

**UL-C\*\* Marine Shipboard Cable Gland featuring CROCLOCK® – ASSEMBLY INSTRUCTIONS FOR SAFE USE**

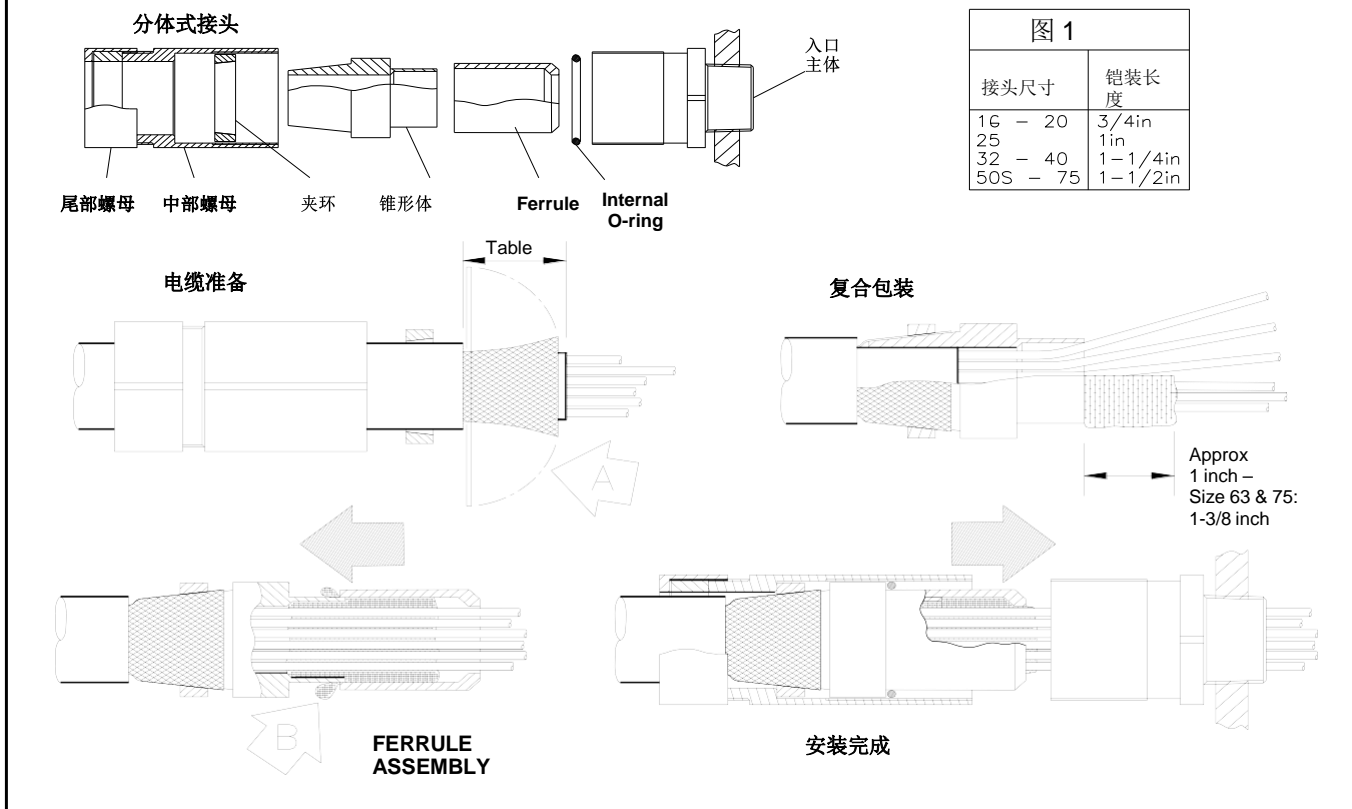
**概要信息**

Peppers UL-C\*\*型胶泥填充电缆接头具有 Croclock®特性，适用于室外适当危险场所使用带有托盘电缆和铠装船用电缆（CEC 和 NEC 应用），圆形软线，钢丝，钢带铠装，编织、屏蔽和非铠装电缆（IEC 应用）。它们达到 IP66、IP68 和 4X 型防护等级的效果。Peppers UL-C\*\* Compound-filled cable glands featuring Croclock® are for outdoor use in the appropriate Hazardous Locations with Tray cable and Armoured Marine Shipboard cables (CEC and NEC applications), circular pliable wire, steel wire, steel tape armoured, braided, screened and unarmoured cable (IEC applications). They give environmental protection to IP66, IP68 & Type 4X.

**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。电缆接头中使用的化合物有应用限制，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化合物存放在温度为 5°C 和 21°C 的干燥区域中。

**装配步骤分解**

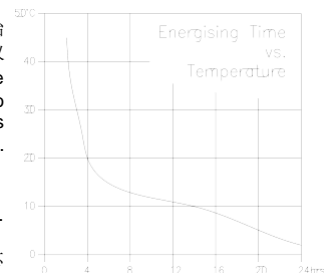


**STEP-BY-STEP FITTING INSTRUCTIONS**

- 分体式接头如图所示 Split gland as shown
- 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，然后用扳手适当紧固。Fit Entry Body, allowing for any installation accessories, and fully engage the thread into the equipment. Hand-tighten, then suitably secure with a wrench.
- 如图所示滑动尾部螺母，中部螺母和夹环（如果需要和护套）到电缆上。将套圈和内部 O 形圈放在一边。Slide Back Nut, Mid Cap and Clamp (and shroud if required) onto cable as shown. Put Ferrule and Internal O-ring to one side.
- 电缆准备 CABLE PREPARATION**
  - 剥离外套到适合安装的长度 Strip off outer jacket, length to suit installation.
  - 切掉铠装，暴露长度近似值见图 1。Cut armour. For approximate exposed lengths see Table 1
  - 拆下内护套。取下芯线周围和芯线之间的保护箔和所有绳索/填充物，使其与内护套保持水平。注意不要割断芯线的绝缘套管。使用列出的套管、尾光纤和套管滤网穿过胶泥和入口主体 Remove inner sheath. Remove protective foils, and any cords/fillers from around and between the cores level with the inner sheath. Take care not to cut the insulating sleeves of the cores. Using Listed sleeving, pigtail and sleeve screens to be passed through compound and Entry Body
  - 使用合适的工具（如薄螺丝刀）挑出铠装，并如图所示放射状展开（箭头 A） Tease out armour using a suitable tool (e.g. thin screwdriver) and splay out radially as shown (arrow A)
- 将圆锥体滑回到内护套上。在圆锥体周围压下铠装。将夹环滑到铠装上。必要时修整铠装。通过入口主体插入电缆，并将圆锥体接合到入口主体中（可以保留套圈以辅助步骤 6） Slide Cone all the way back onto inner sheath. Press down armour around cone. Slide Clamp onto armour. Trim armour if required. Insert cable through Entry Body and engage Cone into Entry Body (Ferrule may be left off to aid Step 6)
- 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. If armour has not clamped repeat the clamping process. Pull out cable and Cone.

**健康和安全的警告** 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

- 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. 参见通电时间数据。 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.
- 胶泥棒末端修剪任何硬件。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。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 colour with no streaks – see Figure 1.
- 支起电缆和后部电缆组件。展开芯线。从中间开始，在芯线之间包上少量的卷出的胶泥。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，确保锥形杯充满 Support cable and rear gland assembly. Splay out cores. Starting at the middle, fill the Cone cup by packing small amounts of rolled-out compound around and between the cores. Re-straighten 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 Cone cup is filled.
- 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封的密封。胶泥的气缸应突出约 1 in/25mm（或 1 3/16 in/35mm，尺寸 63 和 75-见图）。取下套圈卡箍并将其传递到芯线上。



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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 B）。把芯线穿入入口主体。将套圈接合到入口主体中，然后拧上中部螺母。

用扳手拧紧套圈。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 / 25mm (or 1¼ in / 35mm for sizes 63 & 75 - see diagram). Retrieve Ferrule and pass it over cores. Locate and press Ferrule onto Cone and remove any squeezed-out compound (arrow B). Pass cores through Entry Body. Engage Ferrule in Entry Body and screw on Mid Cap. Tighten with wrench to close up the Ferrule Assembly.

- 12 松开中部螺母，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 Mid Cap 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.

- 13 将硅胶 o 形圈滑动到套圈外径上，并确保其位于套圈的底部。Slide silicone o-ring over outer diameter of ferrule and ensure it is located at base of ferrule.

- 14 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。使用扳手完全拧紧中部螺母。用扳手固定中部螺母，然后将尾部螺母拧紧到电缆上。确保护套密封件与电缆完全接触，然后再拧紧螺母 1 圈。Re-assemble Cable Unit to Entry Body ensuring the o-ring is seated on the outside of the ferrule. Fully tighten Mid Cap using wrench. Hold Mid Cap with wrench and tighten Back Nut onto cable. Ensure jacket seal makes full contact with cable then tighten Back Nut 1 extra turn.

Figure 1



**UL-C\*\* Marine Shipboard Cable Gland featuring CROCLOCK® - ASSEMBLY INSTRUCTIONS FOR SAFE USE**

Gland trade sizes, cable sizes (inch and metric) and construction

接头尺寸	Standard Trade Sizes		Max No of Cores	Max No of Cores	Max Diameter Over Cores		Inner Sheath		Outer Jacket Size								Armour Size
									Standard				Reduced Bore				
									Min		Max		Min		Max		
16	1/2" & 3/4"	M20 & M25	1	15	0.409	10.4	0.461	11.6	0.362	8.4	0.531	13.5	0.264	6.7	0.406	10.3	0.15-1.25
20S	1/2" & 3/4"	M20 & M25	4	35	0.409	10.4	0.461	11.6	0.453	11.5	0.630	16.0	0.370	9.4	0.492	12.5	0.15-1.25
20	1/2" & 3/4"	M20 & M25	8	40	0.492	12.5	0.551	14.0	0.610	15.5	0.831	21.1	0.563	14.3	0.693	17.6	0.15-1.25
25	3/4" & 1"	M25 & M32	16	60	0.701	17.8	0.787	20.0	0.799	20.3	1.079	27.4	0.689	17.5	0.941	23.9	0.15-1.6
32	1" & 1 1/4"	M32 & M40	30	80	0.925	23.5	1.035	26.3	1.051	26.7	1.339	34.0	0.984	25.0	1.201	30.5	0.15-2.0
40	1 1/4" & 1 1/2"	M40 & M50	60	130	1.134	28.8	1.267	32.2	1.299	33.0	1.598	40.6	1.154	29.3	1.425	36.2	0.20-2.0
50S	2"	M50 & M63	5	200	1.374	34.9	1.503	38.2	1.551	39.4	1.839	46.7	1.499	38.1	1.669	42.4	0.20-2.5
50	2"	M50 & M63	5	400	1.551	39.4	1.736	44.1	1.799	45.7	2.094	53.2	1.618	41.0	1.909	48.5	0.20-2.5
63S	2 1/2"	M63 & M75	4	400	1.764	44.8	1.972	50.1	2.051	52.1	2.343	59.5	1.846	46.9	2.157	54.8	0.30-2.5
63	2 1/2"	M63 & M75	4	425	1.969	50	2.204	56.0	2.299	58.4	2.591	65.8	2.118	53.8	2.409	61.2	0.30-2.5
75S	3"	M75	4	425	2.181	55.4	2.440	62.0	2.551	64.8	2.843	72.2	2.469	62.7	2.677	67.7	0.30-2.5
75	3"	M75	4	425	2.394	60.8	2.677	68.0	2.799	71.1	3.071	78.0	2.618	66.5	2.890	73.4	0.30-2.5

1 UL Approvals 2 All Other Approvals

**许可和证书**

许可	证书号码	保护内容/类型
ATEX	CML 19ATEX1349X	Ex db I Mb / Ex db IIC Gb / Ex eb I Mb / Ex eb IIC Gb / Ex ta IIC Da
	CML 19ATEX4114X	Ex db I Mb / Ex db IIC Gb / Ex eb I Mb / Ex eb IIC Gb / Ex ta IIC Da
IECEx	IECEx CML 19.0107X	Ex db I Mb / Ex db IIC Gb / Ex eb I Mb / Ex eb IIC Gb / Ex nR IIC Gc / Ex ta IIC 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 IIC Da IP66

**安装指引**

要点	建议 Advice
1	EN/IEC 60079-10
2	EN/IEC 60079-14
3	有关标准的全面详情, 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
4	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.
5	不得在带电的条件下进行安装。NO INSTALLATION SHOULD BE CARRIED OUT UNDER LIVE CONDITIONS.
6	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, 确保压盖螺母、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.
7	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.
8	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.
9	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.
10	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.
11	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)
12	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.

**许可的温度范围 Approved Temperature Range**

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

ATEX / IECEx / INMETRO / EAC / NEPSI / UKRAINE	IP66 / IP68 (100 metres for 7 Days)
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**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-C-a-R-bbb-ccc-nn; where: -**

UL = 壁垒接头产品范围 barrier Gland Product Range	bbb = 接头尺寸 Gland size	nn = 制造年份 Year of
C = Croclock® universal clamp ring incorporating an epoxy -resin based compound	ccc = 螺纹孔类型和尺寸 Entry thread type and size	
a = 主要部件材质 B = 黄铜 S = 不锈钢 Main component material B = brass S = stainless steel	R = 可选减缩密封件 (红色硅胶) Optional reduced	

**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.
  - 锥形引入线, 确保至少保持 3/4 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 3/4 full threads of contact will be maintained, this is in accordance with clause 5.1.2 of EN 60079-31:2014.
- 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.

