

警告 Warning

安装前请仔细阅读本说明书。除非 Peppers 书面声明产品适合此类应用，否则这些产品不应用于此处或我们的数据表中提及的应用以外的任何应用。Peppers 对产品未按本说明书安装或使用而造成的任何损坏、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 **PLEASE STUDY THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION**. These products should not be used in any application other than those mentioned here or in our Data Sheets, unless Peppers states in writing that the product is suitable for such application. Peppers can take no responsibility for any damage, injury or other consequential loss caused where the products are not installed or used according to these instructions. This leaflet is not intended to give advice on the selection of the products. Further guidance can be found in the standards listed overleaf or the prevailing code of practice.

概要信息 Brief Description

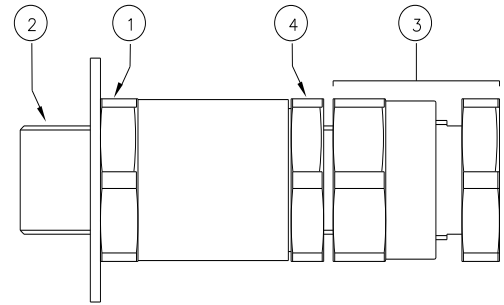
Peppers RA 系列旋转适配器和减速度器适用于室内或室外危险区域。旋转适配器和减速器的设计有助于将进入装置安装到外壳或内壳中。它们也可用于设备上的入口螺纹不同的地方。他们达到防护等级为 IP66 和 IP68 的效果，适用于采矿和地面应用。Peppers RA range of Rotating Adaptors and Reducers are intended for indoor or outdoor use in the appropriate hazardous area locations. Rotating Adaptors and Reducers are designed to facilitate the installation of an entry device into an enclosure or housing. They may also be used where the entry threads on the equipment are dissimilar. They give environmental protection to IP66 and IP68 and are suitable for both mining and surface applications.

安装 Installation

应安装并拧紧所有 Peppers 旋转适配器和减速度器，以确保装置保持适当的 IP 等级。用户/安装人员负责确保外壳和电缆接头之间的接口适当密封，以满足所要求的应用 All Peppers Rotating Adaptors and Reducers should be installed and tightened to ensure the appropriate IP rating of the installation is maintained. It is the users/installers responsibility to ensure that the interface between the enclosure and cable gland is suitably sealed for the required application.

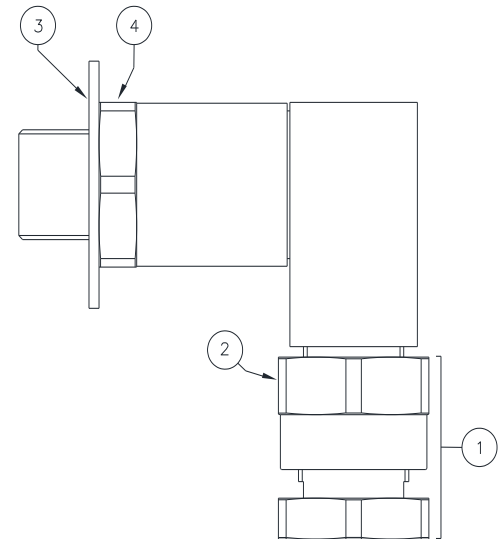
旋转适配器 Rotating Adaptors

- 产品应手动拧紧，然后用扳手适当固定①根据表 1 中的扭矩数据。对于螺纹孔，入口螺纹② 拧紧前应完全接合。对于光孔应用，应使用锁紧螺母和锯齿垫圈（如需要）固定产品。The product should be hand-tightened and then suitably secured with a wrench ① according to the torque figures stated in Table 1. For threaded entries the entry thread ② should be fully engaged prior to tightening. For clearance hole applications the product should be secured with a locknut and, if required, a serrated washer.
- 用手拧紧配套设备③用扳手 通过旋转尾部螺母连接螺纹④并拧紧。Hand-tighten mating equipment ③ to connection thread by rotating back nut ④ with wrench and tighten.
- 完成接线并确保安装牢固。Complete wiring and ensure installation is secure.



90° 旋转适配器 90° Rotating Adaptors

- 反向组装。用手拧紧配套设备的连接螺纹① 然后用扳手拧紧②。Assemble in reverse. Hand tighten connection thread to mating equipment ① and tighten with a wrench ②.
- 将产品穿入外壳③。产品应手动拧紧，然后用扳手④ 按照表 1 中的扭矩数据适当固定。对于螺纹孔，在拧紧之前，入口螺纹应完全啮合。对于光孔应用，应使用锁紧螺母和锯齿垫圈（如需要）固定产品 Thread product into enclosure ③. The product should be hand-tightened and then suitably secured with a wrench ④ according to the torque figures stated in Table 1. For threaded entries the entry thread should be fully engaged prior to tightening. For clearance hole applications the product should be secured with a locknut and, if required, a serrated washer.
- 将设备对准所要求的方向，完成接线，确保安装牢固。Align equipment into required orientation, complete wiring and ensure installation is secure.



安装指引 Installation Guidance

Point	建议 Advice
1	EN/IEC 60079-10 / EN/IEC 60079-14 / EN/IEC 60079-31
2	只能由精通电缆接头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 download from our website.
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 和 Ex ta 应用，至少需要使用 5 个完全啮合的平行螺纹。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 产品在安装到螺纹孔时，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。进一步的指导可以在我们的网站上的 Peppers 文件 CT0030 中找到。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 and Ex ta applications a minimum of 5 fully engaged parallel threads is required. 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. Further guidance can be found in Peppers document CT0030 which can be found on our website.
6	光孔：应大于外螺纹公称直径 0.5mm (+/-0.2mm)。产品应使用 Peppers 锁紧螺母固定，并拧紧螺纹，以确保产品安全。应使用密封垫圈来保持 IP 额定值。应使用锯齿垫圈进行额外的安装保护。Clearance holes: these should be 0.5mm (+/-0.2mm) larger than the nominal diameter of the entry thread. The product should be secured with a lock nut and the threads tightened to ensure the product is secure. A sealing washer shall be used to maintain IP ratings.

	A serrated washer should be used for additional installation protection.
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倾角，以确保保持密封。进一步的指导可以在我们网站上的 Peppers 文件 CT0012 中找到。用户/安装人员有责任确保外壳和电缆接头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	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。使用的任何螺纹密封胶应适用于危险区域位置，适用于安装点的温度范围（例如 Hylomar-50° C 至 250° C），当用于不同材料时，不应含有蒸发溶剂，并且不会在螺纹接口处造成腐蚀。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. Any thread sealant used shall be suitable for use in hazardous area locations, be suitable for the temperature range at the point of mounting (e.g. Hylomar -50°C to 250°C), shall not contain evaporating solvent and cannot cause corrosion at the threaded interface when used for dissimilar materials.
9	产品不可拆卸。产品安装后，应根据 IEC/EN 60079-17 执行常规检查。The product is not intended to be dismantled. Once installed the product should fall under routine inspection as per IEC/EN 60079-17.
10	Restricted Breathing Requirements: - Adaptors and Reducers with parallel threads and fitted with appropriate sealing rings provide a restricted breathing seal. Adaptors and Reducers with tapered or parallel threads, installed into unthreaded entry holes, secured with a locknut, and fitted with appropriate sealing rings provide a restricted breathing seal.
11	如果需要，可以使用润滑油来辅助组装和常规检查。润滑油应符合现行操作规程，并应注意确保润滑油不会与产品密封条和火焰通道接触，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 the products seals or flamepaths as this may impair performance.

产品进入保护/外壳等级 Product Ingress Protection / Enclosure Ratings

按照这些说明安装时，Peppers RA 系列将保持以下 IP 额定值 When installed in accordance with these instructions the Peppers RA range will maintain the following IP ratings: -

外螺纹类型 Male Thread Type	封条类型 Seal Type	IP 额定值 IP Rating	扭矩 Torque
平行 Parallel	无封条 No Seal	IP64	Wrench Tight
平行 Parallel	封条垫圈 Sealing Washer	IP66 / IP68	See Table 1
锥形 Tapered	无封条 No Seal	IP66	Wrench Tight
锥形 Tapered	螺纹密封胶 Thread Sealant	IP66 / IP68	Wrench Tight
IP68 – Products tested to a depth of 100 metres for a period of 7 Days 产品在 100 米深度进行为期 7 天的测试			

备注 Note: 扭矩适用于尼龙和纤维垫圈。Torques are for Nylon and Fibre Washers. 其他材料请参考我们的网站。 For other materials please refer to our website.

使用限制 Limitations on Usage

确保您的安装符合以下要求: Be sure your installation complies with the following:-

Feature 特性	要求 Comment
Temperature 温度 Limitations 限制	产品在其安装点的温度范围内，根据接口密封件进行认证，详情如下 Products are approved for a temperature range at their point of mounting based upon the interface seal as detailed below: -
	Seal Material 封条材料
	No Seal 无封条
	Fibre Washer 纤维垫圈
	Nylon Washer 尼龙垫圈
	Temperature Range 温度范围
	-60°C to +135°C
	-40°C to +95°C
	-40°C to +135°C
	-60°C to +135°C
	PTFE Washer 聚四氟乙烯垫圈
	-60°C to +135°C

图示说明 Interpretation of Markings. 接头外示意图标签代表如下 Markings on the outside of this product carry the following meanings:

适配器类型/尺寸: RAMF-aaa-bbb 其中 aaa 和 bbb 是适配器各自的外螺纹和/或内螺纹尺寸。Adaptor Type & Size: RAMF-aaa-bbb where aaa and bbb is the respective male and/or female thread size of the Adaptor

许可 Approvals

许可 Approval	证书号码 Certificate Number	保护概念/类型 Protection Concept / Type
ATEX	CML 19ATEX1330X	Ⓜ 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 19ATEX4331X	Ⓜ II 3G Ex nR IIC Gc
IECEX	IECEX CML 19.0101X	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	2021312313000376	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 IP68

安全使用条件 Conditions for Safe Use

1. 适配器、异径管和弯头在入口主体和螺纹套圈之间采用圆柱形接口制造。此接口不得修补。The Adaptors, Reducers and Elbows are manufactured with a cylindrical joint between the entry body and threaded ferrule. This joint shall not be repaired.
2. 适配器、异径管和弯头不得在-60°C至+135°C的工作温度范围外使用。The Adaptors, Reducers and Elbows shall not be used outside their service temperature range of -60°C to +135°C.
3. 在I组（采矿）应用中使用的适配器、异径管和弯头应安装在机械损坏风险较低的位置。The Adaptors, Reducers and Elbows, when used in Group I (mining) applications, shall be mounted in a location with low risk of mechanical damage.



表1—安装扭矩 Table 1 – Installation Torques

公制螺纹 Male Metric Thread (和等效形式 and equivalent thread forms)	扭矩 Torque (Nm)
M12, M16, M20	25
M25, M32	45
M40	50
M50	70
M63	110
M75	200
M80, M85, M90, M100	250