1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: Sira 04ATEX1080X

4 Equipment: Barr-* Ranges of Cable Glands

5 Applicant: Pirelli Cables Limited

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 confidential report number R51A10422A.

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 A1 & A2)
EN 50018:2000 (amendment A1)
EN 50019:2000
EN 50281-1-1:1998

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 2 GD IP66
EEx d IIC/EEx e II

Project Number 51A10422
Date 6 July 2004
C. Index 07

D R Stubbings BA MIEE
Certification Manager

SCHEDULE

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13 **DESCRIPTION OF EQUIPMENT**

Barr-A Range of Cable Glands

The Barr-A Range of Cable Glands are metallic in construction. They are intended to terminate circular unarmoured cables into flameproof or increased safety enclosures without compromising the explosion protection provided by the enclosures, in accordance with relevant codes of practice.

Each gland consists of a male-threaded front entry component that is intended to mount into an entry point of its associated enclosure, this is designated the gland body and is fitted with a ferrule such that a spigot joint is formed. The ferrule contains a filling compound that effects a flameproof seal around the cable cores passing through it.

The gland coupler threads onto the gland body and houses a retainer that holds the ferrule in position, a pair of fibre skid washers, a polychloroprene seal and a seal housing. The skid washers and the polychloroprene seal effect environmental protection onto the cable outer sheath when the gland coupler is tightened onto the gland body.

The gland and seal sizes are determined by the entry thread and cable range take sizes (all dimensions in millimetres)

Gland Size	Cable Dimensions			
	Max. Ø Over Conductors	Max. No. Of Conductors	Outer Sheath Ø	
			Min	Max
20	11.0	30	8.9	15.7
25	16.0	42	13.0	19.3
32	22.1	60	17.0	25.4
40	28.2	100	24.1	30.0
50	37.1	200	29.0	41.9
63	48.4	400	40.9	52.8
75	58.6	400	49.8	59.9
85	65.8	400	58.9	73.9

Barr-C Range of Cable Glands

The Barr-C Range of Cable Glands are metallic in construction. They are intended to terminate circular, corrugated metal clad or interlocking strip armoured cables into flameproof or increased safety enclosures without compromising the explosion protection provided by the enclosures, in accordance with relevant codes of practice.

Each gland consists of a male-threaded front entry component that is intended to mount into an entry point of its associated enclosure, this is designated the gland body and is fitted with a ferrule such that a spigot joint is formed. The ferrule contains a filling compound that effects a flameproof seal around the cable cores passing through it.

The gland coupler threads onto the gland body and houses a retainer that holds the ferrule in position, a continuity clip, a pair of fibre skid washers, a polychloroprene seal and a seal housing. The skid washers and the polychloroprene seal effect environmental protection onto the cable outer sheath when the gland coupler is tightened onto the gland body.

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The gland and seal sizes are determined by the entry thread and cable range take sizes (all dimensions in millimetres)

Gland Size	Cable Dimensions					
	Max. Ø Over Conductors	Max. No. Of Conductors	Over Armour Ø		Outer Sheath Ø	
			Min	Max	Min	Max
20	11.0	30	7.6	12.7	8.9	15.7
25	16.0	42	11.9	17.3	13.0	19.3
32	22.1	60	16.0	22.1	17.0	25.4
40	28.2	100	21.0	26.9	24.1	30.0
50	37.1	200	25.9	38.6	29.0	41.9
63	48.4	400	37.6	48.0	40.9	52.8
75	58.6	400	45.9	55.9	49.8	59.9
85	65.8	400	54.8	70.1	58.9	73.9

Barr-PB* Ranges of Cable Glands

The Barr-PB* Ranges of Cable Glands are metallic in construction. They are intended to terminate circular, lead sheathed cables into flameproof or increased safety enclosures without compromising the explosion protection provided by the enclosures, in accordance with relevant codes of practice.

The glands are intended for use with the following cable forms:

Barr-PB - Steel wire armoured and aluminium wire armoured cables
Barr-PBC - Continental wire armour and strip wire armoured cables
Barr-PBS - Steel wire armoured and aluminium wire armoured cables with a reduced wire diameter
Barr-PBX - Wire braided cables
Barr-PBZ - Steel tape armoured cables

Each gland consists of a male-threaded front entry component that is intended to mount into an entry point of its associated enclosure, this is designated the gland body and is fitted with a ferrule such that a spigot joint is formed. The ferrule contains a filling compound that effects a flameproof seal around the cable cores passing through it.

The gland barrel threads onto the gland body and houses the different armour clamping rings and cones that differentiate between the ranges and a continuity clip. The armour clamping rings effect clamping of the cable armour or braid onto the armour cones when the gland barrel is tightened onto the gland body. An outer seal gland nut, fitted with a fibre skid washer and a polychloroprene seal, screws onto the gland barrel effecting environmental sealing onto the outer sheath of the cable.

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The gland and seal sizes are determined by the entry thread and cable range take sizes (all dimensions in millimetres)

Gland Size	Cable					
	Max. Ø Over Conductors	Max. No Of Conductors	Over Lead Sheath Ø		Outer Sheath Ø	
			Min	Max	Min	Max
20S	11.0	30	7.0	9.5	8.0	15.8
20	11.0	30	8.0	12.0	11.7	20.8
25	16.0	42	11.0	17.0	17.0	27.2
32	22.1	60	15.5	23.2	19.0	33.5
40	28.2	100	22.5	29.0	26.5	39.9
50	37.1	200	28.5	40.0	36.0	52.6
63	48.4	400	39.0	51.8	46.5	65.3
75	58.6	400	51.5	64.0	58.0	78.0
85	65.8	400	63.0	70.0	68.0	88.0

Gland Size	Armour									
	S.W.A. & A.W.A.		S.W.A. & A.W.A.②		Continental Wire/Strip①		Braid		Steel Tape①	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
20S	0.9	1.4	-	-	0.6	0.8	0.2	0.3	0.15	0.35
20	0.9	1.4	-	-	0.6	0.8	0.2	0.3	0.15	0.5
25	1.25	1.6	0.9	1.25	0.6	0.8	0.2	0.45	0.15	0.5
32	1.6	2.0	1.25	1.6	0.6	0.8	0.3	0.45	0.15	0.55
40	1.6	2.0	-	-	0.6	0.8	0.3	0.45	0.2	0.6
50	2.0	2.5	1.6	-	0.6	0.8	0.3	0.45	0.5	0.8
63	2.5	-	-	-	0.6	0.8	0.3	0.45	0.5	0.8
75	2.5	3.15	-	-	0.6	0.8	0.3	0.45	0.5	1.0
85	2.5	3.15	-	-	0.6	0.8	0.3	0.45	0.5	1.0

① Armour dimensions are a measure of thickness, whereas all other armour type dimensions are a measure of diameter.

② Common range take glands with smaller armour diameter sizes for Barr-PBS designs only.

Barr-W, Barr-WC, Barr-X & Barr-Z Ranges of Cable Glands

The Barr-W, Barr-WC, Barr-X & Barr-Z Ranges of Cable Glands are metallic in construction. They are intended to terminate circular cables into flameproof or increased safety enclosures without compromising the explosion protection provided by the enclosures, in accordance with relevant codes of practice.

The glands are intended for use with the following cable forms:

Barr-W - Steel wire armoured and aluminium wire armoured cables
Barr-WC - Continental wire armour and strip wire armoured cables
Barr-X - Wire braided cables
Barr-Z - Steel tape armoured cables

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Each gland consists of a male-threaded front entry component that is intended to mount into an entry point of its associated enclosure, this is designated the gland body and is fitted with a ferrule such that a spigot joint is formed. The ferrule contains a filling compound that effects a flameproof seal around the cable cores passing through it.

The gland barrel threads onto the gland body and houses the different armour clamping rings and cones that differentiate between the ranges. The armour clamping rings effect clamping of the cable armour or braid onto the armour cones when the gland barrel is tightened onto the gland body. An outer seal gland nut, fitted with a fibre skid washer and a polychlorprene seal, screws onto the gland barrel effecting environmental sealing onto the outer sheath of the cable.

The gland and seal sizes are determined by the entry thread and cable range take sizes (all dimensions in millimetres)

Gland Size	Cable					
	Max. Ø Over Conductors	Max. No Of Conductors	Over Inner Sheath Ø		Outer Sheath Ø	
			Min	Max	Min	Max
20S	11.0	30	-	12.5	8.0	15.8
20	11.0	30	-	12.5	11.7	20.8
25	16.0	42	11.5	18.0	17.0	27.2
32	22.1	60	17.0	25.0	19.0	33.5
40	28.2	100	24.0	31.5	26.5	39.9
50	37.1	200	30.0	41.5	36.0	52.6
63	48.4	400	40.0	54.0	46.5	65.3
75	58.6	400	53.0	65.5	58.0	78.0
85	65.8	400	60.0	74.0	68.0	88.0

Gland Size	Armour							
	S.W.A. & A.W.A.		Continental Wire/Strip①		Braid		Steel Tape①	
	Min	Max	Min	Max	Min	Max	Min	Max
20S	0.9	1.4	0.6	0.8	0.2	0.3	0.15	0.35
20	0.9	1.4	0.6	0.8	0.2	0.3	0.15	0.5
25	1.25	1.6	0.6	0.8	0.2	0.45	0.15	0.5
32	1.6	2.0	0.6	0.8	0.3	0.45	0.15	0.55
40	1.6	2.0	0.6	0.8	0.3	0.45	0.2	0.6
50	2.0	2.5	0.6	0.8	0.3	0.45	0.5	0.8
63	2.5	-	0.6	0.8	0.3	0.45	0.5	0.8
75	2.5	3.15	0.6	0.8	0.3	0.45	0.5	1.0
85	2.5	3.15	0.6	0.8	0.3	0.45	0.5	1.0

① Armour dimensions are a measure of thickness, whereas all other armour type dimensions are a measure of diameter.

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Design Options

The following design options apply to all the gland ranges:

- Alternative metallic materials of manufacture: Brass to BS 2874:1986 Grades CZ121, CZ122 or better
  Mild steel to BS 970: Part 1:1991
  Stainless steel to BS 970:Part 4:1987
  Aluminium to either BS 1471:1972 Grade 6082-T6, BS 1474:1987 Grade 6082-T6 or better

Alternative skid washer materials of manufacture: Nylon 6
The same material as the glands

- All metallic materials may be additionally surface coated to limit any electrolytic reaction between similar materials.
- Alternative entry threadforms that are within the dimensional parameters of the gland body and that maintain compliance with the requirements of clause 5.3 of EN 50018:2000.

14 **DESCRIPTIVE DOCUMENTS**

14.1 Drawings

Barr-A & Barr-C Ranges of Cable Glands

Drawing	Sheets	Rev.	Date	Description
SIRA0010	1 of 1	1	17 Mar 04	ATEX Certified Barrier Glands For Unarmoured & Corrugated Or Interlocking Armour Cables
SIRA41314	1 of 1	1	16 Mar 04	Unarmoured & Corrugated Or Interlocking Armour Cable Barrier Gland Retainer
SIRA41514	1 of 1	1	16 Mar 04	Unarmoured & Corrugated Or Interlocking Armour Cable Barrier Gland Coupler
SIRA41605U	1 of 1	1	11 Mar 04	Unarmoured & Corrugated Or Interlocking Armour Cable Barrier Gland Outer Seals
SIRA41714	1 of 1	1	15 Mar 04	Unarmoured & Corrugated Or Interlocking Armour Cable Barrier Gland Skid Washers
SIRA41814	1 of 1	1	15 Mar 04	Unarmoured & Corrugated Or Interlocking Armour Cable Barrier Seal Housing
SIRA41911U	1 of 1	1	11 Mar 04	Unarmoured & Corrugated Or Interlocking Armour Cable Barrier Gland Ferrule
SIRA42410U	1 of 1	1	08 Jun 04	Unarmoured & Corrugated Or Interlocking Armour Cable Gland Sealing Compounds
SIRA42440	1 of 1	1	14 Apr 04	Corrugated Or Interlocking Armour Cable Barrier Gland Retainer Sub-Assembly
SIRA43122U	1 of 1	1	11 Mar 04	Unarmoured & Corrugated Or Interlocking Armour Cable Barrier Gland Body

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Barr-PB, Barr-PBC, Barr-PBS, Barr-PBX & Barr-PBZ Ranges of Cable Glands

Drawing	Sheets	Rev.	Date	Description
SIRA0009	1 of 1	1	16 Mar 04	ATEX Certified Barrier Glands For Lead Sheathed Cables
SIRA41308	1 of 1	1	03 Mar 04	Lead Sheathed Cable Barrier Gland Armour Cone (Steel, Aluminium & Continental Wire Armour)
SIRA41311	1 of 1	1	05 Mar 04	Lead Sheathed Cable Barrier Gland Armour Cone (Steel, Tape Armour & Wire Braid)
SIRA41401PB	1 of 1	1	01 Mar 04	Lead Sheathed Cable Barrier Gland Armour Ring (Steel & Aluminium Wire Armour)
SIRA41408PB	1 of 1	1	01 Mar 04	Lead Sheathed Cable Barrier Gland Armour Ring (Continental Wire Armour)
SIRA41413PB	1 of 1	1	01 Mar 04	Lead Sheathed Cable Barrier Gland Armour Ring (Steel Tape Armour)
SIRA41414PB	1 of 1	1	01 Mar 04	Lead Sheathed Cable Barrier Gland Armour Ring (Wire Braid Armour)
SIRA41504PB	1 of 1	1	01 Mar 04	Lead Sheathed Cable Barrier Gland Barrel
SIRA41605PB	1 of 1	1	01 Mar 04	Lead Sheathed Cable Barrier Gland Outer Seals
SIRA41701PB	1 of 1	1	01 Mar 04	Lead Sheathed Cable Barrier Gland Skid Washers
SIRA41806PB	1 of 1	1	01 Mar 04	Lead Sheathed Cable Barrier Gland Nut
SIRA41911PB	1 of 1	1	01 Mar 04	Lead Sheathed Cable Barrier Gland Ferrule
SIRA42410PB	1 of 1	1	08 Jun 04	Lead Sheathed Cable Gland Sealing Compound
SIRA42427	1 of 1	1	14 Apr 04	Lead Sheathed Cable Barrier Gland Armour Cone Sub-Assembly
SIRA43122PB	1 of 1	1	01 Mar 04	Lead Sheathed Cable Barrier Gland Body

Barr-W, Barr-WC, Barr-X & Barr-Z Ranges of Cable Glands

Drawing	Sheets	Rev.	Date	Description
SIRA0008	1 of 1	1	16 Mar 04	ATEX Certified Barrier Glands For Armoured & Braided Cables
SIRA41304B	1 of 1	1	27 Jan 04	Armoured & Braided Cable Barrier Gland Armour Cone (Steel, Aluminium & Continental Wire Armour)
SIRA41309B	1 of 1	1	27 Jan 04	Armoured & Braided Cable Barrier Gland Armour Cone (Steel Tape Armour & Wire Braid)
SIRA41401B	1 of 1	1	27 Jan 04	Armoured & Braided Cable Barrier Gland Armour Ring (Steel & Aluminium Wire Armour)
SIRA41408B	1 of 1	1	27 Jan 04	Armoured & Braided Cable Barrier Gland Armour Ring (Continental Wire Armour)
SIRA41413B	1 of 1	1	27 Jan 04	Armoured & Braided Cable Barrier Gland Armour Ring (Steel Tape Armour)
SIRA41414B	1 of 1	1	27 Jan 04	Armoured & Braided Cable Barrier Gland Armour Ring (Wire Braid Armour)
SIRA41504B	1 of 1	1	28 Jan 04	Armoured & Braided Cable Barrier Gland Barrel
SIRA41605B	1 of 1	1	27 Jan 04	Armoured & Braided Cable Barrier Gland Outer Seals
SIRA41701B	1 of 1	1	27 Jan 04	Armoured & Braided Cable Barrier Gland Skid Washers
SIRA41806B	1 of 1	1	28 Jan 04	Armoured & Braided Cable Barrier Gland Nut

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Drawing	Sheets	Rev.	Date	Description
SIRA41911B	1 of 1	1	23 Jan 04	Armoured & Braided Cable Barrier Gland Ferrule
SIRA42410B	1 of 1	1	08 Jun 04	Armoured & Braided Cable Barrier Gland Sealing Compounds
SIRA43122B	1 of 1	1	01 Mar 04	Armoured & Braided Cable Barrier Gland Body

14.2 Report No. R51A10422A

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

15.1 The equipment shall only be used where the temperature, at the point of entry, is in the range -60°C to +90°C.

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 Report No. R51A10422A.

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.

Date 6 July 2004

sira
Certification Service

EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	Sira 04ATEX1080X	Dated	6 July 2004
VARIATION NUMBER	1 (ONE)	Dated	16 May 2006

VARIATION TO EQUIPMENT

To permit:

1 A change of the Applicant's name on the certificate:

From:	To:
Pirelli Cables Limited (Using the registered trademark of BICON)	Prysmian Cables & Systems Limited (Using the registered trademark of BICON)

2 The Applicant to 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 equip0ment.

DESCRIPTIVE DOCUMENTS

None

ADDITIONAL CONDITIONS OF CERTIFICATION

None

File No. 51A14278

Report No. R51A14278A

D R Stubbings BA MIEE
Certification Manager

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