



1 **TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres 2014/34/EU

3 Certificate Number: **Sira 16ATEX4020** Issue: **1**

4 Equipment: **A2F100, RA2F100, A2F100HC, RA2F100HC, A2e100, RA2e100, A2e100HC, RA2e100HC Series of Cable Glands**

5 Applicant: **CMP Products Ltd**

6 Address: **36 Nelson Way, Nelson Park East, Cramlington, Northumberland NE23 1WH,UK**

7 This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

8 Sira Certification Service certifies that this equipment has been found to comply with the Essential Health and Safety Requirements that relate to the design of Category 3 equipment, which is intended for use in potentially explosive atmospheres. These Essential Health and Safety Requirements are given in Annex II to European Union Directive 2014/34/EU of the European Parliament and of the Council, 26 February 2014.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 60079-0:2012/A11:2013 EN 60079-15:2010

The above list of documents may detail standards that do not appear on the UKAS Scope of Accreditation, but have been added through Sira's flexible scope of accreditation, which is available on request.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use specified in the schedule to this certificate.

11 This Type Examination Certificate relates only to the design of the specified equipment, and not to specific items of equipment subsequently manufactured.

12 The marking of the equipment shall include the following:

A2F100 Series & RA2F100 Series, A2F100HC Series & RA2F100HC Series, A2e100 Series & RA2e100 Series, A2e100HC Series & RA2e100HC Series



**II 3G
Ex nRc IIC Gc
IP66, IP67, IP68 (30m for 12hrs)
-60°C to +130°C (Service Temperature Range)**

Notes

The 'EPL' code may be omitted from the marking string.

Project Number 70076378

C Ellaby
Deputy Certification Manager

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13 DESCRIPTION OF EQUIPMENT

The **A2F100 Series** and **A2e100 Series** of cable glands allow circular unarmoured or braided/screened cables to enter associated enclosures to which they are fitted (as defined by their coding) without compromising the explosion protection that it provides. They are manufactured from the following component parts:

- **Metallic entry item** hexagonal in form which is partially threaded at one end with a male metric or NPT thread used to secure the entry item to the associated enclosure. At the other end there is a partially turned external surface which is provided for placement of the product markings. At this end the internal profiled bore of the component is partially threaded with a female thread to accept engagement of the outer seal nut.
- **Elastomeric sealing ring** which is inserted into the female threaded end of the entry item which, when displaced by tightening of the outer seal nut, secures the incoming cable in place, along with providing 'sealing' and ingress protection.
- **Metallic stepped skid washer** hollow 'top hat' in form, is fitted into the recessed bore of the outer seal nut. Which upon tightening of the outer seal nut, aids axial displacement of the sealing ring and limits any twisting of the cable within the cable gland during installation.
- **Metallic outer seal nut**, hexagonal in form, is partially threaded at one end with a male thread which engages with the entry items and upon tightening displaces the sealing ring onto the cable. Internally the bore is recessed at one end to accommodate the stepped skid washer, and the other end is machined with an internal radius to reduce the risk of damage to cable sheath/jacket.

The gland and seal sizes are determined by the entry thread and cable range take sizes:

Gland Size	Entry Thread			Cable Outer Sheath Ø	
	Standard (metric)	Standard (NPT)	Optional (NPT)	Min. (mm)	Max. (mm)
16	M16 x 1.5	3/8"	-	3.2	8.0
20S16	M20 x 1.5	1/2"	3/4"	3.2	8.0
20S	M20 x 1.5	1/2"	3/4"	6.5	11.2
20	M20 x 1.5	1/2"	3/4"	7.0	13.5
20L	M20 x 1.5	1/2"	3/4"	8.7	14.0
25	M25 x 1.5	3/4"	1"	11.5	19.5
25L	M25 x 1.5	3/4"	1"	14.0	20.0
32	M32 x 1.5	1"	1 1/4"	19.0	25.5
32L	M32 x 1.5	1"	1 1/4"	20.2	26.3
40	M40 x 1.5	1 1/4"	1 1/2"	25.0	32.2
50S	M50 x 1.5	1 1/2"	2"	31.0	38.2
50	M50 x 1.5	2"	2 1/2"	35.6	44.0
63S	M63 x 1.5	2"	2 1/2"	41.5	49.9
63	M63 x 1.5	2 1/2"	3"	48.2	54.9
75S	M75 x 1.5	2 1/2"	3"	54.0	61.9
75	M75 x 1.5	3"	3 1/2"	61.1	67.9
90	M90 x 2.0	3 1/2"	4"	66.6	79.9
100	M100 x 2.0	3 1/2"	4"	76.0	89.0
115	M115 x 2.0	4"	5"	86.0	97.9
130	M130 x 2.0	5"	-	97.0	114.9

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Sira Certification Service
Unit 6 Hawarden Industrial Park,
Hawarden, CH5 3US, United Kingdom

Tel: +44 (0) 1244 670900
Fax: +44 (0) 1244 681330
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Web: www.csagroupuk.org



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Design options

- The front threaded entry item may be manufactured with a profiled groove to captivate an 'O' ring seal which locates on the mating face of the associated enclosure. This option having the cable gland type designation prefixed with the letter R, e.g. **RA2F100 Series**.
- Alternative materials of manufacture for metallic components:
 - Brass to BS EN 12164:2011 / BS EN 12168:2011 Grade CuZn39Pb (CW614N)
 - Stainless steel to BS EN 10088-3:2014 Grades 316S11, 316S13, 316S31 or 316S33, 316L
 - Mild steel to BS EN 10277-2:2008 Grades 220M07, 230M07 (EN1A) / 220M07Pb, 230M07Pb (EN1APb)
- The front threaded entry item may be manufactured with any larger metric or NPT thread form size from the sizes certified.
- The front threaded entry item may be manufactured with an alternative nearest equivalent recognised thread type and size to the metric thread sizes certified.

Variation 1 - This variation introduced the following changes:

- i. To permit the alternative material of manufacture for metallic component parts of all cable gland model series, namely;
 - Aluminium to :-
BS EN 573-3:2013 / BS EN 755-1, -2, & -3:2008 Grades 6082 T6 or 6262 T6
BS EN 1676:2010 grade LM25 TF
- ii. To permit all cable gland model series to be additionally marked suitable for an ingress protection rating IPX7, and IPX8 to 30m for 12hrs.
- iii. To permit all manufactured brass component parts of all cable gland model series to be nickel plated.
- iv. To permit metric threaded cable entry spigots of all cable gland model series to be manufactured with a thread pitch between 0.7mm and 2.0mm, with 1.5mm as standard.
- v. The introduction of the following low profile 'across corners' envelope cable gland sizes, with the cable gland size suffix code designation 'P':

Gland Size	16P	20S16P	20SP	20P	20LP	25P*	25LP*
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(* not available in aluminium)

The differences to the standard cable gland sizes, are-

- the entry item component is machined from round bar, equal to the standard gland size across corners dimensions, with a central portion machined to a hexagonal profile, having reduced across flats from the standard gland size. Along with a minor increase in length resulting from an increase to the conical wall thickness.
 - the gland nut component (dependent upon model series and gland size), having reduced across flats and across corners dimensions from the standard gland size. Along with their maximum inner most bore dimension being reduced.
- vi. Introduction of a model code series suffixed 'HC' for all cable gland model series, up to either gland size 75S or gland size 75 (dependent upon model series), which includes an alternative nut that is extended to provide a plain circular portion, to facilitate the connection of a hose that provides additional mechanical and environmental protection of the cable terminated within the cable gland. As a result a Condition of Manufacture was introduced.



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Note:

The compression nut may alternatively be machined with a dimensionally equivalent 'smaller' certified gland size hose connection feature. In this instance the upper cable sealing diameter range being reduced accordingly.

- vii. The recognition of minor drawing modifications; these amendments are administrative or involve changes to components and design that do not affect the aspects of the product that are relevant to explosion safety, some of the generic changes are listed below:
- Typographical clarification of gland size references that do not form part of the approval on some model series.
 - Typographical correction to gland size bar tolerances to some component parts on some model series.
 - Typographical addition for clarification between drawings images and related drawing notes.
- viii. Clarification of previous source test data within assessment report numbers R70055973A, Section 2.3.1.3, and T70055973A. Along with a typographical correction to the marking section within assessment report number R70055973A.
- ix. To permit the optional use of an internally fitted brass or brass plated ingress disc between the seal and the stepped washer component parts within 'A2F100' Series, 'RA2F100' Series, 'A2e100' Series & 'RA2e100' Series cable glands. Changing their function to a cable entry blanking device prior to cable installation, as a result a Condition of Manufacture was introduced.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report number	Comment
0	18 May 2016	R70055973A	The release of the prime certificate.
1	04 August 2017	R70076378A	The introduction of Variation 1.

15 SPECIFIC CONDITIONS OF USE

None

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed reports listed in Section 14.2.

17 CONDITIONS OF MANUFACTURE

- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.
- 17.2 Holders of Type Examination Certificates are required to comply with the production control requirements defined in Article 13 of Directive 2014/34/EU.
- 17.3 The front threaded entry item may be provided with, but not limited to, an alternative nearest equivalent recognised thread type and size to the metric thread, whilst maintaining a tolerance of fit, equal or better than, a medium fit to ISO 965-1 & ISO 965-3.

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For example:

- Ø ET - BS 31:1940 (1979) Table 'A'
- Ø PG - DIN 40430:1971
- Ø BSPP - BS2279:1986 class A full form for external threads
- Ø BSPT - BS21:1985 standard threads only as clause 5.4, gauging to clause 5.2, system A.
- Ø ISO - ISO 7/1:1994 gauging to ISO 7/2 clause 6.3 for external threads.
- Ø NPSM - ANSI/ASME B1.20.1:1983 B1.20.1-1983 gauging to clause 9 for external threads.

- 17.4 Cable gland metallic parts are to be supplied in alike materials, alternatively a brass or nickel plated brass stepped skid washer may be used within steel and stainless steel glands.
- 17.5 The front threaded **entry item** of any model series, when manufactured with a larger thread form, or larger technical equivalent thread form, to the standard metric or NPT sizes approved and detailed on the certification documentation will only differ as follows:
- These entry item dimensions must remain the same:
 - The front bore diameter and profile and sealing ring taper angle.
 - Outer seal engagement thread diameter and length.
 - All other dimensions may be altered to match those of the larger approved cable gland size, provided that the overall cable gland protrusion length (whichever is greater between the original cable gland size or the larger approved cable gland size) is not exceeded.
- 17.6 Cable gland model code series suffixed 'HC' manufacturer with a 3/8" NPT threaded spigot shall not be marked suitable for Group I applications.
- 17.7 Cable gland sizes 25P and 25LP shall not be manufactured in aluminium.
- 17.8 Cable Glands supplied with ingress discs shall not be marked suitable for IPX7 or IPX8 applications.

Certificate Annexe



Certificate Number: Sira 16ATEX4020
 Equipment: A2F100, RA2F100, A2F100HC, RA2F100HC,
 A2e100, RA2e100, A2e100HC, RA2e100HC
 Series of Cable Glands
 Applicant: CMP Products Ltd

Issue 0

Drawing	Sheets	Rev.	Date (Sira Stamp)	Title
GA926	1 of 2	00	06 May 16	General arrangement drawings for: 'A2F100' & 'RA2F100' - Series 'A2FHT' & 'RA2FHT' - Series
GA926	2 of 2	00	06 May 16	General arrangement drawings for: 'A2e100' & 'RA2e100' - Series 'A2eHT' & 'RA2eHT' - Series
SCH0405	1 of 2	00	06 May 16	Metallic outer seal nut (100%) 'A2F100' & 'RA2F100' - Series 'A2e100' & 'RA2e100' - Series Metallic outer seal nut (25% high temp.) 'A2FHT' & 'RA2FHT' - Series 'A2eHT' & 'RA2eHT' - Series Metallic outer seal nut (25%) 'A2F' & 'RA2F' - Series & 'A2e' & 'RA2e' - Series
SCH0406	1 of 4	00	06 May 16	Metallic entry item (100%) 'A2F100' & 'RA2F100' - Series Metallic entry item (25% high temp) 'A2FHT' & 'RA2FHT' - Series Metallic entry item (25%) 'A2F' & 'RA2F' - Series
SCH0406	2 of 4	00	06 May 16	Metallic entry item (100%) 'A2e100' & 'RA2e100' - Series Metallic entry item (25% high temp) 'A2eHT' & 'RA2eHT' - Series Metallic entry item (25%) 'A2e' & 'RA2e' - Series
SCH0407	2 of 2	00	06 May 16	Metallic stepped skid washer (100%) 'A2F100' & 'RA2F100' - Series 'A2e100' & 'RA2e100' - Series Metallic stepped skid washer (25% high temp) 'A2FHT' & 'RA2FHT' - Series & 'A2eHT' & 'RA2eHT' - Series Metallic stepped skid washer (25%) 'A2F' & 'RA2F' - Series & 'A2e' & 'RA2e' - Series
SCH0408	1 of 2	00	06 May 16	Elastomeric sealing ring (100%) 'A2F100' & 'RA2F100' - Series 'A2e100' & 'RA2e100' - Series Elastomeric sealing ring (25% high temp) 'A2FHT' & 'RA2FHT' - Series & 'A2eHT' & 'RA2eHT' - Series

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Certificate Annexe



Certificate Number: Sira 16ATEX4020
 Equipment: A2F100, RA2F100, A2F100HC, RA2F100HC, A2e100, RA2e100, A2e100HC, RA2e100HC Series of Cable Glands
 Applicant: CMP Products Ltd

Drawing	Sheets	Rev.	Date (Sira Stamp)	Title
SCH0408	2 of 2	00	06 May 16	Elastomeric sealing ring (25%) 'A2F' & 'RA2F' - Series 'A2e' & 'RA2e' - Series Elastomeric sealing ring (100%) 'A2F100' & 'RA2F100' - Series 'A2e100' & 'RA2e100' - Series Elastomeric sealing ring (25% high temp) 'A2FHT' & 'RA2FHT' - Series & 'A2eHT' & 'RA2eHT' - Series

Issue 1

Drawing	Sheets	Rev.	Date (Sira Stamp)	Title
GA926	1 of 2	01	21 Jun 17	General arrangement A2F - 100% & 25% HT
GA926	2 of 2	01	21 Jun 17	General arrangement A2E - 100% & 25% HT
SCH0405	1 of 4	01	21 Jun 17	100% & 25% HT A2 outer seal nut
SCH0405	3 of 4	01	21 Jun 17	100% & 25% HT HC nut
SCH0406	1 of 4	01	21 Jun 17	100% & 25% HT A2F entry item
SCH0406	2 of 4	01	21 Jun 17	100% & 25% HT A2E entry item
SCH0407	2 of 2	01	21 Jun 17	metallic step washer
SCH0408	1 of 2	01	21 Jun 17	100% & 25% HT A2 seals
SCH0408	2 of 2	01	21 Jun 17	A2 seals (standard/100)
SCH0411	1 of 4	00	21 Jun 17	100% & 25% HT A2 'P' gland size outer seal nut
SCH0411	3 of 4	00	21 Jun 17	100% & 25% HT A2 'P' gland size HC nut
SCH0412	1 of 4	00	21 Jun 17	100% & 25% HT A2F 'P' gland size entry item
SCH0412	2 of 4	00	21 Jun 17	100% & 25% HT A2E 'P' gland size 'item 1' entry body
SCH0418	1 of 1	00	21 Jun 17	'A' - Series Ingress Disc
MP888	1 of 1	10	21 Jun 17	Manufacturing tolerance parameters

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