，并将尾部螺母拧紧到电缆上。确保密封条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.
- 17 当在 21°C 作业时，在胶泥固化至少 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.

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

Figure 1



Figure 2

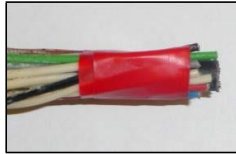


Figure 3

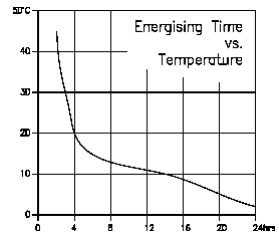


Table 2. Tightening information (Point 15), cable sizes (mm), construction and armour acceptance (mm)

Gland Size	Entry Body Tightening Torque Point 2	Tighten Mid Cap using wrench up to	Max Ø over cores	Max No of Cores	Inner Sheath Max	Outer Sheath		Reduced Bore		Armour Dia/Thickness		Inner Sheath Length	Lead Sheath Length
						Min	Max	Min	Max	Braid/Tape	Wire		
16S	5Nm	½-turn	8.9	12	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	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	35	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	40	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	60	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	80	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	130	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	200	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	400	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	400	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	425	56.0	58.4	65.8	53.8	61.2	0.3 – 1.6	2.0 – 2.5	23	32
75S	25Nm	½-turn	55.4	425	62.0	64.8	72.2	60.2	68.0	0.3 – 1.6	2.0 – 2.5	23	32
75	25Nm	½-turn	60.8	425	68.0	71.1	78.0	66.5	73.4	0.3 – 1.6	2.0 – 2.5	23	32
80	30Nm	¾-turn	64.4	425	72.0	77.0	84.0	71.9	79.4	0.3 – 1.6	3.15 – 4.0	25	34
85	40Nm	¾-turn	69.8	425	78.0	79.6	90.0	75.0	85.4	0.3 – 1.6	3.15 – 4.0	25	34
90	40Nm	¾-turn	75.1	425	84.0	88.0	96.0	82.0	91.4	0.3 – 1.6	3.15 – 4.0	25	34
100	40Nm	¾-turn	80.5	425	90.0	92.0	102.0	87.4	97.4	0.3 – 1.6	3.15 – 4.0	25	34

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
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。根据一般机械加工技术，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

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 IIC 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 IIC 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 IIC 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 EC1-C-2-a-R-bbb-ccc-nn; where: -

2 =	可选护套套电缆的垫片选项 Optional Continuity Washer option for lead	R =	可选减缩密封件（红色） Optional reduced bore	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 =	制作年份 Year of manufacture

安全使用具体条件 Special Conditions for Safe Use

- 对于Peppers T1000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.

3. 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.
4. 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 1/4 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 1/4 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.

