## TECHNICAL DATA

**CABLE GLAND TYPE** : A2FFC
**INGRESS PROTECTION** : IP66, IP67, IP68
**PROCESS CONTROL SYSTEM** : ISO 9001
ISO/IEC 80079-34:2011

## EXPLOSIVE ATMOSPHERES CLASSIFICATION

**ATEX CERTIFICATION No** : CML 18ATEX1321X, CML 18ATEX4313X
**ATEX CERTIFICATION CODE** : Ⓔx II 2G Ex db IIC Gb, II 2G Ex eb IIC Gb, II 1D Ex ta IIIC Da IP66, 67, 68
: Ⓔx II 3G Ex nR IIC Gc IP66, 67, 68
**UKEX CERTIFICATION No** : CML 21UKEX1245X, CML 21UKEX4246X
**UKEX CERTIFICATION CODE** : Ⓔx II 2G Ex db IIC Gb, II 2G Ex eb IIC Gb, II 1D Ex ta IIIC Da IP66, 67, 68
: Ⓔx II 3G Ex nR IIC Gc IP66, 67, 68
**IECEx CERTIFICATION No** : IECEx 18.0179X
**IECEx CERTIFICATION CODE** : Ex db IIC Gb, Ex eb IIC Gb, Ex ta IIIC Da, Ex nR IIC Gc IP66, IP67, IP68
**CSA CERTIFICATION No** : 1211841
**CSA CERTIFICATION CODE** : Ex d IIC, Ex e II, Ex nR II, Enclosure Type 4X

## IMPORTANT NOTES FOR INSTALLERS

1. Read all instructions before beginning installation. Installation shall only be performed by competent, suitably trained personnel (in accordance with EN/IEC 60079-14) using the correct tools; spanners should be used for tightening.
2. Inspection and maintenance shall only be performed by competent, suitably trained personnel (in accordance with EN/IEC 60079-14 (Initial Inspection) and EN/IEC 60079-17).
3. The interface between a cable entry device and its associated enclosure / cable entry will require additional sealing to achieve ingress protection (IP) ratings higher than IP54. The minimum protection level is IP54 for explosive gas atmospheres and IP6X for explosive dust atmospheres. Parallel threads (and tapered threads when using a non-threaded entry) require a CMP sealing washer or integral O-ring face seal (where available) to maintain IP66, 67 and 68 (when applicable). It is the installers responsibility to ensure the IP rating is maintained at the interface.
Note: When fitted to a threaded entry, all tapered threads will automatically provide an ingress protection rating of IP66.
4. The standard product temperature range is -60°C to +130°C. The equipment should not be used outside of this range.
5. Cable glands do not have any serviceable parts and are therefore not intended to be repaired.
6. Cable glands are manufactured from Brass, Nickel Plated Brass, Stainless Steel, Mild Steel or Aluminium, with Silicone seals. The end user shall consider the performance of these materials with regard to attack by aggressive substances that may be present in the hazardous area. Consideration should be given to potential degradation due to galvanic corrosion at the interface of dis-similar metallic materials.
7. It is the end user's responsibility to ensure the equipment materials are suitable for their final installation location. If in doubt consult CMP Products Limited.
8. Once installed do not dismantle except for inspection. An inspection should be conducted as per IEC / EN 60079-17 by a qualified person. After inspection the gland should be re-assembled as instructed, ensuring the outer seal nut is correctly tightened to ensure the cable is secured.
9. Metric entry threads comply with ISO 965-1 and ISO 965-3 with a 6g tolerance as required by IEC 60079-1:2014. The CMP standard metric thread pitch is 1.5mm for threads up to M75, and 2.0mm from M90 and above. Special thread pitches between 0.7 – 2.0mm are available on all products on request. See certificate for details of other thread types. NPT threads are in accordance with ASME B1.20.1-2013 gauging to Cl 3.2 for external threads. For details of other thread types refer to IECEx certificate.
10. The enclosure surface finish must be smooth and flat to facilitate sealing with an O-ring or Entry Thread Sealing Washer for the required IP rating.
11. Enclosure will need to be sufficiently strong to support the cable and cable gland assembly. Enclosure entries must be perpendicular. Any draft angles from the casting/moulding process should have a perpendicular flat spot machined to facilitate sealing with an O-ring or Entry Thread Sealing Washer.
12. CMP Products recommends when using the cable gland with a through-hole, the hole must be circular, free of burrs and the diameter no larger than 0.7mm above the thread major diameter. A suitable CMP Products locknut shall be used to secure the product. See CMP Products catalogue for locknut options.
13. A CMP earth tag should be used when it is necessary to provide an earth bond connection. CMP earth tags have been independently tested to comply with Category B rating specified in IEC 62444 (no ratings stated in IEC 60079-0). Ratings are shown in the associated table. CMP earth tags slip over the cable gland or accessory entry thread from inside/outside the enclosure and must be secured with a locknut (if fitted internally).

| CMP Earth Tag Size | Short Circuit Ratings Symmetrical Fault Current (kA) for 1 second |
|---|---|
| 20 | 3.06 |
| 25 | 4.06 |
| 32 | 5.40 |
| 40 | 7.20 |
| 50 | 10.40 |
| 63 | 10.40 |
| 75 | 10.40 |

## ACCESSORIES

The following accessories are available from CMP Products, as optional extras, to assist with fixing, sealing and earthing :-
Locknut, Earth Tag, Serrated Washer, Entry Thread (I.P.) Sealing Washer, Shroud

## SPECIFIC CONDITIONS OF USE

1. All cable gland types and sizes are only suitable for fixed installations. Cables must be effectively clamped to prevent pulling or twisting.
2. The entry item component may be supplied with an alternative nearest equivalent recognised thread type and size to the metric thread, whilst maintaining a tolerance of fit, equal to or better than, a medium fit to ISO 965-1 & ISO 965-3. Intended for use within existing installations only, that incorporate female thread types that are no longer permitted by the current edition of EN/IEC 60079-1, but comply with the requirements of EN 50018:2000 & IEC 60079-1:2001
3. When the cable glands are supplied with an entry thread that is one size up from the nominal gland size, designated with the letter 'B' after the gland size, e.g. 32B****, they shall not be used with any adaptor device.
4. The cable glands shall only be used where the temperature, at the point of entry, is in the following ranges:
a. EPDM (Black): -60°C +130°C
b. FKM (Red/Muddy Brown): -20°C +200°C
5. For Ex d applications, cable gland types CA2F, CA2F-RC, CA2F-FC, CA2F-HC and CA2F- FF are to be installed in associated Ex d equipment having a minimum wall thickness as follows:
a. 10.5mm minimum for cable gland having entry thread sizes M16 x 1.5 to M75 x 1.5
b. 12.5mm minimum for cable gland having entry thread sizes M90 x 2.0 to M115 x 2.0
6. Designed for appropriate Steel Tape Armour (STA), Steel Wire Armour (SWA), and appropriate braided cable. These cable must be extruded sealing (solid polymeric) completely surrounding the "core" (insulation and conductor), allowing for no holes or ventilation through the inner jacket or along the cores.
7. IEC Canadian Standards may have either tapered or non-tapered threads which comply with ISO Standards.
8. According to CEC C22.1 -98, Section 18-106 Part 3, Tapered Threads shall have 5 fully engaged threads, and where non-tapered threads are used in Groups IIC there must be 8 fully engaged threads.

CMP Products Limited on its sole responsibility declares that the equipment referred to herein conforms to the requirements of the ATEX Directive 2014/34/EU and UK statutory requirements SI 2016 No. 1107 (as amended). This is shown in the following harmonised/designated standards;
EN IEC 60079-0:2018, EN 60079-1:2014, EN IEC 60079-7:2015 + A1:2018, EN IEC 60079-15:2019, EN 60079-31:2014

J. Hichens

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17th March 2020

CE 2776
UKCA 2503

Notified Body: CML B.V., Koopvaardijweg 32, 4906CV Oosterhout, The Netherlands

Approved Body: Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ

SCAN FOR INSTALLATION VIDEOS

# INSTALLATION INSTRUCTIONS FOR A2FFC CONDUIT GLAND

CONDUIT GLAND FOR USE WITH UNARMOURED AND BRAID ARMOURED CABLES IN EXPLOSIVE ATMOSPHERES

**INCORPORATING EU DECLARATION OF CONFORMITY TO DIRECTIVE 2014/34/EU AND UK STATUTORY REQUIREMENTS SI 2016 No. 1107 (AS AMENDED)**

**Cable Gland Selection Table**

| Cable Gland Size | Entry Threads | Thread Length (Metric) (Alternate Metric Thread Lengths Available) | Diameter of Cable | | Specific Internal Diameter of Conduit | Maximum External Diameter of Conduit | Across Flats | Across Corners | Protrusion Length | Maximum Envelope Diameter | Combined Ordering Reference (*Brass Metric) | | | Cable Gland Weight (Kgs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Min | Max | | | Max | Max | | | Size | Type | Ordering Suffix | |
| 20S16 | M20 x 1.5 | 15.0 | 3.2 | 4.1 | 5.1 | 12.0 | 24.0 | 26.4 | 33.2 | 26.4 | 20S16 | A2FFC | 1RAC000 | 0.09 |
| 20S16 | M20 x 1.5 | 15.0 | 3.2 | 5.2 | 6.8 | 13.0 | 24.0 | 26.4 | 33.2 | 26.4 | 20S16 | A2FFC | 1RAC001 | 0.09 |
| 20S16 | M20 x 1.5 | 15.0 | 3.2 | 5.5 | 7.8 | 13.0 | 24.0 | 26.4 | 33.2 | 26.4 | 20S16 | A2FFC | 1RAC004 | 0.09 |
| 20S16 | M20 x 1.5 | 15.0 | 3.2 | 8.0 | 9.1 | 15.0 | 24.0 | 26.4 | 33.2 | 26.4 | 20S16 | A2FFC | 1RAC009 | 0.08 |
| 20S16 | M20 x 1.5 | 15.0 | 3.2 | 8.1 | 9.5 | 15.0 | 24.0 | 26.4 | 33.2 | 26.4 | 20S16 | A2FFC | 1RAC010 | 0.09 |
| 20S16 | M20 x 1.5 | 15.0 | 3.2 | 8.1 | 10.2 | 16.0 | 24.0 | 26.4 | 33.2 | 26.4 | 20S16 | A2FFC | 1RAC020 | 0.09 |
| 20S16 | M20 x 1.5 | 15.0 | 3.2 | 8.1 | 10.9 | 17.0 | 24.0 | 26.4 | 33.2 | 26.4 | 20S16 | A2FFC | 1RAC025 | 0.09 |
| 20S16 | M20 x 1.5 | 15.0 | 3.2 | 8.1 | 11.7 | 17.4 | 24.0 | 26.4 | 33.2 | 26.4 | 20S16 | A2FFC | 1RAC030 | 0.09 |
| 20S | M20 x 1.5 | 15.0 | 6.1 | 11.4 | 13.0 | 20.0 | 24.0 | 26.4 | 33.1 | 26.4 | 20S | A2FFC | 1RAC040 | 0.09 |
| 20S | M20 x 1.5 | 15.0 | 6.1 | 11.7 | 13.9 | 20.0 | 24.0 | 26.4 | 33.1 | 26.4 | 20S | A2FFC | 1RAC045 | 0.09 |
| 20S | M20 x 1.5 | 15.0 | 6.1 | 11.7 | 14.7 | 21.5 | 24.0 | 26.4 | 33.1 | 26.4 | 20S | A2FFC | 1RAC060 | 0.09 |
| 20 | M20 x 1.5 | 15.0 | 6.5 | 13.1 | 15.6 | 21.6 | 27.0 | 29.7 | 35.4 | 29.7 | 20 | A2FFC | 1RAC050 | 0.10 |
| 20 | M20 x 1.5 | 15.0 | 6.5 | 14.0 | 16.9 | 23.4 | 27.0 | 29.7 | 35.4 | 29.7 | 20 | A2FFC | 1RAC066 | 0.10 |
| 20 | M20 x 1.5 | 15.0 | 6.5 | 14.0 | 18.0 | 24.0 | 27.0 | 29.7 | 35.4 | 29.7 | 20 | A2FFC | 1RAC070 | 0.10 |
| 20 | M20 x 1.5 | 15.0 | 6.5 | 14.0 | 18.7 | 25.0 | 27.0 | 29.7 | 35.4 | 29.7 | 20 | A2FFC | 1RAC075 | 0.10 |
| 20 | M20 x 1.5 | 15.0 | 6.5 | 14.0 | 20.0 | 26.3 | 27.0 | 29.7 | 35.4 | 29.7 | 20 | A2FFC | 1RAC080 | 0.12 |
| 20 | M20 x 1.5 | 15.0 | 6.5 | 14.0 | 20.5 | 28.0 | 27.0 | 29.7 | 35.4 | 31.0 | 20 | A2FFC | 1RAC085 | 0.11 |
| 25 | M25 x 1.5 | 15.0 | 11.1 | 15.3 | 17.6 | 25.0 | 36.0 | 39.6 | 43.1 | 39.6 | 25 | A2FFC | 1RAC100 | 0.16 |
| 25 | M25 x 1.5 | 15.0 | 11.1 | 18.4 | 20.7 | 27.0 | 36.0 | 39.6 | 43.1 | 39.6 | 25 | A2FFC | 1RAC105 | 0.16 |
| 25 | M25 x 1.5 | 15.0 | 11.1 | 19.0 | 22.3 | 28.5 | 36.0 | 39.6 | 43.1 | 39.6 | 25 | A2FFC | 1RAC110 | 0.17 |
| 25 | M25 x 1.5 | 15.0 | 11.1 | 20.0 | 23.7 | 32.0 | 36.0 | 39.6 | 43.1 | 39.6 | 25 | A2FFC | 1RAC115 | 0.18 |
| 25 | M25 x 1.5 | 15.0 | 11.1 | 20.0 | 25.1 | 31.0 | 36.0 | 39.6 | 43.1 | 39.6 | 25 | A2FFC | 1RAC120 | 0.17 |
| 25 | M25 X 1.5 | 15.0 | 11.1 | 20.0 | 26.5 | 35.0 | 36.0 | 39.6 | 43.1 | 39.6 | 25 | A2FFC | 1RAC180 | 0.18 |
| 32 | M32 x 1.5 | 15.0 | 17.0 | 26.0 | 28.1 | 35.8 | 41.0 | 45.1 | 43.1 | 45.1 | 32 | A2FFC | 1RAC250 | 0.21 |
| 32 | M32 x 1.5 | 15.0 | 17.0 | 26.3 | 30.4 | 38.0 | 41.0 | 45.1 | 43.1 | 45.1 | 32 | A2FFC | 1RAC280 | 0.21 |
| 32 | M32 x 1.5 | 15.0 | 17.0 | 26.3 | 34.6 | 45.0 | 41.0 | 45.1 | 43.6 | 48.0 | 32 | A2FFC | 1RAC290 | 0.25 |
| 40 | M40 x 1.5 | 15.0 | 23.5 | 32.2 | 36.4 | 45.0 | 50.0 | 55.0 | 45.1 | 55.0 | 40 | A2FFC | 1RAC300 | 0.28 |
| 40 | M40 x 1.5 | 15.0 | 23.5 | 32.2 | 40.0 | 49.0 | 50.0 | 55.0 | 45.1 | 55.0 | 40 | A2FFC | 1RAC380 | 0.30 |
| 50S | M50 x 1.5 | 15.0 | 31.0 | 38.2 | 46.5 | 58.7 | 55.0 | 60.5 | 43.8 | 63.7 | 50S | A2FFC | 1RAC450 | 0.48 |
| 50S | M50 x 1.5 | 15.0 | 31.0 | 38.2 | 51.2 | 61.0 | 55.0 | 60.5 | 43.8 | 65.0 | 50S | A2FFC | 1RAC500 | 0.49 |
| 50 | M50 x 1.5 | 15.0 | 35.6 | 44.0 | 51.2 | 61.0 | 60.0 | 66.0 | 48.0 | 66.0 | 50 | A2FFC | 1RAC550 | 0.49 |

*Dimensions are displayed in millimetres unless otherwise stated*

Note: Standard Seal (Black) Temperature Range = -60°C to +130°C,
High Temperature Seal (Brown) Temperature Range = -20°C to +200°C for High Temperature Seal add 'HT' to Ordering Reference after Gland Type e.g. 20SA2FFCHT1RAC025.

| FI412 | | |
|---|---|---|
| Certification | Revision | Date |
| UKEX | 0 | 04/21 |
| IFS | 16 | 09/21 |
| ATEX / IECEx | 12 | 03/20 |
| CSA | 10 | 04/19 |

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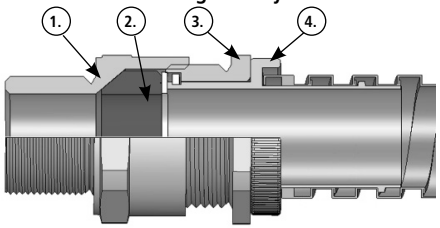
# INSTALLATION INSTRUCTIONS FOR CMP CABLE GLAND TYPES A2FFC

**CABLE GLAND COMPONENTS - It is not necessary to dismantlethe cable gland any further than illustrated below**

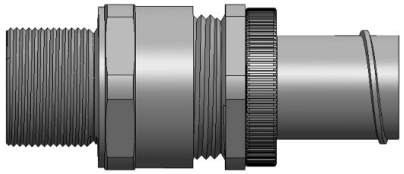
1. Entry Item
2. Seal
3. Seal Nut
4. Conduit Anchor



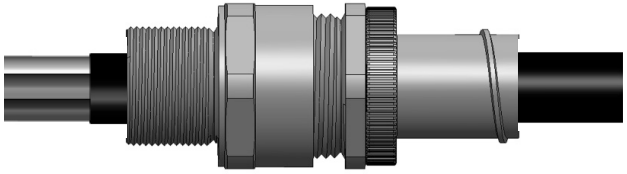

## PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE BEGINNING THE INSTALLATION

**There is no need to disassemble the gland in order to fit it to the conduit.**

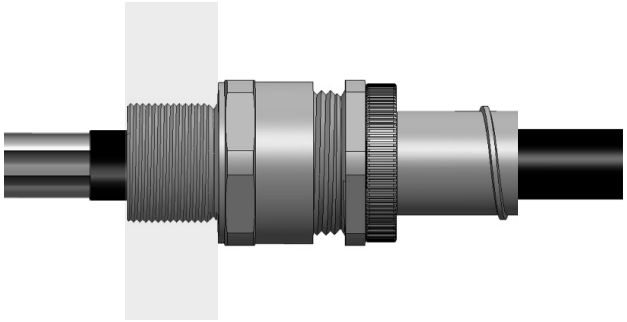
1. Slacken the seal nut (3) to relax the seal.



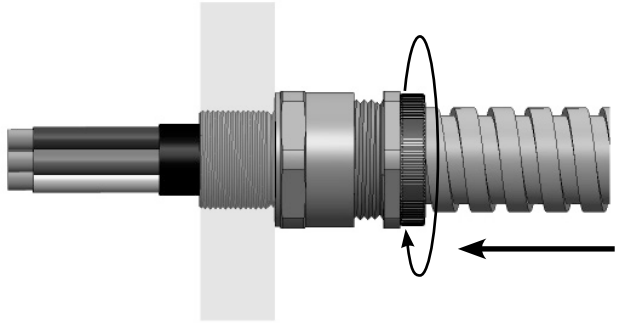
2. Pass enough cable through the seal (2) to suit the installation.



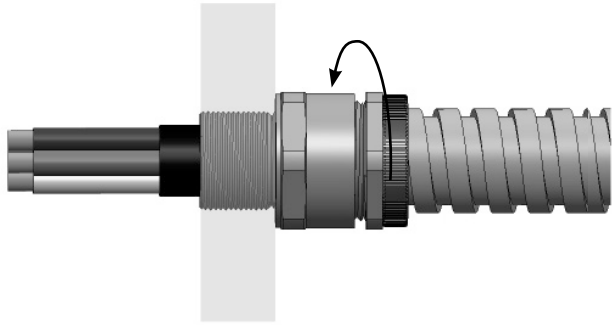
3. Fit the gland into the equipment and fully tighten the entry item (1).



4. Bring the conduit into engagement with the conduit anchor (4) and then screw the anchor into the conduit until it is fully engaged.



5. Tighten the seal nut (3) by hand until resistance is felt (when the seal engages the cable) and then tighten further one full turn with a spanner.





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