

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

RAFF, RAFF90, RAMF, RAMF90, RAMM, RAMM90 Range – Rotating Adaptors & Reducers / Unions – INSTALLATION INSTRUCTIONS

Warning

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.

Brief Description

The 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 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.

Installation

All Peppers rotating adaptors and reducers should be installed and tightened to ensure the appropriate IP rating of the installation is maintained.

1. The product should be hand-tightened and then suitably secured with a wrench. For threaded entries the entry thread should be fully engaged prior to tightening.
2. Hand-tighten mating equipment to connection thread by rotating back nut with wrench and tighten.
3. For 90° variants, assemble in reverse, hand tighten connection thread to mating equipment and tighten with a wrench.
4. Thread product into enclosure and tighten using a wrench.

Installation Guidance

Point	Advice
1	EN/IEC 60079-10 / EN/IEC 60079-14 / EN/IEC 60079-31
2	Installation should only be carried out by a competent electrician, skilled in cable gland installation.
3	Comprehensive details of the compliance standards can be found on the product certificates which are available for download from our website.
4	NO INSTALLATION SHOULD BE CARRIED OUT UNDER LIVE CONDITIONS.
5	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. 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.
6	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 should be used to maintain IP ratings. A serrated washer should be used for additional installation protection.
7	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.
8	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, suitable for use in hazardous area locations, if an IP rating higher than IP64 is required.
9	Any thread sealant used shall be suitable for use in hazardous area locations, be suitable for the temperature range at the point of mounting, shall not contain evaporating solvent and cannot cause corrosion at the threaded interface when used for dissimilar materials.
10	The product is not intended to be dismantled. Once installed the product should fall under routine inspection as per IEC/EN 60079-17.
11	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.
12	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.

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Product Ingress Protection / Enclosures Ratings

When installed in accordance with these instructions the Peppers RA range will maintain the following IP ratings: -

Male Thread Type	Seal Type	IP Rating	Torque
Parallel	No Seal	IP64	Wrench Tight
Parallel	Sealing Washer	IP66 / IP68	See Table 1
Tapered	No Seal	IP66	Wrench Tight
Tapered	Thread Sealant	IP66 / IP68	Wrench Tight
IP68 – Products tested to a depth of 100 metres for a period of 7 Days			

Note: Torques are for Nylon and Fibre Washers.
For other materials please refer to our website.

Table 1 – Installation Torques

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

Limitations on Usage

Be sure your installation complies with the following:-

Feature	Comment	
Temperature Limitations	Products are approved for a temperature range at their point of mounting based upon the interface seal as detailed below: -	
	Seal Material	Temperature Range
	No Seal	-60°C to +135°C
	Fibre Washer	-40°C to +95°C
	Nylon Washer	-40°C to +135°C
PTFE Washer	-60°C to +135°C	

Interpretation of Markings. Markings on the outside of this product carry the following meanings:

Adaptor Type & Size: RAMF-aaa-bbb where **aaa** and **bbb** is the respective male and/or female thread size of the Adaptor

Approvals

Approval	Certificate Number	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

Conditions for Safe Use

- The Adaptors, Reducers and Elbows are manufactured with a cylindrical joint between the entry body and threaded ferrule. This joint shall not be repaired.
- The Adaptors, Reducers and Elbows shall not be used outside their service temperature range of -60°C to +135°C.

