



1 **EU-TYPE EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 05ATEX1120X** Issue: **4**

4 Equipment: **Type EX-20**, EE-21** and EX-22** Range of Cable Glands**

5 Applicant: **Amphenol Industrial Operations**

6 Address: 40-60 Delaware Avenue, Sidney
New York 13838
USA

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

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

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 to this certificate, has been assured by compliance with the following documents:

EN 60079-0:2012/A11:2013 EN 60079-1:2014 EN 60079-7:2015 EN 60079-31:2014

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

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

EX-20 & EX-22



II 2G
Ex db IIC Gb
Ex eb IIC Gb



EE-21

II 2G
Ex eb IIC Gb



II 1D
Ex ta IIIC Da



II 1D
Ex ta IIIC Da

Project Number 0455

Signed:

Title: Director of Operations

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CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem,
Netherlands



SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 05ATEX1120X
Issue 4

13 DESCRIPTION OF EQUIPMENT

The Type EX-20**, EE-21** and EX-22** Range of Cable Glands may be supplied in the size range 16 to 100, with ISO metric entry threads of M16 to M100 respectively. Alternative thread forms and sizes ISO metric, NPT, NPSM, BSPT, BSPP, PG and ET are available. They are intended for use with an effectively filled and circular armoured, unarmoured, braided or screened cable and comprise the following components:

- a. An entry component
- b. An elastomeric inner sealing ring
- c. A metal inner skid washer
- d. A compression nut
- e. An armour clamping cone
- f. A tapered clamp ring
- g. A middle nut
- h. An elastomeric outer sealing ring
- i. A nylon outer skid washer
- j. A back nut
- k. An O ring entry body seal

Design options

- i. Ex-20 Only - The use of a brass continuity washer to enable the glands to be used with lead inner sheathed cables. An optional reduced bore outer seal may also be fitted.
- ii. EX-22 Only - Replacement of the middle nut and back nut, outer seal and outer skid washer with an alternative middle cap component, for indoor use.
- iii. EE-21 Only - Removal of the inner sealing ring and inner skid washer, to permit the glands to be used with armoured, non-lead sheathed cables. An optional reduced bore outer seal may also be fitted.
- iv. Marking of EX-22 and EX-20 Cable glands IP68. The EE-21 Cable glands are marked IP66.
- v. Sealing rings are available in either neoprene or silicone rubber.

Variation 1 - This variation introduced the following changes:

- i. To permit the use of EX20 B* (neoprene) range of cable glands within an operating temperature range of 85°C; this change necessitates the amendment of special condition for safe use clause 15.2.
- ii. To allow the use of the EX** range of cable glands on a revised inner sheath cable range.
- iii. To permit the use of the EX** range of cable glands for installations with an ingress protection rating of IPX8.
- iv. To allow the serial/batch number to be removed from the product marking and relocated on the packaging.
- v. The introduction of additional minor dimensional and text changes to drawings.
- vi. To permit the use of the EX** range of cable glands with unarmoured, braided or screened cables and the application of a new special condition for safe use clause 15.4.
- vii. To allow the removal of seal temperature marking on the seals.



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Variation 2 - This variation introduced the following changes:

i. The introduction of the following new types:

Type EX2* Cable Glands – incorporating neoprene seals and continuity washer.

Type EX21* Cable Glands – incorporating neoprene seals

Type EX22* Cable Glands – incorporating silicone seals

Type EE21* Cable Glands – incorporating neoprene seals

Type EE21* Cable Glands – incorporating silicone seals

- ii. To permit the EX2*, EX21*, and EX22* Ranges of Cable Glands to be marked IP68; this indicates that they have been tested at a depth up to 25 m for a duration of 30 minutes when fitted into either threaded entries or 'Ex e' enclosures that have plain hole entries with 0.5 mm clearances. The EE** Cable Glands will be marked IP66.
- iii. To allow the use of NBR O-ring interface seals with the EX** Range of Cable Glands that are fitted with neoprene sealing rings.
- iv. To recognise the introduction of minor drawing changes.
- v. The Special Conditions For Safe Use clause numbers 15.2 and 15.4 are amended to recognise the new types introduced with this variation.

Variation 3 - This variation introduced the following changes:

- i. Following appropriate re-assessment to demonstrate compliance with the requirements of the EN 60079 series of standards, the documents originally listed in section 9, EN 50014:1997 (amendments 1 and 2), EN 50018:2000, EN 50019:2000 and EN 50281-1-1:1998, were replaced by those currently listed, the markings in section 12 were updated accordingly and the conditions were modified to recognise the requirements of the latest standards
- ii. Special Condition for Safe Use 15.5 was introduced

Variation 4 - This variation introduced the following change:

- i. Following appropriate reassessment to demonstrate compliance with the requirements of the latest editions of the EN 60079 series of standards, the documents previously listed in section 9, EN 60079-0:2006, EN 61241-0:2006 and EN 61241-1:2004 were replaced by those currently listed, the markings were updated accordingly, the Special Conditions for Safe Use were also amended.
- ii. Type of protection Ex t is upgraded from EPL Db to EPL Da. Following appropriate reassessment to demonstrate compliance with the additional requirements for Ex ta, the markings were updated accordingly.
- iii. The introduction of an alternative silicone and neoprene seal material was endorsed.
- iv. The service temperature range of the glands fitted with a neoprene seal was extended to -35°C to +90°C.



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- v. The EX-20 and EX22*** cable glands, when installed in accordance with the manufacturer's instructions and with an appropriate enclosure on which they are fixed, are capable of providing an ingress protection of IP66 and IP68 (50 metres 7 days).
- vi. The removal of the special condition for safe use relating to enclosure volume, the remaining conditions are renumbered accordingly.

Variation 5 - This variation introduced the following change:

- i. To modify/introduce the following changes to type EX-20 & EE-21 Cable Glands:
 - EX-20, gland size 16, revised 'standard' outer seal cable range from: 9.0/13.5 to: 8.4/13.5
 - EE-21, gland size 16, revised 'standard' outer seal cable range from: 9.0/13.5 to: 8.4/13.5
 - EX-20, gland size 20S, revised 'standard' outer seal cable range from: 12.9/16.0 to: 11.5/16.0
 - EE-21, gland size 20S, revised 'standard' outer seal cable range from: 12.9/16.0 to: 11.5/16.0
 - EX-20, gland size 16H was introduced.
- ii. The recognition of the 'standard' entry threads associated with every gland type's gland sizes.
- iii. To permit all gland types, of parallel threaded entry threads, marked suitable for 'Exe' only to be modified to have a minimum thread length reased to 10 mm from 8 mm.
- iv. To permit all gland types of parallel threaded entry threads to be manufactured with a longer than 'standard' thread length to suit the end use application.
- v. To permit all gland types to be manufactured with a size larger than the 'standard' entry threads listed within the product description.
- vi. The brass materials of manufacture were updated and corrected.
- vii. To recognise the actual seal 'material specification' reference as a replacement for the seal 'material supplier'.
- viii. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2012, EN 60079-1:2007, EN 60079-7:2007 and EN 60079-31:2009, were replaced by EN 60079-0:2012/A11:2013, EN 60079-1:2014, EN 60079-7:2015, and EN 60079-31:2014. The markings were updated, and a Specific Condition of Use was modified and amended to recognise the new standard edition. In addition the description was modified to clarify the certified cable gland types, the standard gland size 'entry threads', and gland size range taking capabilities lusive of changes carried out under this certificate variation.
- ix. To recognise all gland types with the following alternate threaded entry threads complying with the requirements of EN 50018:2000 are intended to be used as replacement entry devices within existing installations with equipment that have threaded entries no longer permitted by the current edition of EN 60079-1.
 - NPSM ANSI/ASME B1.20.1:1983
 - BSPT BS21:1985 (ISO 7/1; BS EN 10226-1:2004 'standard threads'
 - BSPP BS EN ISO 228-1 :2003; BS EN ISO 2228-2:2003 class A full form 'external threads'
 - PG DIN 40430:1971
 - ET BS 31:1940 (1979) Table 'B'

All alternative trade size thread forms are manufactured within the dimensional parameter of the standard entry threads of the gland entry body, and relevant constructional compliance length and engagement requirements in accordance with their product markings.



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14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report number	Comment
0	24 January 2006	R51A13521A	The release of the prime certificate.
1	26 June 2009	R51A20139B	This Issue covers the following changes: <ul style="list-style-type: none"> All previously issued certification was rationalised into a single certificate, Issue 1, Issue 0 referenced above is only intended to reflect the history of the previous certification and has not been issued as a document in this format. The rationalisation of the certificate in accordance with that listed in section 14.3.
2	12 August 2013	R27874A/00	The introduction of Variation 4.
3	05 June 2018	R70144815B	This Variation introduced the following changes: <ul style="list-style-type: none"> EC-Type Examination Certificate in accordance with 94/9/EC updated to EU-Type Examination Certificate in accordance with Directive 2014/34/EU. <i>(In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such EC-Type Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)]</i> The introduction of Sira Variation 5
4	15th October 2019	0455	<ul style="list-style-type: none"> Transfer of certificate Sira 05ATEX1120X from Sira Certification Service to CSA Group Netherlands B.V..

14.3 Certificate number BAS 01ATEX2271X Issue 10

15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

15.1 Glands fitted with neoprene sealing rings (black) shall not be used with enclosures where the temperature, at the point of mounting, is outside the range of -35°C to +90°C.

15.2 Glands fitted with silicone sealing rings (white or red) shall not be used in enclosures where the temperature, at the point of mounting, is outside the temperature range -60°C to +180°C.

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- 15.3 When the gland is used with reased safety and/or dust protected equipment, the entry thread shall be suitable sealed to maintain the ingress protection rating of the associated enclosure.
- 15.4 If these cable glands only grip the cable sheath of the cable and do not clamp the cable armour or if they are used to terminate unarmoured, braided or screened cables, then they shall only be used for fixed installations, hence the cables shall be effectively clamped to prevent pulling or twisting.
- 15.5 The EX-20 and EX-22 glands, when installed in accordance with the manufacturer's instructions and with an appropriate enclosure on which they are fixed, are capable of providing an ingress protection of IP66 and IP68 (50 metres 7 days).
- 15.6 The EE-21 glands, when installed in accordance with the manufacturer's instructions and with an appropriate enclosure on which they are fixed, are capable of providing an ingress protection of IP66.
- 15.7 The threaded entry component threads without interface O-ring seals installed in an explosive dust atmosphere, within threaded entries, shall only be fitted into enclosures that have either:
- parallel entries that will ensure that a minimum of 5 full threads of contact will be maintained, this is in accordance with clause 5.1.2 of EN 60079-31:2014,
 - tapered entries that will ensure that a minimum of 3 1/2 full threads of contact will be maintained, this is in accordance with clause 5.1.2 of EN 60079-31:2014
- 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 in the reports listed in Section 14.2.

Certificate Annexe



Certificate Number: Sira 05ATEX1120X

Equipment: Type EX-20**, EE-21** and EX-22** Range of Cable Glands

Applicant: Amphenol Industrial Operations

Issue 0

Drawing No.	Sheet	Rev.	Date	Title
AMP/ATX/CRO	1 of 1	1	17 Jun 05	EE-21 label drawing
AMP/ATX/CR	1 of 1	1	17 Jun 05	EX-20 label drawing
AMP/ATX/CRD	1 of 1	1	17 Jun 05	EX-22 label drawing

Issue 1

Drawing	Sheets	Rev.	Date	Title
AMP/ATX/CRD	1 of 1	2	28 Apr 09	EX-22 Label Drawing
AMP/ATX/CRO	1 of 1	2	28 Apr 09	EE-21 Label Drawing
AMP/ATX/CR	1 of 1	2	28 Apr 09	EX-20 Label Drawing

Issue 2

Drawing	Sheets	Rev.	Date (Sira Stamp)	Title
AMP/ATX/CR	1 of 1	3	26 Jul 13	TA Label EX-20 Cable Gland Range
AMP/ATX/CRD	1 of 1	3	26 Jul 13	TA Label EX-22 Cable Gland Range
AMP/ATX/CRO	1 of 1	3	26 Jul 13	TA Label EE-21 Cable Gland Range

Issue 3

Drawing	Sheets	Rev	Date (Sira stamp)	Title
AMP/ATX/CR	1 of 1	4	31 May 18	EX-20 Range
AMP/ATX/CRD	1 of 1	4	31 May 18	EX-22 Range
AMP/ATX/CRO	1 of 1	4	31 May 18	EE-21 Range

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1 **EU-TYPE EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 05ATEX1121X** Issue: **4**

4 Equipment: **Type EX-50* and EX-55* Range of Cable Glands**

5 Applicant: **Amphenol Industrial Operations**

6 Address: 40-60 Delaware Avenue
Sidney
New York 13838
USA

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

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

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 to this certificate, has been assured by compliance with the following documents:

EN 60079-0:2012/A11:2013 EN 60079-1:2014 EN 60079-7:2015 EN 60079-31:2014

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

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

 II 2G and/or  II 1D
Ex db IIC Gb Ex ta IIIC Da
Ex eb IIC Gb

* Due to restrictions applied by the applicant some products that are detailed in this certificate may not be commercially available.

Project Number 0456

Signed: 

Title: Director of Operations

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EU-TYPE EXAMINATION CERTIFICATE

Sira 05ATEX1121X
Issue 4

13 DESCRIPTION OF EQUIPMENT

These cable glands are intended for use with flat profile cables. The EX-55 range may be used with any cable type where sealing and retention is required by gripping the outer sheath (this includes armoured/screened/braided cables, the armour/screen/braid being clamped inside the terminating equipment). The EX-50 range has an additional clamp to grip copper braid and woven steel wire armour, and grips the inner and outer sheaths. Construction materials are brass, mild steel or stainless steel. In all cases, the seal materials are silicone.

Glands are available in the size range 20S, 20R, 20 and 25 with an M20 x 1.5 and M25 X 1.5 metric entry thread. Alternative thread forms and sizes ISO metric, NPT, NPSM, BSPT, BSPP, PG and ET are available. The glands have an ingress protection rating of IP66 and IP68 (50 metres 7 days).

Variation 1 - This variation introduced the following changes:

- i. Following appropriate re-assessment to demonstrate compliance with the requirements of the EN 60079 series of standards, the documents originally listed in section 9, EN 50014:1997 (amendments 1 and 2), EN 50018:1999, EN 50019: 2000 and EN 50281-1-1:1998, were replaced by those currently listed, the markings in section 12 were updated accordingly.

Variation 2 - This variation introduced the following changes:

- i. Following appropriate reassessment to demonstrate compliance with the requirements of the latest editions of the EN 60079 series of standards, the documents previously listed in section 9, EN 60079-0:2006, EN 61241-0:2006 and EN 61241-1:2004 were replaced by those currently listed, the markings were updated accordingly and the special condition for safe use was amended to recognise the new standards.
- ii. Type of protection Ex t is upgraded from EPL Db to EPL Da. Following appropriate reassessment to demonstrate compliance with the additional requirements for Ex ta, the markings were updated accordingly.
- iii. The introduction of an alternative silicone seal material was approved.
- iv. The cable glands, when installed in accordance with the manufacturer's instructions and with an appropriate enclosure on which they are fixed, are capable of providing an ingress protection of IP66 and IP68 (50 metres 7 days).
- v. The special condition for safe use stating that the glands shall not be used with group Ex d IIC enclosures with a volume greater than 2000 cm³ was removed.
- vi. The metric interface thread M25 x 1.5 metric has been added to the product description.
- vii. The recognition that the EX55 now has additional EX55F and EX55M designations. The EX55F and EX55M ranges provide a female or male thread for the connection of threaded equipment.

Variation 3 - This variation introduced the following changes:

- i. The recognition of the 'standard' entry threads associated with every gland types gland sizes, in accordance with newly introduced generic bill of material drawing(s).
- ii. To permit all gland types, of parallel threaded entry threads, marked suitable for 'Exe' only to be modified to have a minimum thread length reased to 10 mm from 8 mm.
- iii. To permit all gland types of parallel threaded entry threads to be manufactured with a longer than 'standard' thread length to suit the end use application.
- iv. The recognition of the introduction of gland series' EX50F, EX50M for connection to female and male threaded equipment and EX55RFC series for connection to flexible metal conduit.



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Issue 4**

- v. To permit all gland types to be manufactured with a size larger than the 'standard' entry threads listed within the product description.
- vi. To recognise all gland types with the following alternate threaded entry threads complying with the requirements of EN 50018:2000. Are intended to be used as replacement entry devices within existing installations with equipment that have threaded entries no longer permitted by the current edition of EN 60079-1.
 - NPSM ANSI/ASME B1.20.1:1983
 - BSPT BS21:1985 (ISO 7/1; BS EN 10226-1:2004 'standard threads')
 - BSPP BS EN ISO 228-1 :2003; BS EN ISO 2228-2:2003 class A full form 'external threads'
 - PG DIN 40430:1971
 - ET BS 31:1940 (1979) Table 'B'

All alternative trade size thread forms are manufactured within the dimensional parameter of the standard entry threads of the gland entry body, and relevant constructional compliance length and engagement requirements in accordance with their product markings.

- vii. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2012, EN 60079-1:2007, EN 60079-7:2007 and EN 60079-31:2009, were replaced by EN 60079-0:2012/A11:2013, EN 60079-1:2014, EN 60079-7:2015, and EN 60079-31:2014. The markings were updated, and a Specific Condition of Use was modified and amended to recognise the new standard edition. In addition the description was modified to clarify the certified cable gland types, the standard gland size 'entry threads ', and gland size range taking capabilities lusive of changes carried out under this certificate variation.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report number	Comment
0	24 January 2006	R51A13521A	The release of prime the certificate.
1	26 June 2009	R51A20139B	This Issue covers the following changes: <ul style="list-style-type: none"> • All previously issued certification was rationalised into a single certificate, Issue 1, Issue 0 referenced above is only intended to reflect the history of the previous certification and has not been issued as a document in this format. • The introduction of Variation 1.
2	26 July 2013	R27874A/00	The introduction of Variation 2.



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Sira 05ATEX1121X
Issue 4

Issue	Date	Report number	Comment
3	05 June 2018	R70144815C	This Variation introduced the following changes: <ul style="list-style-type: none">• EC-Type Examination Certificate in accordance with 94/9/EC updated to EU-Type Examination Certificate in accordance with Directive 2014/34/EU. <i>(In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such EC-Type Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)]</i>• The introduction of Sira Variation 3.
4	15th October 2019	0456	<ul style="list-style-type: none">• Transfer of certificate Sira 05ATEX1121X from Sira Certification Service to CSA Group Netherlands B.V..

14.3 Certificate number Sira 01ATEX1270X Issue 10

15 **SPECIFIC CONDITIONS OF USE** (denoted by X after the certificate number)

15.1 The EX-50 and EX-55 ranges of cable glands shall not be used with enclosures where the temperature, at the point of mounting, is outside the range of -60°C to +180°C.

15.2 The EX-50 and EX-55 range of cable glands shall only be used for fixed installations; in addition, the cables must be effectively clamped to prevent pulling or twisting.

15.3 These cable glands, when installed in accordance with the manufacturer's instructions and with an appropriate enclosure on which they are fitted, are capable of providing an ingress protection of IP66 and IP68 (50 metres 7 days).

15.4 The threaded entry component threads without interface O-ring seals installed in an explosive dust atmosphere, within threaded entries, shall only be fitted into enclosures that have either:

- parallel entries that will ensure that a minimum of 5 full threads of contact will be maintained, this is in accordance with clause 5.1.2 of EN 60079-31:2014,
- tapered entries that will ensure that a minimum of 3 ½ full threads of contact will be maintained, this is in accordance with clause 5.1.2 of EN 60079-31:2014

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 in the reports listed in Section 14.2.

Certificate Annexe



Certificate Number: Sira 05ATEX1121X

Equipment: Type EX-50* and EX-55* Range of Cable Glands

Applicant: Amphenol Industrial Operations

Issue 0

Drawing No.	Sheet	Rev.	Date	Title
AMP/ATX/BF	1 of 1	1	17 Jun 05	EX-50 label drawing
AMP/ATX/UF	1 of 1	1	17 Jun 05	EX-55 label drawing

Issue 1

Drawing No.	Sheets	Rev.	Date	Title
AMP/ATX/BF	1 of 1	2	28 Apr 09	Label Drawing Sira 05ATEX1121X
AMP/ATX/UF	1 of 1	2	28 Apr 09	Label Drawing Sira 05ATEX1121X

Issue 2

Drawing	Sheets	Rev.	Date (Sira Stamp)	Title
AMP/ATX/BF	1 of 1	3	26 Jul 13	TA Label EX-50 Cable Gland Range
AMP/ATX/UF	1 of 1	3	26 Jul 13	TA Label EX-55 Cable Gland Range

Issue 3

Drawing	Sheets	Rev	Date (Sira stamp)	Title
AMP/ATX/BF	1 of 1	4	31 May 18	EX-50 Range
AMP/ATX/UF	1 of 1	4	31 May 18	EX-55 Range

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1 **EU-TYPE EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 05ATEX1122X** Issue: **4**

4 Equipment: **Type EX-25* and EE-30* Range of Cable Glands**

5 Applicant: **Amphenol Industrial Operations**

6 Address: 40-60 Delaware Avenue
Sidney
New York 13838
USA

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

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

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 to this certificate, has been assured by compliance with the following documents:


EN 60079-0:2012/A11:2013 EN 60079-1:2014 EN 60079-7:2015 EN 60079-31:2014


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11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

 **EX-25***
II 2G
Ex db IIC Gb
Ex eb IIC Gb

 **EE-30***
II 2G
Ex eb IIC Gb

 II 1D
Ex ta IIIC Da

 II 1D
Ex ta IIIC Da

Project Number 0457

Signed: 

Title: Director of Operations

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Netherlands



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EU-TYPE EXAMINATION CERTIFICATE

Sira 05ATEX1122X
Issue 4

13 DESCRIPTION OF EQUIPMENT

The EX-25 and EE-30 ranges of cable glands are intended for use with SWA/Tape/Woven Steel Wire armoured cables. Each comprises a threaded entry body, elastomeric sealing ring, armour cone, clamp ring and compression cap. The entry body is available with an optional outer deluge seal or an integral earthing clamp. The EX-25 glands have a single seal or double seal arrangement with compression cap to suit. Double seal arrangements have an additional skid washer between the compression cap and outer seal. There are two seal types available in neoprene and silicone. Each gland type is available with an optional earth clamp arrangement on the entry body.

Glands are available in the size range 16 to 100 with ISO metric entry threads of M16 to M100 respectively. Alternative thread forms and sizes ISO metric, NPT, NPSM, BSPT, BSPP, PG and ET are available. The EX-25 glands have an IP66/68 (50 metres 7 days) rating and the EE-30 glands have an IP66 rating.

Variation 1 - This variation introduced the following changes:

- i. To permit the batch number shown in the actual product marking to be removed.
- ii. The addition of cone & clamp ring part numbers.
- iii. The introduction of the EE* glands that have an IP66 rating and the consequential modification of the special conditions for safe use.
- iv. The external cylindrical diameter of the M85, M90 and M100 glands to be enlarged by 5mm to rease the size of the marking area.

Variation 2 - This variation introduced the following changes:

- i. The removal of code 2 lead conductive neoprene seals from the EX25*, range of cable glands.
- ii. The removal of code P lead inner seal from the EX25*, range of cable glands for lead sheathed cables and to replace it with a new code 2 neoprene seal used with a brass continuity washer.
- iii. The extension of the upper ambient service temperature limit to +85°C for cable glands orporating neoprene seals (60° IRHD).
- iv. The modification of clause 15.2 in the special conditions for safe use.
- v. The removal of the temperature range markings from the seals.
- vi. The introduction of drawing amendments and up dates that are in-line with current practice.

Variation 3 - This variation introduced the following changes:

- i. Following appropriate re-assessment to demonstrate compliance with the requirements of the EN 60079 series of standards, the documents originally listed in section 9, EN 50014:1997 (amendments 1 and 2), EN 50018:2000, EN 50019:2000 and EN 50281-1-1:1998, were replaced by those currently listed, the markings in section 12 were updated accordingly.



SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 05ATEX1122X
Issue 4

Variation 4 - This variation introduced the following changes:

- i. Following appropriate reassessment to demonstrate compliance with the requirements of the latest editions of the EN 60079 series of standards, the documents previously listed in section 9, EN 60079-0:2006, EN 61241-0:2006 and EN 61241-1:2004 were replaced by those currently listed, the markings were updated accordingly, the Special Conditions for Safe use were also amended.
- ii. Type of protection Ex t is upgraded from EPL Db to EPL Da. Following appropriate reassessment to demonstrate compliance with the additional requirements for Ex ta, the markings were updated accordingly.
- iii. The use of Aluminium as a construction material was approved.
- iv. The introduction of an alternative silicone and neoprene seal material was endorsed.
- v. The service temperature range of the glands fitted with a neoprene seal was extended to -35°C to +90°C.
- vi. The EX25 type cable glands, when installed in accordance with the manufacturer's instructions and with an appropriate enclosure on which they are fixed, are capable of providing an ingress protection of IP66 and IP68 (50 metres 7 days).
- vii. Conductive neoprene and lead seals have been removed as a sealing material option.
- viii. The removal of the special condition for safe use relating to enclosure volume, the remaining conditions are renumbered accordingly.

Variation 5 - This variation introduced the following changes:

- i. To modify/introduce the following changes to type EE-30 and EX-25 Cable Glands:
 - EE-30, the maximum inner sheath diameter accommodation for all gland sizes was recognised.
 - EE-30, gland sizes 50H, 63H, 75H, 80H and 90H were introduced.
 - EE-30, gland size 20S, revised 'standard' outer seal cable range from: 12.9/16.0 to 11.5/16.0
 - EE-30 and EX-25, gland size 16 with 0.38" NPT standard "trade size" introduced.
- ii. The recognition of the 'standard' entry threads associated with every gland types gland sizes, in accordance with newly introduced generic bill of material drawing(s).
- iii. To permit all gland types, of parallel threaded entry threads, marked suitable for 'Exe' only to be modified to have a minimum thread length reased to 10 mm from 8 mm.
- iv. To permit all gland types of parallel threaded entry threads to be manufactured with a longer than 'standard' thread length to suit the end use application.
- v. To permit all gland types to be manufactured with a size larger than the 'standard' entry threads listed within the product description.
- vi. To recognise the actual seal 'material specification' reference as a replacement for the seal 'material supplier'.
- vii. The brass materials of manufacture were updated and corrected.
- viii. The aluminium materials of manufacture were updated and corrected.
- ix. To recognise all gland types with the following alternate threaded entry threads complying with the requirements of EN 50018:2000. Are intended to be used as replacement entry devices within existing installations with equipment that have threaded entries no longer permitted by the current edition of EN 60079-1.
 - NPSM ANSI/ASME B1.20.1:1983
 - BSPT BS21:1985 (ISO 7/1; BS EN 10226-1:2004 'standard threads'
 - BSPP BS EN ISO 228-1 :2003; BS EN ISO 2228-2:2003 class A full form 'external threads'
 - PG DIN 40430:1971
 - ET BS 31:1940 (1979) Table 'B'



SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 05ATEX1122X
Issue 4

All alternative trade size thread forms are manufactured within the dimensional parameter of the standard entry threads of the gland entry body, and relevant constructional compliance length and engagement requirements in accordance with their product markings

- x. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2012, EN 60079-1:2007, EN 60079-7:2007 and EN 60079-31:2009, were replaced by EN 60079-0:2012/A11:2013, EN 60079-1:2014, EN 60079-7:2015, and EN 60079-31:2014. The markings were updated, and a Specific Condition of Use was modified and amended to recognise the new standard edition. In addition the description was modified to clarify the certified cable gland types, the standard gland size 'entry threads', and gland size range taking capabilities inclusive of changes carried out under this certificate variation.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report number	Comment
0	24 January 2006	R51A13521A	The release of prime the certificate.
1	26 June 2009	R51A20139B	This Issue covers the following changes: <ul style="list-style-type: none"> • All previously issued certification was rationalised into a single certificate, Issue 1, Issue 0 referenced above is only intended to reflect the history of the previous certification and has not been issued as a document in this format. • The rationalisation of the certificate in accordance with that listed in section 14.3.
2	12 August 2013	R27874A/00	The introduction of Variation 4.
3	05 June 2018	R70144815C	This Variation introduced the following changes: <ul style="list-style-type: none"> • EC-Type Examination Certificate in accordance with 94/9/EC updated to EU-Type Examination Certificate in accordance with Directive 2014/34/EU. <i>(In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such EC-Type Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)]</i> • The introduction of Sira Variation 5
4	15th October 2019	0457	<ul style="list-style-type: none"> • Transfer of certificate Sira 05ATEX1122X from Sira Certification Service to CSA Group Netherlands B.V..

14.3 Certificate number Sira 01ATEX1271X Issue 12

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6812 AR, Arnhem Netherlands



SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

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Issue 4

- 15 **SPECIFIC CONDITIONS OF USE** (denoted by X after the certificate number)
- 15.1 The EX-25 and EE-30 range of cable glands shall not be used with enclosures where the temperature, at the point of contact exceeds the following temperatures:
- 35°C to +90°C for neoprene seal variants
 - 60°C to +180°C for the silicone seal variants
- 15.2 The EX-25 glands, when installed in accordance with the manufacturer's instructions and with an appropriate enclosure on which they are fixed, are capable of providing an ingress protection of IP66 and IP68 (50 metres 7 days).
- 15.3 The EE-30 glands, when installed in accordance with the manufacturer's instructions and with an appropriate enclosure on which they are fixed, are capable of providing an ingress protection of IP66.
- 15.4 If the EX-25 and EE-30 cable glands only grip the cable sheath and do not clamp the cable armour or if they are used to terminate unarmoured, braided or screened cables, then they shall only be used for fixed installations, hence the cables shall be effectively clamped to prevent pulling or twisting.
- 15.5 The threaded entry component threads without interface O-ring seals installed in an explosive dust atmosphere, within threaded entries, shall only be fitted into enclosures that have either:
- parallel entries that will ensure that a minimum of 5 full threads of contact will be maintained, this is in accordance with clause 5.1.2 of EN 60079-31:2014,
 - tapered entries that will ensure that a minimum of 3 ½ full threads of contact will be maintained, this is in accordance with clause 5.1.2 of EN 60079-31:2014
- 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 in the reports listed in Section 14.2.

Certificate Annexe



Certificate Number: Sira 05ATEX1122X

Equipment: Type EX-25* and EE-30* Range of Cable Glands

Applicant: Amphenol Industrial Operations

Issue 0

Drawing No.	Sheet	Rev.	Date	Title
AMP/ATX/E1WF	1 of 1	1	17 Jun 05	EX-25 label drawing
AMP/ATX/CWLE	1 of 1	1	17 Jun 05	EE-30 label drawing

Issue 1

Drawing	Sheets	Rev.	Date	Title
AMP/ATX/E1WF	1 of 1	2	28 Apr 09	Label Drawing
AMP/ATX/CWLE	1 of 1	2	28 Apr 09	Label Drawing

Issue 2

Drawing	Sheets	Rev.	Date (Sira Stamp)	Title
AMP/ATX/CWLE	1 of 1	3	26 Jul 13	TA Label EE-30 Cable Gland Range
AMP/ATX/E1WF	1 of 1	3	26 Jul 13	TA Label EX-25 Cable Gland Range

Issue 3

Drawing	Sheets	Rev	Date (Sira stamp)	Title
AMP/ATX/CWLE	1 of 1	4	31 May 18	EE-30 Range
AMP/ATX/E1WF	1 of 1	4	31 May 18	EX-25 Range

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1 **EU-TYPE EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 05ATEX1123X** Issue: **4**

4 Equipment: **Type EX-35*, EX-40*, and EX-45* Range of Cable Glands**

5 Applicant: **Amphenol Industrial Operations**

6 Address: 40-60 Delaware Avenue
Sidney
New York 13838
USA

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

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

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 to this certificate, has been assured by compliance with the following documents:

EN 60079-0:2012/A11:2013 EN 60079-1:2014 EN 60079-7:2015 EN 60079-31:2014


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

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.


12 The marking of the equipment shall include the following:

 II 2GD
Ex db IIC Gb
Ex ta IIIC Da

and/or

 II 2GD
Ex eb IIC Gb
Ex ta IIIC Da

and/or

 II 1 D
Ex ta IIIC Da

Project Number 0458

Signed: 

Title: Director of Operations

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SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 05ATEX1123X
Issue 4

13 DESCRIPTION OF EQUIPMENT

The type EX-35, EX-45, EX-40, EX-45 RF, EX-45 RM, EX-40 RF and EX-45 RM, EX-45 H Cable Glands are intended for use with any cable type where sealing and retention is required by gripping the outer sheath (this includes armoured/screened/braided cables, the armour/screen/braid being clamped inside the terminating equipment). Construction materials are brass, mild steel, stainless steel or aluminium alloy. Glands are available in a single or double seal configuration and utilise either silicone or neoprene seals. The glands outer cap can be replaced with an alternative compression nut to accept either male, female or flexible conduit or provide a hose connection. All the gland types have an IP66 and IP68 (50 metres 7 days).

Glands are available in the size range 12 to 100 mm with ISO metric entry threads of M12 to M100 respectively. Alternative thread forms are available.

Variation 1 - This variation introduced the following changes:

- i. To allow the batch number shown in the actual product marking to be removed.
- ii. The recognition of a number of minor, dimensional design changes.

Variation 2 - This variation introduced the following changes:

- i. The EX4*** Range of Cable Glands to be marked IP68; this indicates that they have been tested at a depth up to 25 m for a duration of 30 mins when fitted into either threaded entries or 'Ex e' enclosures that have plain hole entries with 0.5 mm clearances.
- ii. The extension of the upper ambient service temperature limit to +85°C for cable glands that incorporate neoprene seals (60° IRHD).
- iii. The use of Nitrile Butyle Rubber (NBR) O-ring interface seals with the EX4*** Range of Cable Glands fitted with neoprene sealing rings.
- iv. Addition of a new size, 16/M16 in all types, cable gland that has either neoprene or silicone sealing rings.
- v. The modification of the mid cap component.
- vi. The introduction of minor drawing changes.

Variation 3 - This variation introduced the following changes:

- i. Following appropriate re-assessment to demonstrate compliance with the requirements of the EN 60079 series of standards, the documents originally listed in section 9, EN 50014:1997 (amendments 1 and 2), EN 50018:2000, EN 50019:2000 and EN 50281-1-1:1998, were replaced by those currently listed, the markings in section 12 were updated accordingly.

Variation 4 - This variation introduced the following changes:

- i. Following appropriate reassessment to demonstrate compliance with the requirements of the latest editions of the EN/IEC 60079 series of standards, the documents previously listed in section 9, EN 60079-0:2006, EN 61241-0:2006 and EN 61241-1:2004 were replaced by those currently listed, the markings were updated accordingly, the Special Conditions for Safe Use are also amended.
- ii. Type of protection Ex t is upgraded from EPL Db to EPL Da. Following appropriate reassessment to demonstrate compliance with the additional requirements for Ex ta, the markings were updated accordingly.
- iii. The size range of the glands has been extended to include size 12 glands and entry threads of M12, the description being modified accordingly.

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SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 05ATEX1123X
Issue 4

- iv. The reference system used for the ranges of glands was amended to incorporate the introduction of the alternative conduit connections, the tables in the description were modified to recognise this change.
- v. Introduction of conduit fittings to the range was approved. The gland may be connected to rigid or flexible conduit.
- vi. The introduction of an alternative silicone and neoprene seal material was endorsed.
- vii. The service temperature range of the glands fitted with a neoprene seal was extended to -35°C to +90°C.
- viii. The cable glands, when installed in accordance with the manufacturer's instructions and with an appropriate enclosure on which they are fixed, are capable of providing an ingress protection of IP66 and IP68 (50 metres 7 days).
- ix. The removal of the special condition for safe use relating to enclosure volume, the remaining conditions are renumbered accordingly.

Variation 5 - This variation introduced the following changes:

- i. To modify/introduce the following changes to types EX-40 RFC and EX-45 RFC Cable Glands: Correction of typographical dimensional errors within the current end user instruction manuals.
 - gland size 12-2 outer seal cable range revised from: 0.9/5.4 to: 0.9/6.0
 - gland size 12-2 typical conduit range revised from: 6.8/10.3 to: 10.2/14.1
 - gland size 12-4 typical conduit range revised from: 9.1/14.3 to: 10.9/15.8
 - gland size 32-2 typical conduit range revised from: 30.4/38.2 to: 30.4/40.8
 - gland size 32-3 typical conduit range revised from: 30.4/40.2 to: 30.4/38.8
 - gland size 40-1 typical conduit range revised from: 36.4/46.2 to: 36.4/46.8
 - gland size 40-2 typical conduit range revised from: 36.4/44.2 to: 36.4/44.8
 - gland size 40-3 typical conduit range revised from: 37.7/44.7 to: 37.6/45.3
- ii. To introduce the following alternative NPT entry thread to the following gland sizes.
 - Gland sizes 12-1, 12-2 & 12-3 supplied with a 1/4" NPT entry thread
 - Gland sizes 16-1, 16-2 & 16-3 supplied with a 3/8" NPT entry thread
 - To introduce the following new gland sizes
 - Gland size 12-5 supplied with either a M12 or 1/4" NPT entry thread
 - Gland size 20-5 supplied with either a M20 or 1/2" NPT entry thread
 - Gland size 25-4 supplied with either a M25 or 3/4" NPT entry thread
- iii. To introduce the following alternative NPT entry thread to the following gland sizes of types EX-35, EX-45, EX-40, EX-45 RF, EX-45 RM, EX-40 RF and EX-45 RM, EX-45 H Cable Glands:
 - Gland size 12 supplied with a 1/4" NPT entry thread
 - Gland size 16 supplied with a 3/8" NPT entry thread.
- iv. The recognition of the 'standard' entry threads associated with every gland type's gland sizes, in accordance with newly introduced generic bill of material drawing(s).
- v. To permit all gland types, of parallel threaded entry threads, marked suitable for 'Exe' only to be modified to have a minimum thread length revised to 10 mm from 8 mm.
- vi. To permit all gland types of parallel threaded entry threads to be manufactured with a longer than 'standard' thread length to suit the end use application.
- vii. To permit all gland types to be manufactured with a size larger than the 'standard' entry threads listed within the product description.
- viii. To recognise the actual seal 'material specification' reference as a replacement for the seal 'material supplier'.



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- ix. The brass materials of manufacture were updated and corrected.
- x. The aluminium materials of manufacture were updated and corrected.
- xi. To recognise all gland types with the following alternate threaded entry threads complying with the requirements of EN 50018:2000. Are intended to be used as replacement entry devices within existing installations with equipment that have threaded entries no longer permitted by the current edition of EN 60079-1.
- NPSM ANSI/ASME B1.20.1:1983
 - BSPT BS21:1985 (ISO 7/1; BS EN 10226-1:2004 'standard threads')
 - BSPP BS EN ISO 228-1:2003; BS EN ISO 2228-2:2003 class A full form 'external threads'
 - PG DIN 40430:1971
 - ET BS 31:1940 (1979) Table 'B'
- All alternative trade size thread forms are manufactured within the dimensional parameter of the standard entry threads of the gland entry body, and relevant constructional compliance length and engagement requirements in accordance with their product markings
- xii. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2012, EN 60079-1:2007, EN 60079-7:2007 and EN 60079-31:2009, were replaced by EN 60079-0:2012/A11:2013, EN 60079-1:2014, EN 60079-7:2015, and EN 60079-31:2014. The markings were updated, and a Specific Condition of Use was modified and amended to recognise the new standard edition. In addition the description was modified to clarify the certified cable gland types, the standard gland size 'entry threads', and gland size range taking capabilities lusive of changes carried out under this certificate variation.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report number	Comment
0	24 January 2006	R51A13521A	The release of the prime certificate.
1	26 June 2009	R51A20139B	This Issue covers the following changes: <ul style="list-style-type: none">• All previously issued certification was rationalised into a single certificate, Issue 1, Issue 0 referenced above is only intended to reflect the history of the previous certification and has not been issued as a document in this format.• The rationalisation of the certificate in accordance with that listed in section 14.3.
2	12 August 2013	R27874A/00	The introduction of Variation 4.



SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

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Issue 4

Issue	Date	Report number	Comment
3	05 June 2018	R70144815C	This Variation introduced the following changes: <ul style="list-style-type: none">• EC-Type Examination Certificate in accordance with 94/9/EC updated to EU-Type Examination Certificate in accordance with Directive 2014/34/EU. <i>(In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such EC-Type Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)</i>• The introduction of Sira Variation 5
4	15th October 2019	0458	<ul style="list-style-type: none">• Transfer of certificate Sira 05ATEX1123X from Sira Certification Service to CSA Group Netherlands B.V..

14.3 Certificate number Sira 01ATEX1272X Issue 12

15 **SPECIFIC CONDITIONS OF USE** (denoted by X after the certificate number)

15.1 The EX-35, EX-40 and EX-45 ranges of cable glands shall not be used with enclosures where the temperature at the point of entry/mounting exceeds the following:

-35°C to +90°C for the Neoprene seal variants

-60°C to +180°C for the Silicone seal variants

15.2 The cable entries are only suitable for fixed installations. Cables must be effectively clamped to prevent pulling or twisting.

15.3 The EX-35, EX-40 and EX-45 ranges of cable glands, when installed in accordance with the manufacturer's instructions and with an appropriate enclosure on which they are fixed, are capable of providing an ingress protection of IP66 and IP68 (50 metres, 7 days)

15.4 The threaded entry component threads without interface O-ring seals installed in an explosive dust atmosphere, within threaded entries, shall only be fitted into enclosures that have either:

- parallel entries that will ensure that a minimum of 5 full threads of contact will be maintained, this is in accordance with clause 5.1.2 of EN 60079-31:2014,
- tapered entries that will ensure that a minimum of 3 ½ full threads of contact will be maintained, this is in accordance with clause 5.1.2 of EN 60079-31:2014

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 in the reports listed in Section 14.2.

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Utrechtseweg 310,
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Certificate Annexe



Certificate Number: Sira 05ATEX1123X

Equipment: Type EX-35*, EX-40*, and EX-45* Range of Cable Glands

Applicant: Amphenol Industrial Operations

Issue 0

Drawing No.	Sheet	Rev.	Date	Title
AMP/ATX/A2L	1 of 1	1	17 Jun 05	EX-35, EX-40 and EX-45 label drawing

Issue 1

Drawing	Sheets	Rev.	Date	Title
AMP/ATX/A2L	1 of 1	2	28 Apr 09	Label Drawing Sira 05ATEX1123X

Issue 2

Drawing	Sheets	Rev.	Date (Sira Stamp)	Title
AMP/ATX/A2L	1 of 1	3	26 Jul 13	TA Label EX-35, EX-40 & EX-45 Cable Gland Ranges

Issue 3

Drawing	Sheets	Rev	Date (Sira stamp)	Title
AMP/ATX/A2L	1 of 1	4	31 May 18	EX-35, EX-40 & EX-45 Range

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1 **EU-TYPE EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 05ATEX1124X** Issue: **4**

4 Equipment: **Type EX-60*, EX-65*, EX70* and EX-75* Barrier Cable Glands and Stopper Boxes**

5 Applicant: **Amphenol Industrial Operations**

6 Address: 40-60 Delaware Avenue
Sidney
New York 13838-1395
USA

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

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

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 to this certificate, has been assured by compliance with the following documents:

EN 60079-0:2012/A11:2013 EN 60079-1:2014 EN 60079-7:2015 EN 60079-31:2014

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

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



I M2
Ex db I Mb
Ex eb I Mb
(Ta = -60°C to +135°C)

or



II 2 G D
Ex db IIC Gb
Ex eb IIC Gb
Ex tb IIIC Db
(Ta = -60°C to +135°C)

or



II 1D
Ex ta IIIC Da
(Ta = -60°C to +135°C)

Project Number 0459

Signed:

Title: Director of Operations

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CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem,
Netherlands



SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 05ATEX1124X
Issue 4

13 DESCRIPTION OF EQUIPMENT

The **Type EX-60*, EX-65*, EX70* and EX-75* Barrier Cable Glands and Stopper Boxes** are metallic and are intended for use with differing cables or conductors dependant on their type. They allow the entry of the cable or conductors into flameproof enclosures without compromising the explosion protection provided by the enclosure, in accordance with relevant codes of practice. All types comprise of various entry thread sizes, which are dependent upon gland size and their cable sealing ability range.

The EX-60*, EX-65*, EX70* and EX-75* Barrier Cable Glands and Stopper Boxes, when installed with the silicone 'O' ring provided by the manufacturer, have an ingress protection rating of IP66 & IP68 (tested at a depth of 100 m for 7 Days).

Design Options for all Type EX-60*, EX-65*, EX70* and EX-75* Barrier Cable Glands and Stopper Boxes

Entry component and EX-75* conduit nut internal thread forms:

ISO Metric to BS3643:1981 6g fit (male) 6H (female)

NPT to ANSI/ASME B1.20.1:1983, gauging to clause 8

NPSM to ANSI/ASME B1.20.1:1983, gauging to clause 9

BSPT to BS 21:1985 (ISO 7/1) standard threads only clause 5.4, gauging to clause 5A, system A

BSPP to BS 2779:1986 (ISO 228/1) class A full form external threads

PG to DIN 40430:1971

ET to BS 31:1940 (1979) Table A

All entry and conduit threads are within the dimensional parameters of the gland body and comply with clause 5.3 of EN 60079-1:2007 and Clause C.2.2).

Alternative metallic materials of manufacture (the asterisk in the type number is replaced with a letter designation for one of the above material types):

Brass to BS 2874:1986 grades CZ121 (3Pb), or CZ121 (4Pb) or CZ122

Stainless Steel to BS 970:Part 1:1991 grades 316S11, 316S31, 303 or 304

Additionally, all metallic materials may be surface coated to limit electrolytic reaction between dissimilar materials, providing the coating does not alter the dimensions of the component part.



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Issue 4

The **EX-70* Range of Barrier Cable Glands** are suitable for use with unarmoured cables; they comprise:

- a threaded entry body to tighten into an associated enclosure; this is fitted with a silicone O-ring and internally coated with a release agent
- a ferrule, fitted with an external nitrile O-ring, which fits into the entry body to make a part chamber into which a two-part epoxy putty setting compound is applied to provide an inner seal around the conductors
- a union nut that couples the entry body and ferrule together
- a seal housing, enclosing a white silicone, elastomeric, cable outer sheath seal and a plastic skid washer, that is screwed and secured into the ferrule with Loctite 2701 adhesive
- a back nut that screws into the seal housing to compress the outer sheath seal

Design option:

- A brass continuity washer may be fitted in the 20S to 100 sizes that are used with lead inner sheathed cables.

Gland Size	Standard Entry threads		Max Ø over Cores	Max No of Cores	Outer Sheath	
	Metric	NPT			Min	Max
16	M20	½" NPT	10.4	15	3.4	8.4
20S	M20	½" NPT	10.4	35	4.8	11.7
20	M20	½" NPT	12.5	40	9.5	14.0
25	M25	¾" NPT	17.8	60	11.7	20.0
32	M32	1" NPT	23.5	80	18.1	26.3
40	M40	1 ¼" NPT	28.8	130	22.6	32.2
50S	M50	1 ½" NPT	34.2	200	28.2	38.2
50	M50	2" NPT	39.4	400	33.1	44.1
63S	M63	2" NPT	44.8	400	39.3	50.1
63	M63	2 ½" NPT	50.0	425	46.7	56.0
75S	M75	2 ½" NPT	55.4	425	52.3	62.0
75	M75	3" NPT	60.8	425	58.0	68.0
80	M80	3" NPT	64.4	425	61.9	72.0
85	M85	3" NPT	69.8	425	69.1	78.0
90	M90	3 ½" NPT	75.1	425	74.1	84.0
100	M100	3 ½" NPT	80.5	425	81.8	90.0



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Issue 4

The **EX-65* Range of Barrier Cable Glands** are suitable for use with, unarmoured, braided and screened cables; they comprise:

- a threaded entry body to tighten into an associated enclosure; this is fitted with a silicone O-ring and internally coated with a release agent
- a ferrule, fitted with an external nitrile O-ring, which fits into the entry body to make a part chamber into which a two-part epoxy putty setting compound is applied to provide an inner seal around the conductors.
- a union nut that couples the entry body and ferrule together
- a back nut that is screwed and secured into the ferrule with Loctite 2701 adhesive

Design option:

- A brass continuity washer may be fitted in the 20S to 100 sizes that are used with lead inner sheathed cables.

Gland Size	Standard Entry threads		Max Diameter over Cores	Max No of Cores	Outer Sheath Max
	Metric	NPT			
20S	M20	1/2" NPT	10.4	35	11.7
20	M20	1/2" NPT	12.5	40	14.0
25	M25	3/4" NPT	17.8	60	20.0
32	M32	1" NPT	23.5	80	26.3
40	M40	1 1/4" NPT	28.8	130	32.2
50S	M50	1 1/2" NPT	34.2	200	38.2
50	M50	2" NPT	39.4	400	44.1
63S	M63	2" NPT	44.8	400	50.1
63	M63	2 1/2" NPT	50.0	425	56.0
75S	M75	2 1/2" NPT	55.4	425	62.0
75	M75	3" NPT	60.8	425	68.0
80	M80	3" NPT	64.4	425	72.0
85	M85	3" NPT	69.8	425	78.0
90	M90	3 1/2" NPT	75.1	425	84.0
100	M100	3 1/2" NPT	80.5	425	90.0



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Issue 4

The **EX-60* Range of Barrier Cable Glands** are suitable for use with circular, pliable wire, single wire and steel tape armoured cables along with braided/screened and unarmoured cables; they comprise:

- a threaded entry body to tighten into an associated enclosure, this fitted with a silicone O-ring and internally coated with a release agent
- a cone, fitted with an external nitrile O-ring, which fits into the entry component to make a part chamber into which a two part epoxy putty setting compound is applied to provide an inner seal around the conductors.
- a clamp ring that secures cable armour to the cone and also provides earth protection
- a mid-cap component that fastens to the entry body to captivate the clamp ring, cone and epoxy putty
- a back nut, enclosing a white, silicone, elastomeric, cable outer sheath seal and skid washer, that screws onto the external thread of the mid cap.

Design option:

- A brass continuity washer may be fitted in the 20S to 100 sizes that are used with lead inner sheathed cables.

Gland Size	Standard Entry threads		Max Ø over cores	Max No of Cores	Inner Sheath Max	Outer Sheath		Reduced Bore		Armour Dia./Thickness (Universal)
	Metric	NPT				Min	Max	Min	Max	
16	M20	½" NPT	10.4	15	11.7	8.4	13.5	6.7	10.3	0.15 - 1.25
20S	M20	½" NPT	10.4	35	11.7	11.5	16.0	9.4	12.5	*0.15 - 1.25
20	M20	½" NPT	12.5	40	14.0	15.5	21.1	12.0	17.6	**0.15 - 1.25
25	M25	¾" NPT	17.8	60	20.0	20.3	27.4	16.8	23.9	0.15 - 1.6
32	M32	1" NPT	23.5	80	26.3	26.7	34.0	23.2	30.5	0.15 - 2.0
40	M40	1 ¼" NPT	28.8	130	32.2	33.0	40.6	28.6	36.2	0.2 - 2.0
50S	M50	1 ½" NPT	34.2	200	38.2	39.4	46.7	34.8	42.4	0.2 - 2.5
50	M50	2" NPT	39.4	400	44.1	45.7	53.2	41.1	48.5	0.2 - 2.5
63S	M63	2" NPT	44.8	400	50.1	52.1	59.5	47.5	54.8	0.3 - 2.5
63	M63	2 ½" NPT	50.0	425	56.0	58.4	65.8	53.8	61.2	0.3 - 2.5
75S	M75	2 ½" NPT	55.4	425	62.0	64.8	72.2	60.2	68.0	0.3 - 2.5
75	M75	3" NPT	60.8	425	68.0	71.1	78.0	66.5	73.4	0.3 - 2.5
80	M80	3" NPT	64.4	425	72.0	77.0	84.0	71.9	79.4	0.45 - 3.15
85	M85	3" NPT	69.8	425	78.0	79.6	90.0	75.0	85.4	0.45 - 3.15
90	M90	3 ½" NPT	75.1	425	84.0	88.0	96.0	82.0	91.4	0.45 - 3.15
100	M100	3 ½" NPT	80.5	425	90.0	92.0	102.0	87.4	97.4	0.45 - 3.15



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Issue 4

The **EX-75* Range of Conduit Stopper Boxes** are suitable for use with conductors carried in conduit, providing a flameproof barrier entry into enclosures. Additionally they may be used to terminate flying leads and as a line bushing for providing an electrical connection between associated equipment; they comprise::

- a threaded entry body to tighten into an associated enclosure, this is fitted with a silicone O-ring and internally coated with a release agent
- a ferrule, fitted with an external nitrile O-ring, which fits into the entry body to make a part chamber into which a two-part epoxy putty setting compound is applied to provide an inner seal around the conductors.
- a union nut that couples the entry body and ferrule together
- a conduit nut that is screwed and secured into the ferrule with Loctite 2701 adhesive

NOTE:- * 2 1/2" NPT thread option (Max Cable Diameter = 65.0)(Max Diameter over Cores = 58.1) * 2 1/2" NPSM thread option (Max Cable Diameter = 67.0)(Max Diameter over Cores = 59.9)									
Stopper Box Size	Standard Entry threads		Max Cable Diameter	Max Diameter over Cores	Max No of Cores	Standard male connection thread size		Standard female connection thread Sizes	
	Metric	NPT				Metric	NPT	Metric	NPT
20	M20	1/2" NPT	14.0	12.5	40	M20	1/2" NPT	M20	1/2" NPT
25	M25	3/4" NPT	20.0	17.8	60	M25	3/4" NPT	M25	3/4" NPT
32	M32	1" NPT	26.3	23.5	80	M32	1" NPT	M32	1" NPT
40	M40	1 1/4" NPT	32.2	28.8	130	M40	1 1/4" NPT	M40	1 1/4" NPT
50S	M50	1 1/2" NPT	38.2	34.2	200	M50	1 1/2" NPT	M50	1 1/2" NPT
50	M50	2" NPT	44.1	39.4	400	M50	2" NPT	M50	2" NPT
63S	M63	2" NPT	50.1	44.8	400	M63	2" NPT	M63	2" NPT
63	M63	2 1/2" NPT	56.0	50.0	425	M63	2 1/2" NPT	M63	2 1/2" NPT
75S	M75	2 1/2" NPT	62.0	55.4	425	M75	2 1/2" NPT	M75	2 1/2" NPT
75	M75	-	68.0*	60.8*	425	M75	-	M75	2 1/2" NPT*
75	-	3" NPT	68.0	60.8	425	-	3" NPT	-	3" NPT
80	M80	3" NPT	72.0	64.4	425	M80	3" NPT	M80	3" NPT
85	M85	3" NPT	78.0	69.8	425	M85	3" NPT	M85	3" NPT
90	M90	3 1/2" NPT	84.0	75.1	425	M90	3 1/2" NPT	M90	3 1/2" NPT
100	M100	3 1/2" NPT	90.0	80.5	425	M100	3 1/2" NPT	M100	3 1/2" NPT

Variation 1 - This variation introduced the following changes:

- The EX-60* size 20s and 20 cable glands to be used with an alternative, cone component; in this form, the glands are designated CX-C** (see details below) and are only suitable for braided cables:

Entry thread size	Gland size	Max. Ø over cores (mm)	Max. number of cores	Max. inner sheath (mm)	Outer sheath (standard) (mm)		Braid dia.	
					Min.	Max.	Min.	Max.
M20 x 1.5	20S	10.4	8	11.7	11.5	16.0	0.15	0.35
M20 x 1.5	20	12.5	14	14.0	15.5	21.1	0.15	0.5

Design options for EX-60*

- The EX-60* may be used with of an alternative outer sheath seal that is red in colour and has a reduced bore size that accommodates an alternative range of outer sheath cable sizes; in this form, the glands are designated EX-60*R (see details below):



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Entry thread size	Gland size	Max. Ø over cores (mm)	Max. number of cores	Max. inner sheath (mm)	Outer sheath (standard) (mm)		Braid dia.	
					Min.	Max.	Min.	Max.
M20 x 1.5	20S	10.4	8	11.7	9.4	0.15	0.15	0.35
M20 x 1.5	20	12.5	14	14.0	12.0	0.15	0.15	0.5

- The lusion of a brass continuity washer within the EX-60* and EX-60*R cable glands ranges enabling them to be used with lead inner sheathed cables; glands with this modification are identified with a '2' in their type number.

Variation 2 - This variation introduced the following changes:

- Following appropriate re-assessment to demonstrate compliance with the requirements of the EN 60079 series of standards, the documents originally listed in section 9, EN 50014:1997 (amendments 1 and 2), EN 50018:2000 and EN 50281-1-1:1998, were replaced by those currently listed, the markings in section 12 were updated accordingly.

Variation 3 - This variation introduced the following changes:

- To allow the ambient range to be extended from -60°C to +85°C to -60°C to +135°C.
- The introduction of a new protection coding 'Ex e IIC' is recognised, the descriptions have been amended to reflect the introduction of this new coding.
- An assessment to the latest standards was conducted, reference to EN 61241-0 and EN 61241-0 was removed and IEC 60079-31:2008 introduced.
- The EX-75 Range can now be used as a Reversible Line Bushing.

Variation 4 - This variation introduced the following changes:

- An rease of the IP rating degree of protection to IPX8 at 100 m for 7 days.
- To allow the maximum number of cores permitted to be reased, description was modified accordingly.
- The assessment of the dust marking against EPL 'Da'; as a result the marking at section 12 has been amended accordingly.
- The EX-60* Range can now be used as a Line Bushing for terminating flying leads or for the direct inter-connection of associated enclosures.

Variation 5 - This variation introduced the following changes:

- Following appropriate reassessment, EN 60079-0:2009 has been replaced by EN 60079-0:2012, the marking has been amended to remove the IP rating as a result of this assessment.
- Following appropriate reassessment, IEC 60079-31:2008 has been replaced by EN 60079-31:2009, the Special conditions for Safe Use have been amended to reflect this assessment.

Variation 6 - This variation introduced the following changes:

- To modify/introduce the following changes to type EX-60 and EX-65 and EX-70 and EX-75 Cable Glands:
 - EX-60 and EX-65 and EX-70 and EX-75, standard trade M100 / 4" NPT duplicated information was removed from the General Arrangement Drawing
 - EX-65 and EX-75, gland sizes 50S, 63S and 75S were introduced.
 - EX-75, gland size 75, metric M75, has reduced and replaced the standard NPT female connection thread size from 3" NPT to 2 1/2" NPT. Reducing the alternative female connection thread size from 3" NPSM to 2 1/2" NPSM

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- ii. The recognition of the 'standard' entry threads associated with every gland types gland sizes, in accordance with newly introduced generic bill of material drawing(s).
- iii. To permit all gland types to be manufactured with a size larger than the 'standard' entry threads listed within the product description.
- iv. To recognise the actual seal 'material specification' reference as a replacement for the seal 'material supplier'.
- v. The brass materials of manufacture were updated and corrected.
- vi. To recognise all gland types with the following alternate threaded entry threads complying with the requirements of EN 50018:2000. Are intended to be used as replacement entry devices within existing installations with equipment that have threaded entries no longer permitted by the current edition of EN 60079-1.
 - NPSM ANSI/ASME B1.20.1:1983
 - BSPT BS21:1985 (ISO 7/1; BS EN 10226-1:2004 'standard threads')
 - BSPP BS EN ISO 228-1 :2003; BS EN ISO 2228-2:2003 class A full form 'external threads'
 - PG DIN 40430:1971
 - ET BS 31:1940 (1979) Table 'B'

All alternative trade size thread forms are manufactured within the dimensional parameter of the standard entry threads of the gland entry body, and relevant constructional compliance length and engagement requirements in accordance with their product markings

- vii. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2012, EN 60079-1:2007, EN 60079-7:2007 and EN 60079-31:2009, were replaced by EN 60079-0:2012/A11:2013, EN 60079-1:2014, EN 60079-7:2015, and EN 60079-31:2014. The markings were updated, and a Specific Condition of Use was modified and amended to recognise the new standard edition. In addition the description was modified to clarify the certified cable gland types, the standard gland size 'entry threads ', and gland size range taking capabilities lusive of changes carried out under this certificate variation.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report number	Comment
0	24 January 2006	R51A13521A	The release of prime certificate.
1	26 June 2009	R51A20139B	This Issue covers the following changes: <ul style="list-style-type: none"> • All previously issued certification was rationalised into a single certificate, Issue 1, Issue 0 referenced above is only intended to reflect the history of the previous certification and has not been issued as a document in this format. • The rationalisation of the certificate in accordance with that listed in section 14.3.
2	12 August 2013	R27874A/00	The introduction of Variations 3 to 5 lusive.



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Issue	Date	Report number	Comment
3	05 June 2018	R70144815C	This Variation introduced the following changes: <ul style="list-style-type: none">• EC-Type Examination Certificate in accordance with 94/9/EC updated to EU-Type Examination Certificate in accordance with Directive 2014/34/EU. <i>(In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such EC-Type Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)</i>• The introduction of Sira Variation 6.
4	15th October 2019	0459	<ul style="list-style-type: none">• Transfer of certificate Sira 05ATEX1124X from Sira Certification Service to CSA Group Netherlands B.V..

14.3 Certificate number Sira 03ATEX1479X Issue 12

15 **SPECIFIC CONDITIONS OF USE** (denoted by X after the certificate number)

15.1 The cable glands/stopper boxes shall not be used in enclosures where the temperature, at the point of entry/mounting, is outside of the range -60°C to +135°C.

15.2 The interface seals comply with the requirements of the standards listed in this report when the cable glands are fitted to a representative enclosure having a smooth flat mounting surface. In practice the interface between the male thread of the glands and their associated enclosure cannot be defined, therefore it is the users' responsibility to ensure that the appropriate ingress protection level is maintained at these interfaces.

15.3 The threaded entry component threads without interface O-ring seals installed in an explosive dust atmosphere, within threaded entries, shall only be fitted into enclosures that have either:

- parallel entries that will ensure that a minimum of 5 full threads of contact will be maintained, this is in accordance with clause 5.1.2 of EN 60079-31:2014,
- tapered entries that will ensure that a minimum of 3 ½ full threads of contact will be maintained, this is in accordance with clause 5.1.2 of EN 60079-31:2014

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 in the reports listed in Section 14.2.

Certificate Annexe



Certificate Number: Sira 05ATEX1124X

Equipment: Type EX-60*, EX-65*, EX70* and EX-75*
Barrier Cable Glands and Stopper Boxes

Applicant: Amphenol Industrial Operations

Issue 0

Drawing No.	Sheet	Rev.	Date	Title
AMP/ATX/CRC	1 of 1	1	17 Jun 05	EX-60 label drawing
AMP/ATX/CRU	1 of 1	1	17 Jun 05	EX-65 and EX-70 label drawing
AMP/ATX/CRS	1 of 1	1	17 Jun 05	EX-75 label drawing

Issue 1

Drawing No.	Sheets	Rev.	Date	Title
AMP/ATX/CRS	1 of 1	2	28 Apr 09	EX-60 Label Drawing
AMP/ATX/CRU	1 of 1	2	28 Apr 09	EX-65 Label Drawing
AMP/ATX/CRC	1 of 1	2	28 Apr 09	EX-75 Label Drawing

Issue 2

Drawing	Sheets	Rev.	Date (Sira Stamp)	Title
AMP/ATX/CRC	1 of 1	3	26 Jul 13	TA Label EX-60 Cable Gland Range
AMP/ATX/CRS	1 of 1	3	26 Jul 13	TA Label EX-75 Cable Gland Range
AMP/ATX/CRU	1 of 1	3	26 Jul 13	TA Label EX-65 & EX-70 Cable Gland Ranges

Issue 3

Drawing	Sheets	Rev	Date (Sira stamp)	Title
AMP/ATX/CRC	1 of 1	4	31 May 18	EX-80 Range
AMP/ATX/CRS	1 of 1	4	31 May 18	EX-75 Range
AMP/ATX/CRU	1 of 1	4	31 May 18	EX-65 & EX-70 Range

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