sira
CERTIFICATION

1 **EC TYPE-EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 02ATEX3092X** Issue: **5**

4 Equipment: **E1WF, E1WF-C, E1XF, E1ZF, E1WF-IE, E1WF-C-IE, E1XF-IE, & E1ZF-IE Ranges of Cable Glands**

5 Applicant: **Prysmian Cables & Systems Limited**
(Using the registered trademark of BICON)

6 Address: Hall Lane
Prescot
Merseyside
L34 5UR
UK

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

8 Sira Certification Service, notified body number 0518 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, 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 50014:1997 (amendments 1 and 2) EN 50281-1-1:1998
EN 50018:2000
EN 50019:2000

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC 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
EEx e II and EEx d IIC

Project Number 51A18260
C. Index 07

D R Stubbings BA MIET
Certification Manager

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13 **DESCRIPTION OF EQUIPMENT**

The E1WF, E1WF-C, E1XF & E1ZF ranges of compression seal cable glands are manufactured from brass to BS 2874:1986 grades CZ121 or 122 or better. The glands are intended to terminate circular cables into flameproof and increased safety enclosures without compromising the explosion protection provided by the enclosures in accordance with relevant codes of practice. They are used with the following cable forms:

E1WF - either steel wire armoured or aluminium wire armoured cables
E1WF-IE - either steel wire armoured or aluminium wire armoured cables
E1WF-C - continental wire/strip armoured cables
E1WF-C-IE - continental wire/strip armoured cables
E1XF - wire braided cables
E1XF-IE - wire braided cables
E1ZF - steel tape armoured cables
E1ZF-IE - steel tape armoured cables

The glands consist of a male-threaded front entry component, designated the gland body, which is intended to screw into an entry point of its associated enclosure. The gland body contains a polychloroprene seal onto the cable inner sheath. In the case of non-threaded entry points, the glands are fitted with the use of a locking nut. The gland barrel threads onto the gland body and houses an armour-clamping ring and cone. The armour ring effects clamping of the cable armour or braid onto the armour cone when the gland barrel is tightened onto the gland body. An outer seal gland nut, fitted with a polychloroprene seal and a fibre skid washer, screws onto the gland barrel effecting environmental sealing onto the outer sheath of the cable. The E1WF-IE, E1WF-C-IE, E1XF-IE & E1ZF-IE ranges have the same overall design as the E1WF, E1WF-C, E1XF & E1ZF ranges with the exception that an alternative gland body component has a lengthened hexagonal shoulder which houses an external grub screw (earthing feature) to allow the attachment of an earth lead.

Design options:

Alternative metallic materials of manufacture:	Mild steel to BS 970 Part 1:1991 Stainless steel to BS 970 Part 4:1987 Aluminium to BS 1471:1972 or better Aluminium to BS 1472:1987 or better
Alternative skid washer materials of manufacture:	Nylon 6 The same material as the gland

All metallic materials may additionally be surface coated to limit any electrolytic reaction between dissimilar materials.

Alternative entry threadforms that are within its dimensional parameters and that maintain compliance with the requirements of clause 5.3 of EN 50018:2000.

Alternative profiles of construction of the gland nut, gland barrel and gland body components with the minimum wall sections, the number of threads engaged and the thread engagement length maintained.

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E1WF & E1WF-IE ranges for either steel wire armoured or aluminium wire armoured cables

Gland Title	Gland Size	ISO Entry Thread	Under Armour Diameter (mm)		Outer Sheath Diameter (mm)		Armour Range (mm)	
			Min	Max	Min	Max	Min	Max
E1WF / E1WF-IE	16	M16	3.81	8.74	7.0	13.2	0.9	-
E1WF / E1WF-IE	20ss	M20	3.81	8.74	7.0	13.2	0.9	-
E1WF / E1WF-IE	20s	M20	8.0	11.79	8.0	15.8	0.9	1.4
E1WF / E1WF-IE	20R	M20	10.19	14.15	11.7	20.8	0.6	1.4
E1WF / E1WF-IE	20	M20	11.79	14.15	11.7	20.8	0.9	1.4
E1WF / E1WF-IE	20SH	M20	11.79	14.15	11.7	20.8	0.9	1.4
E1WF / E1WF-IE	25	M25	14.0	20.12	17.0	27.2	1.25	1.6
E1WF / E1WF-IE	32	M32	19.7	26.55	19.0	33.5	1.6	2.0
E1WF / E1WF-IE	40	M40	26.55	32.42	26.5	39.9	1.6	2.0
E1WF / E1WF-IE	50s	M50	32.42	38.39	38.0	46.3	2.0	2.5
E1WF / E1WF-IE	50	M50	38.39	44.33	36.0	52.6	2.0	2.5
E1WF / E1WF-IE	63s	M63	44.33	50.27	50.0	58.9	2.5	-
E1WF / E1WF-IE	63	M63	50.27	56.24	46.5	65.3	2.5	-
E1WF / E1WF-IE	75s	M75	56.24	62.18	62.0	71.6	2.5	-
E1WF / E1WF-IE	75	M75	62.18	68.13	58.0	78.0	2.5	-
E1WF / E1WF-IE	85	M85	68.0	74.0	68.0	88.0	3.15	-

E1WF-C & E1WF-C-IE ranges for continental armoured wire/strip cables

Gland Title	Gland Size	ISO Entry Thread	Under Armour Diameter (mm)		Outer Sheath Diameter (mm)		Armour Range (mm)	
			Min	Max	Min	Max	Min	Max
E1WF-C / E1WF-C-IE	16	M16	3.81	8.74	7.0	13.2	0.6	0.8
E1WF-C / E1WF-C-IE	20ss	M20	3.81	8.74	7.0	13.2	0.6	0.8
E1WF-C / E1WF-C-IE	20s	M20	8.0	11.79	8.0	15.8	0.6	0.8
E1WF-C / E1WF-C-IE	20R	M20	10.19	14.15	11.7	20.8	0.6	0.8
E1WF-C / E1WF-C-IE	20	M20	11.79	14.15	11.7	20.8	0.6	0.8
E1WF-C / E1WF-C-IE	20SH	M20	11.79	14.15	11.7	20.8	0.6	0.8
E1WF-C / E1WF-C-IE	25	M25	14.0	20.12	17.0	27.2	0.6	0.8
E1WF-C / E1WF-C-IE	32	M32	19.7	26.55	19.0	33.5	0.6	0.8
E1WF-C / E1WF-C-IE	40	M40	26.55	32.42	26.5	39.9	0.6	0.8
E1WF-C / E1WF-C-IE	50s	M50	32.42	38.39	38.0	46.3	0.6	0.8
E1WF-C / E1WF-C-IE	50	M50	38.39	44.33	36.0	52.6	0.6	0.8
E1WF-C / E1WF-C-IE	63s	M63	44.33	50.27	50.0	58.9	0.6	0.8
E1WF-C / E1WF-C-IE	63	M63	50.27	56.24	46.5	65.3	0.6	0.8
E1WF-C / E1WF-C-IE	75s	M75	56.24	62.18	62.0	71.6	0.6	0.8
E1WF-C / E1WF-C-IE	75	M75	62.18	68.13	58.0	78.0	0.6	0.8
E1WF-C / E1WF-C-IE	85	M85	68.0	74.0	68.0	88.0	0.6	0.8

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E1XF & E1XF-IE ranges for wire braided cable

Gland Title	Gland Size	ISO Entry Thread	Under Armour Diameter (mm)		Outer Sheath Diameter (mm)		Braid Range (mm)	
			Min	Max	Min	Max	Min	Max
E1XF / E1XF-IE	16	M16	3.81	8.74	7.0	13.2	0.2	0.3
E1XF / E1XF-IE	20ss	M20	3.81	8.74	7.0	13.2	0.2	0.3
E1XF / E1XF-IE	20s	M20	8.0	11.79	8.0	15.8	0.2	0.3
E1XF / E1XF-IE	20R	M20	10.19	14.15	11.7	20.8	0.2	0.3
E1XF / E1XF-IE	20	M20	11.79	14.15	11.7	20.8	0.2	0.3
E1XF / E1XF-IE	20SH	M20	11.79	14.15	11.7	20.8	0.2	0.3
E1XF / E1XF-IE	25	M25	14.0	20.12	17.0	27.2	0.2	0.45
E1XF / E1XF-IE	32	M32	19.7	26.55	19.0	33.5	0.3	0.45
E1XF / E1XF-IE	40	M40	26.55	32.42	26.5	39.9	0.3	0.45
E1XF / E1XF-IE	50s	M50	32.42	38.39	38.0	46.3	0.3	0.45
E1XF / E1XF-IE	50	M50	38.39	44.33	36.0	52.6	0.3	0.45
E1XF / E1XF-IE	63s	M63	44.33	50.27	50.0	58.9	0.3	0.45
E1XF / E1XF-IE	63	M63	50.27	56.24	46.5	65.3	0.3	0.45
E1XF / E1XF-IE	75s	M75	56.24	62.18	62.0	71.6	0.3	0.45
E1XF / E1XF-IE	75	M75	62.18	68.13	58.0	78.0	0.3	0.45
E1XF / E1XF-IE	85	M85	68.0	74.0	68.0	88.0	0.3	0.45

E1ZF & E1ZF-IE ranges for steel tape armoured cables

Gland Title	Gland Size	ISO Entry Thread	Under Armour Diameter (mm)		Outer Sheath Diameter (mm)		Steel Tape Range (mm)	
			Min	Max	Min	Max	Min	Max
E1ZF / E1ZF-IE	16	M16	3.81	8.74	7.0	13.2	0.15	0.35
E1ZF / E1ZF-IE	20ss	M20	3.81	8.74	7.0	13.2	0.15	0.35
E1ZF / E1ZF-IE	20s	M20	8.0	11.79	8.0	15.8	0.15	0.35
E1ZF / E1ZF-IE	20R	M20	10.19	14.15	11.7	20.8	0.15	0.5
E1ZF / E1ZF-IE	20	M20	11.79	14.15	11.7	20.8	0.15	0.5
E1ZF / E1ZF-IE	20SH	M20	11.79	14.15	11.7	20.8	0.15	0.5
E1ZF / E1ZF-IE	25	M25	14.0	20.12	17.0	27.2	0.15	0.5
E1ZF / E1ZF-IE	32	M32	19.7	26.55	19.0	33.5	0.15	0.55
E1ZF / E1ZF-IE	40	M40	26.55	32.42	26.5	39.9	0.2	0.6
E1ZF / E1ZF-IE	50s	M50	32.42	38.39	38.0	46.3	0.5	0.8
E1ZF / E1ZF-IE	50	M50	38.39	44.33	36.0	52.6	0.5	0.8
E1ZF / E1ZF-IE	63s	M63	44.33	50.27	50.0	58.9	0.5	0.8
E1ZF / E1ZF-IE	63	M63	50.27	56.24	46.5	65.3	0.5	0.8
E1ZF / E1ZF-IE	75s	M75	56.24	62.18	62.0	71.6	0.5	0.8
E1ZF / E1ZF-IE	75	M75	62.18	68.13	58.0	78.0	0.5	0.8
E1ZF / E1ZF-IE	85	M85	68.0	74.0	67.5	88.0	0.5	0.8

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E1WFL, range for either steel wire armoured or aluminium wire armoured cables

Gland Size	ISO Entry Thread	Inner Sheath Diameter (mm)		Over Lead Diameter (mm)		Armour Diameter (mm)		Outer Sheath Diameter (mm)	
		Min	Max	Min	Max	Min	Max	Min	Max
85/75s	M85	56.24	62.18	66.0	73.5	3.15	-	68.0	88.0
85/75	M85	62.18	68.13	66.0	73.5	3.15	-	68.0	88.0

E1WF-CL, range for continental wire/strip armoured cables

Gland Size	ISO Entry Thread	Inner Sheath Diameter (mm)		Over Lead Diameter (mm)		Armour Range (mm)		Outer Sheath Diameter (mm)	
		Min	Max	Min	Max	Min	Max	Min	Max
85/75s	M85	56.24	62.18	66.0	73.5	0.6	0.8	68.0	88.0
85/75	M85	62.18	68.13	66.0	73.5	0.6	0.8	68.0	88.0

E1XFL range for wire braided cables

Gland Size	ISO Entry Thread	Inner Sheath Diameter (mm)		Over Lead Diameter (mm)		Braid Range (mm)		Outer Sheath Diameter (mm)	
		Min	Max	Min	Max	Min	Max	Min	Max
85/75s	M85	56.24	62.18	66.0	73.5	0.3	0.45	68.0	88.0
85/75	M85	62.18	68.13	66.0	73.5	0.3	0.45	68.0	88.0

E1ZFL range for steel tape armoured cables

Gland Size	ISO Entry Thread	Inner Sheath Diameter (mm)		Over Lead Diameter (mm)		Steel Tape Range (mm)		Outer Sheath Diameter (mm)	
		Min	Max	Min	Max	Min	Max	Min	Max
85/75s	M85	56.24	62.18	66.0	73.5	0.5	0.8	68.0	88.0
85/75	M85	62.18	68.13	66.0	73.5	0.5	0.8	68.0	88.0

Variation 1 - This variation introduced the following change:

i. The details drawing Sira41050 were clarified and the text note was changed.

Variation 2 - This variation introduced the following change:

i. The E1WF, E1WF-C, E1XF, E1ZF, E1WF-IE, E1WF-C-IE, E1XF-IE, & E1ZF-IE ranges of cable glands were permitted to be installed within a service ambient temperature range of –60°C to +90°C and the special condition for safe use clause 15.1 was amended to recognise this fact

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Variation 3 - This variation introduced the following changes:

i. The change of the Applicant's name on the certificate from Pirelli Cables Limited (Using the registered trademark of BICON) to Prysmian Cables & Systems Limited (Using the registered trademark of BICON) was recognised. The Applicant will substitute, on the label affixed to the package containing the product, the name Prysmian Cables & Systems Limited for Pirelli Cables Limited Components Unit (trading as BICON), as reduced marking criteria are applicable to this equipment.

Variation 4 - This variation introduced the following changes:

i. The introduction of a new gland size, 20SH, for all gland types, details of these glands are included in the appropriate tables above (Note: three typographical errors on the original variation document were corrected whilst transposing this information).

Variation 5 - This variation introduced the following changes:

i. The introduction the following, 'hybrid', gland types in specific sizes that are used with circular polymeric/lead/polymeric sheathed cables, refer to main description for sizes and properties.

E1WFL, range for either steel wire armoured or aluminium wire armoured cables
E1WF-CL, range for continental wire/strip armoured cables
E1XFL range for wire braided cables
E1ZFL range for steel tape armoured cables

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report No.	Comment
0	7 August 2002	R51A8796A	The release of the prime certificate.
1	3 August 2003	R51V9718A	The introduction of Variation 1.
2	28 October 2003	R51A10516A	The introduction of Variation 2.
3	16 May 2006	R51A14278A	The introduction of Variation 3.
4	13 March 2008	R51A17850A	The introduction of Variation 4.
5	14 May 2008	R51A18260A	This Issue covers the following changes: • All previously issued certification was rationalised into a single certificate, Issue 5, Issues 0 to 4 referenced above are only intended to reflect the history of the previous certification and have not been issued as documents in this format. • The introduction of Variation 5.

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Issue 5

15 **SPECIAL CONDITIONS FOR SAFE USE** (denoted by X after the certificate number)

15.1 The cable glands shall only be used where the temperature at the point of mounting is within the range -60°C to +90°C.

15.2 The cable glands shall not be used with flameproof enclosures of Group IIC with a volume greater than 2000 cm^3.

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.

17 **CONDITIONS OF CERTIFICATION**

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.

17.2 Holders of EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.

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Certificate Annexe

Certificate Number: **Sira 02ATEX3092X**

Equipment: **E1WF, E1WF-C, E1XF, E1ZF, E1WF-IE, E1WF-C-IE, E1XF-IE, & E1ZF-IE Ranges of Cable Glands**

Applicant: **Prysmian Cables & Systems Limited**
(Using the registered trademark of BICON)

Issue 0

Drawing	Sheet	Rev.	Date	Title
SIRA0004	1 of 1	1	12 Apr 02	ATEX Certified E Type IP66 Cable Glands
SIRA41026	1 of 1	1	12 Apr 02	IP66 E Type Gland Bodies
SIRA41050	1 of 1	1	12 Apr 02	IP66 E Type Integral Earth Gland Bodies
SIRA41103E	1 of 1	1	12 Apr 02	E Type IP66 Inner Seals
SIRA41301E	1 of 1	1	12 Apr 02	E Type IP66 Armour Cone S.W.A./A.W.A./Continental Wire
SIRA41315E	1 of 1	1	12 Apr 02	E Type IP66 Armour Cone S.T.A./Braid
SIRA41401E	1 of 1	1	12 Apr 02	E Type IP66 Gland Armour Rings For S.W.A. & A.W.A.
SIRA41408E	1 of 1	1	12 Apr 02	E Type IP66 Gland Armour Rings For Continental Wire
SIRA41413E	1 of 1	1	12 Apr 02	E Type IP66 Gland Armour Rings For Steel Tape
SIRA41414E	1 of 1	1	12 Apr 02	E Type IP66 Gland Armour Rings For Wire Braid
SIRA41504E	1 of 1	1	12 Apr 02	E Type IP66 Gland Barrel
SIRA41605E	1 of 1	1	12 Apr 02	E Type IP66 Gland Outer Seals
SIRA41701E	1 of 1	1	12 Apr 02	E Type IP66 Gland Skid Washers
SIRA41806E	1 of 1	1	12 Apr 02	E Type IP66 Gland Nut

Issue 1

Drawing	Sheet	Rev.	Date	Description
Sira41050	1 of 1	2	25 Feb 02	IP66 E Type Integral Earth Gland Bodies

Issue 2

Drawing	Sheet	Rev.	Date	Description
SIRA0004	1 of 1	2	21 Oct 03	ATEX Certified E Type IP66 Cable Glands
SIRA41103E	1 of 1	2	21 Oct 03	E Type IP66 Inner Seals
SIRA41605E	1 of 1	2	21 Oct 03	E Type IP66 Gland Outer Seals

Issue 3

No new drawings were introduced.

Issue 4

Drawing	Sheet	Rev.	Date	Description
SIRA0004	1 of 1	3	14 Feb 08	ATEX Certified E Type IP66 Cable Glands
SIRA41527E	1 of 1	1	14 Feb 08	E Type IP66 Short Gland Barrel

Issue 5

Drawing	Sheet	Rev.	Date	Description
SIRA0011	1 of 1	1	02 May 08	ATEX Certified E Type IP66 Cable Glands for Lead Sheathed Cables
SIRA43127	1 of 1	1	02 May 08	IP66 E Type Gland Bodies For Lead Sheathed Cables
SIRA41321E	1 of 1	1	02 May 08	E Type IP66 Armour Cone S.W.A./A.W.A./Continental Wire For Lead Sheathed Cables
SIRA41325E	1 of 1	1	02 May 08	E Type IP66 Armour Cone S.T.A./Braid For Lead Sheathed Cables
SIRA41323	1 of 1	1	07 May 08	Earth Clip Retainer
SIRA47523	1 of 1	1	07 May 08	Earth Clip

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