

90° Adaptors and Reducers – ARMR & ARFR Range – 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 advise on the selection of the products. Further guidance can be found in the standards listed below.



Brief Description

The Peppers ARMR and ARFR range of 90° Adaptors and Reducers are intended for indoor or outdoor use in the appropriate hazardous area locations. 90° Adaptors and Reducers are designed to facilitate the installation of an entry device into an enclosure or housing where space may be limited and/or 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.

Product Approval

Range	Approval Concept	Equipment Group and EPL	IP Protection	CSA Approval	Enclosure Type
ARMR ARFR	Ex d / Ex e / Ex tb / Ex nR	I Mb / II Gb & Gc / III Db & Dc	See Below	Class I Div 1 Groups A, B, C & D Class II Div 1 Groups E, F & G Class III	See Below

Installation Guidance

Point	Advice
1	IEC / EN 60079-10 Classification of Hazardous Areas IEC / EN 60079-14 Electrical Installations in hazardous areas (other than mines)
2	Installation should only be carried out by a competent electrician, skilled in cable gland installation.
3	NO INSTALLATION SHOULD BE CARRIED OUT UNDER LIVE CONDITIONS.
4	Threaded entries: the product can be installed directly into threaded entries and the threads tightened as detailed below
5	Clearance holes: these may be 0.1 to 0.7mm larger than the major diameter of the male thread. The product should be secured with a lock nut and the threads tightened as detailed below. A sealing washer and serrated washer may be used for additional installation and environmental protection.
6	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 both the IP joint, and earth contact where needed. The surface must be clean and dry.
7	Whilst Peppers products with tapered threads 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 IP54 is required.
8	With painted enclosures, if an earth contact is required, a serrated washer should be fitted to break through the paint and make a satisfactory contact. It should not be installed so that the IP rating is affected.
9	Aluminium variants may not be used in Group I (Mining) applications
10	All of Peppers Ex certified accessory range may be used in Group II Zone 1 & 2 and Group III Zone 21 & 22 applications, provided the Method of Protection (Ex d, Ex e, Ex tb or Ex nR) is correct. See below.

Installation

All Peppers adaptors and reducers should be installed and tightened to ensure the appropriate IP rating of the installation is maintained. If in doubt as to whether the IP seal will be maintained the adaptor/reducer should be hand tightened into the entry and a torque as detailed opposite should be applied: -

Size	Torque	Size	Torque
M16	32.5 Nm	M40 / 125 NPT	65.0 Nm
M20 / 050 NPT	32.5 Nm	M50 / 150 NPT	80.0 Nm
M25 / 075 NPT	47.5 Nm	M63 / 200 NPT	95.0 Nm
M32 / 100 NPT	55.0 Nm	M75 / 250 NPT	110.0 Nm
For M80 and above – Torque should be twice that of the thread O/D Example: M90 = 180 Nm			

IP / NEMA Ratings

When installed in accordance with these instructions the Peppers ARMR and ARFR range of adaptors and reducers will maintain the IP ratings detailed in the opposite table. When used in a clearance hole a sealing washer or o-ring should be used to maintain the stated IP rating.

Male Thread Type	Seal Type	IP Rating	NEMA
Parallel	No Seal	IP66	3
Parallel	O-Ring	IP66 / IP68	4, 4X, 6, 6P
Parallel	Sealing Washer	IP66 / IP68	4, 4X, 6, 6P
Tapered	No Seal	IP66	3
Tapered	Thread Sealant	IP66 / IP68	4, 4X, 6, 6P
IP68 – Products tested to a depth of 100 metres for a period of 7 Days			

Limitations on Usage

Be sure your installation complies with the following:-

Feature	Comment																				
Stacking	Installing more than one adaptor/reducer in series (by "stacking") is not permitted																				
Enclosure entry thread (Ex d)	The female thread in the enclosure must comply with clause 5.3 of IEC/EN 60079-1 as appropriate. Do not damage threads on assembly. Check the number of full turns of thread engaged is at least 5																				
Temperature Limitations	Products are approved for a temperature range at their point of mounting based upon the interface seal as detailed below: -																				
	<table border="1"> <thead> <tr> <th>Seal Material</th> <th>Temperature Range</th> <th>Seal Material</th> <th>Temperature Range</th> </tr> </thead> <tbody> <tr> <td>No Seal</td> <td>-100°C to +400°C</td> <td>Fluorosilicone O-Ring</td> <td>-55° C to +200°C</td> </tr> <tr> <td>Nitrile O-Ring</td> <td>-30°C to +100°C</td> <td>Viton O-Ring</td> <td>-20°C to +180°C</td> </tr> <tr> <td>Neoprene O-Ring</td> <td>-35°C to +95°C</td> <td>EPDM O-Ring</td> <td>-50°C to +110°C</td> </tr> <tr> <td>Silicone O-Ring</td> <td>-60°C to +200°C</td> <td></td> <td></td> </tr> </tbody> </table>	Seal Material	Temperature Range	Seal Material	Temperature Range	No Seal	-100°C to +400°C	Fluorosilicone O-Ring	-55° C to +200°C	Nitrile O-Ring	-30°C to +100°C	Viton O-Ring	-20°C to +180°C	Neoprene O-Ring	-35°C to +95°C	EPDM O-Ring	-50°C to +110°C	Silicone O-Ring	-60°C to +200°C		
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CSA Approval	Adaptors and Reducers shall not be used in any application where the operating temperature is below -50°C Class I conduit applications, for products with a female connection thread, the female thread must be NPT																				

Markings For Methods Of Protection and Gas/Vapour & Dust Apparatus Groups

Ex d I & IIC / Ex e I & IIC / Ex tb IIC / Ex nR IIC

Marking Notes

1) Additional hazardous area certification information may be detailed on the product

Certificate Numbers (ATEX) SIRA 10ATEX1132U (IEC) IECEx SIR 10.068U (CSA) 2310046
SIRA 09ATEX4133U

ATEX (EU Directive 94/9/EC) Markings I M2 II 2/3 GD

Conditions for Safe Use

- Where Adaptor and Reducers without sealing rings are installed in protection by enclosure (Ex t) equipment for use in explosive dust atmospheres, they may only be fitted into enclosures offering a minimum of 5 full threads, in accordance with IEC 60079-31:2008 clause 5.1.1
- Whilst Peppers range of Adaptors and Reducers have been tested and approved to the stated IP protection ratings, the tests were conducted on a representative thread or enclosure having a smooth flat mounting surface. In practice the interface between the Adaptor or Reducer and the associated equipment cannot be defined, therefore it is the user's responsibility to ensure that an appropriate degree of ingress protection (minimum IP54 or IP6X for Ex t applications) is maintained.
- It is the user's responsibility to ensure that the limiting temperature of the seal is not exceeded and that the chemical resistance properties of the seal are suitable for the intended application.
- Adaptors/reducers shall not to be used for the direct inter-connection of enclosures.
- Only one adapter/reducer is to be used with any single cable entry on the associated equipment.