

**Type Examination Certificate CML 21UKEX4133X Issue 2****United Kingdom Conformity Assessment**

- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended)
- 2 Equipment **Ranges of Compression Seal, Diaphragm Seal and Hybrid, Barrier Cable Glands**
- 3 Manufacturer **Hawke International (A Division of Hubbell Limited) (A member of the Hubbell group of companies)**
- 4 Address Oxford Street West,  
Ashton-under-Lyne,  
Lancashire  
OL7 0NA,  
United Kingdom

5 The equipment is specified in the description of this certificate and the documents to which it refers.

6 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, 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 Schedule 1 of the Regulations.

The examination and test results are recorded in the confidential reports listed in Section 12.

7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to specific conditions of use (affecting correct installation or safe use). These are specified in Section 14.

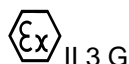
8 This Type Examination certificate relates only to the design and construction of the specified equipment. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018

EN IEC 60079-15:2019

10 The equipment shall be marked with the following:



Ex nR IIC Gc

See conditions of use for service temperature



CML 21UKEX4133X  
Issue 2

## 11 Description

The ranges of cable glands are designed in three versions: compression seal, barrier seal and diaphragm seal. Hybrid configurations of these glands are also described. The range of glands can alternatively be constructed with specified entry threads.

All cable glands within the ranges are manufactured in brass, nickel plated brass, stainless steel, or aluminium.

Both barrier and diaphragm seal type glands internal parts marked with an asterisk (\*) in the description below are interchangeable with respect to the type of application. When parts are interchanged, these assemblies may be dual marked with both product types on the stamp band. The “DELUGE BOOT” colour indicates the internal component that is used, the ICG/653/UNIV being indicated by a red deluge boot, The gland assemblies as described above are rated for ingress protection IP66, 67, 69 and IPX8 size Os to C only at 10m for 24 hours. The ingress protection of the ICG 653 UNIV and CSB656N is limited to IP66.

Cable glands may be fitted with an optional external clamp or a Hawke Gland Mounted Clamp (GMC) accessory. When fitted, no additional clamping is required.

Items in *italic* are optional and may be omitted from the cable gland dependent on the application.

Hybrid cable glands are available for the gland types ICG/653/UNIV, 501/453/RAC and 501/453/UNIV. These types are fitted with the middle nut and back nut components of any smaller trade size compared to the entry. Glands may combine entries and seals with small armour clamping rings and back nut seals. Hybrid gland marking to include second size reference with no spaces e.g. for example C2 to C hybrid size reference would be C2C.

The use of Hawke IP sealing washers may be considered a suitable sealing method to maintain IP rating to the enclosure (see conditions of use) and will maintain the service temperature.

Where marked IIC or IIIC, the equipment can also be marked for gas groups IIA or IIB and for dust groups IIIA or IIIB.

### Type 501/453/UNIV Cable Gland

501/453/UNIV cable gland is a diaphragm seal cable gland the glands are fitted with a diaphragm silicone rubber seal and are designed for effectively filled type cable when used for flameproof applications. This cable gland is available in sizes Os (M16) up to and including F(M75). The entry thread form can either be metric or NPT equivalent. They are used with cables that are circular and armoured, un-armoured or braided cables. The cable gland comprises the following components:

- a) Entry
- b) Deluge seal \*
- c) Diaphragm seal \*
- d) Spigot \*
- e) Armour clamping ring
- f) Middle nut
- g) Back nut
- h) Back nut clamp
- i) Back nut seal



CML 21UKEX4133X  
Issue 2

### **Type ICG/653/UNIV Cable Gland**

The ICG/653/UNIV Cable Gland is a barrier seal type gland designed for sealing around individual cores and are for use with circular cables of armoured, un-armoured or corrugated cables. This cable gland is available in sizes Os (M16) up to and including J (M100). The entry thread form is either metric or NPT equivalent. The cable gland comprises the following components:

- a) Entry
- b) Deluge seal\*
- c) Silicone compound chamber\*
- d) *Silicone resin dam* \*
- e) Spigot\*
- f) *VBL Clip* \*
- g) Armour/braid clamping ring
- h) Middle nut
- i) Back nut
- j) Back nut clamp
- k) Back nut seal

### **Type 710 Cable Gland**

The 710 Cable gland is a barrier cable gland designed for sealing around individual cores and are for use with circular cables of armoured, un-armoured or corrugated cables. This cable gland is available in sizes Os (M16) up to and including F (M75). The entry thread form is either metric or NPT equivalent. The cable gland comprises the following components:

- a) Entry
- b) Silicone compound chamber
- c) Deluge seal
- d) *Silicone resin dam*
- e) Spigot
- f) Middle nut
- g) Back nut
- h) Back nut clamp
- i) Back nut seal



**CML 21UKEX4133X**  
**Issue 2**

### **Type 711 Cable Gland**

711 Cable gland is a barrier cable gland designed for sealing around individual cores and are for use with circular cables of armoured, un-armoured or corrugated cables. This cable gland is available in sizes A (M20) up to and including F (M75). The entry thread form is either metric or NPT equivalent. The cable gland comprises the following components:

- a) Entry
- b) Silicone compound chamber
- c) Deluge seal
- d) Silicone resin dam
- e) Front diablo support
- f) Diablo cage
- g) Rear diablo support
- h) Middle nut
- i) Back nut
- j) Back nut clamp
- k) Back nut seal

### **Type 753 Cable Gland**

753 cable gland Cable gland is a barrier cable gland designed for sealing around individual cores and are for use with circular cables of armoured, un-armoured or braided cables. This cable gland is available in sizes Os (M16) up to and including F(M75). The entry thread form is either metric or NPT equivalent. The cable gland comprises the following components:

- a) Entry
- b) Silicone compound chamber
- c) Deluge seal
- d) Silicone resin dam
- e) Spigot
- f) Middle nut
- g) Back nut
- h) Back nut clamp
- i) Back nut seal

Cable glands types ICG/653/UNIV, 710, 711 and 753 have been subjected to overpressure test up to 62bar/900 Psi.



**CML 21UKEX4133X**  
**Issue 2**

### **Type 501/421 Cable Gland**

The Type 501/421 Cable Gland is intended for use with an effectively filled and circular unarmoured cable. The gland type is rated for ingress protection IP66 and 67. This cable gland is available in sizes Os (M16) up to including J (M100). The entry thread form is either metric or NPT equivalent. It comprises the following components:-

- a) An entry
- b) A compressible sealing ring
- c) A compression spigot
- d) A back nut
- e) An optional earth continuity device for use with metallic sheathed cables

### **The Type 501/421 'Size 2K' gland**

The Type 501/421 'Size 2K' gland comprises the following components only: -

- a) A dedicated entry component
- b) A compressible sealing ring
- c) A nylon skid washer
- d) A threaded compression spigot

### **Type 501/423 Cable Gland**

The Type 501/423 Cable Gland is intended for use with an effectively filled and circular unarmoured cable. The gland type is rated for ingress protection IP66 and 67. This cable gland is available in sizes Os (M16) up to including J (M100). The entry thread form is either metric or NPT equivalent. It comprises the following components:-

- a) An entry
- b) Two compressible sealing rings
- c) Two compression spigots
- d) A middle nut
- e) A back nut
- f) An optional earth continuity device for use with metallic sheathed cables



**CML 21UKEX4133X**  
**Issue 2**

### **Type 501/453 RAC Cable Gland**

The Type 501/453 RAC Cable Gland is intended for use with armoured, unarmoured, or braided cable. The gland type is rated for ingress protection IP66 and 67. This cable gland is available in sized Os (M16) up to including J (M100). The entry thread form is either metric or NPT equivalent. It comprises the following components: -

- a) An entry
- b) A compressible sealing ring
- c) A combined compression spigot and armour clamping cone
- d) A reversible armour clamping ring. (When fitted with a dedicated armour, or braid, clamping ring the gland type is 501/453).
- e) A middle nut
- f) An outer seal assembly (sleeve seal and support ring)
- g) A back nut
- h) An optional earth continuity device for use with metallic inner sheathed cables.

### **Type PSG 553 RAC Cable Gland**

The Type PSG 553 RAC Cable Gland is intended for use with armoured, unarmoured, or braided cable of unspecified construction. The gland type is rated for ingress protection IP66 and 67. This cable gland is available in sized Os (M16) up to including C (M32). The entry thread form is either metric or NPT equivalent. It comprises the following components: -

- a) An entry
- b) A compressible seal designed to accept a number of individual conductors
- c) A combined compression spigot and armour clamping cone.
- d) A reversible armour clamping ring. (When fitted with a dedicated armour, or braid, clamping ring the gland type is PSG 553).
- e) A middle nut
- f) An outer seal assembly (sleeve seal and support ring)
- g) A back nut



**CML 21UKEX4133X**  
**Issue 2**

### **Type 501/414 Conduit Stopping Gland**

The Type 501/414 Conduit Stopping Gland is intended for use with an effectively filled and circular unarmoured cable enclosed within a conduit. The gland type is rated for ingress protection IP66 and 67. This cable gland is available in sized Os (M16) up to including F (M75). The entry thread form is either metric or NPT equivalent. It comprises the following components: -

- a) An entry
- b) A compressible sealing ring
- c) A compression assembly comprising a compression spigot with a female thread at the rear and integral back nut

### **Type SB474 Conduit Stopping Gland**

The Type SB474 Conduit Stopping Gland is intended for use with a number of circular conductors enclosed within a conduit. The gland type is rated for ingress protection IP66 and 67. This cable gland is available in sized O (M16) up to including C (M32). The entry thread form is either metric or NPT equivalent. It comprises the following components: -

- a) An entry
- b) A compressible seal designed to accept a number of individual conductors
- c) A compression assembly comprising a compression spigot with a female thread at the rear and integral back nut

### **Type CSB 656N Conduit Stopping Gland**

The Type CSB 656N Conduit Stopping Gland is intended for use with a number of circular conductors enclosed within a conduit or retained by a separate cable gland. The gland type is rated for ingress protection IP66. This cable gland is available in sized A (M20) up to including F (M75). The entry thread form is either metric or NPT equivalent. It comprises the following components: -

- a) An entry
- b) An elastomeric ferrule
- c) An epoxy barrier compound
- d) A compression assembly comprising a compression spigot with a female thread at the rear
- e) A dedicated backnut



**CML 21UKEX4133X**  
**Issue 2**

### **APEX Range of Cable Glands**

The Hawke **APEX C\*e** Range of Cable Glands are designed to form a seal around the outer sheath of a cable and are intended for use with a range of circular cables including armoured, non armoured and braided cables. The gland type includes an integral armour/braid grounding device. The suitable service temperature is -60°C to +130°C.

These cable glands are manufactured in brass, or stainless steel; all of which may be plated to suit the application. The glands may be provided with metric or imperial (NPT) entry threads. The gland type is rated for ingress protection IP66 and 67. These cable glands are available in sizes Os (M16) up to including F (M75). The glands utilise thermoset rubber seals.

The Hawke APEX C\*e cable gland is comprised of the following components:

1. Entry
2. Deluge Boot
3. Armour Clamping Ring(s)
4. Middlednut
5. Compression Seal
6. Slip Ring
7. Backnut

APEX C\*e is provided with configurable armour clamping options, typically marked with either CUe, CXe or CWe where:

- U = suits all types of Braid, Tape and Wire Armour
- X = generally suits Braid and Tape
- W = generally suits Wire Armour

All variants of the APEX C\*e are suitable for installation onto unarmoured circular cable and are dimensionally identical with the exception of the type of ring supplied.

The Hawke **APEX A2F** Range of Cable Glands are designed to form a seal around the outer sheath of a cable and are intended for use with circular non armoured and braided cables.

The Hawke **APEX E1F\*** Range of Cable Glands are designed to form a seal around both the inner and outer sheath of the cable and are intended for use with a range of circular cables including armoured, non armoured and braided cables. This gland type includes an integral armour/braid grounding device.

Both type of glands have a suitable service temperature of -60°C to +130°C.

The cable glands listed above may be manufactured in brass, or stainless steel; all of which may be plated to suit the application. The glands may be provided with metric or imperial (NPT) entry threads. The gland assemblies as described above are rated for ingress protection of IP66/67.

These cable glands are available in sizes Os (M16) up to including F (M75). The glands utilise thermoset rubber seals.





**CML 21UKEX4133X**  
**Issue 2**

The Hawke APEX A2F cable gland is comprised of the following components:

1. Entry
2. Compression Seal
3. Slip ring
4. Tailnut

The Hawke APEX E1F\* cable gland is comprised of the following components:

1. Entry
2. Deluge Boot (Optional)
3. Inner Compression Seal
4. Spigot
5. Armour Clamping Ring(s)
6. Middlednut
7. Outer Compression Seal
8. Slip Ring
9. Backnut

The APEX E1F\* is provided with configurable armour clamping options, typically marked with either E1FU, E1FX or E1FW where:

- U = suits all types Braid, Tape and Armour
- X = generally suits Braid and Tape
- W = generally suits Wire Armour

All variants of the APEX E1F\* are suitable for installation onto unarmoured circular cable and are dimensionally identical with the exception of the type of ring supplied.

### **Variation 1**

This variation introduced the following changes, and it is applicable to Type PSG 553 RAC Cable Gland and Type SB474 Conduit Stopping Gland.

- i. To introduce a new seal design for PSG/553/RAC, sizes Os to C and SB 474, sizes O to C; as a result the product description was amended.
- ii. To introduce a new compressible seal which has an increased service temperature of -60°C to +100°C; to reflect this modification the product description and Specific Conditions of Use were updated.
- iii. To permit minor editorial updates to the Product Description.
- iv. To permit changes to the Specific Conditions of Use.
- v. To remove cable gland types 501/452 RAC and PSG 421; as a result, the product description was amended.

### **Variation 2**

This variation introduced the following changes:

- i. To introduce the APEX Range of Cable Glands to the certificate.
- ii. To permit minor editorial updates to the Product Description.
- iii. To permit changes to the Specific Conditions of Use.



CML 21UKEX4133X  
Issue 2

## 12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	29 Sept 2021	R13593I/00	The issue of prime certificate.
1	31 Mar 2022	R14930A/00	Introduction of Variation1
2	08 May 2023	R16051A/00	Introduction of variation 2

Note: Drawings that describe the equipment are listed in the Annex.

## 13 Conditions of Manufacture

None.

## 14 Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

- i. Glands for use with conduit, unarmoured or braided cables are only suitable for fixed installations, the cable for which must be effectively clamped to prevent pulling and twisting (does not apply when fitted with rear clamping device or Hawke Gland Mounted Clamp (GMC)).
- ii. Barrier glands of sizes C2, D, E and F and containing (Express) XO99-41-2 resin, and when fitted with unarmoured or braided cables, shall be effectively clamped to prevent pulling or twisting forces transmitting to the terminations. No additional clamping is required on barrier cable glands sizes Os-C2, or if containing 2122 Hawkesseal or 2132 QSP compound.
- iii. The PSG/553/RAC and SB 474 cable glands are limited to an operating temperature range of -60°C to +80°C, unless marked "P PSG/553/RAC" and "P SB 474" respectively. In these cases, they are suitable for use with an operating temperature range of -60°C to +100°C. All other cable gland types are suitable for use with an operating temperature range of -60°C to +100°C.
- iv. When the glands are used for restricted breathing Ex nR, the entry thread shall be suitably sealed (in accordance with IEC 60079-14) to maintain the ingress protection rating of the associated enclosure. This condition does not apply if the Hawke International nylon sealing washer is installed as part of the gland assembly.

# Certificate Annex

**Certificate Number** CML 21ATEX4133X

**Equipment** Ranges of Compression Seal, Diaphragm Seal, Hybrid, Barrier, and APEX Cable Glands

**Manufacturer** Hawke International (A Division of Hubbell Limited) (A member of the Hubbell group of companies)



The following documents describe the equipment defined in this certificate:

## Issue 0

Item	Drawing No.	Sheets	Rev	Approved date	Title
1	320004*	1 of 1	A	27-09-2021	501/453/Univ
2	320029*	1 of 1	A	27-09-2021	ICG/653/Univ schedule drawing
3	320034*	1 of 1	A	27-09-2021	753 schedule drawing
4	320042*	1 of 1	A	27-09-2021	710 schedule drawing
5	320043*	1 of 1	A	27-09-2021	711 schedule drawing
6	320021**	1 of 1	A	27-09-2021	501/421 schedule drawing
7	320026**	1 of 1	A	27-09-2021	501/423 schedule drawing
8	320028**	1 of 1	A	27-09-2021	501/452/RAC schedule drawing
9	320035**	1 of 1	A	27-09-2021	PSG/421 schedule drawing
10	320037**	1 of 1	A	27-09-2021	PSG/553/RAC schedule drawing
11	320038**	1 of 1	A	27-09-2021	501/414 schedule drawing
12	320040**	1 of 1	A	27-09-2021	SB 474 schedule drawing
13	320041	1 of 1	A	27-09-2021	Schedule drawing CSB 656 N
14	320016**	1 of 1	A	27-09-2021	501/453/RAC
*These drawings are common to CML 18ATEX1268X, CML 21UKEX1132X and IECEx CML 18.0131X.					
**These drawings are common to CML 19ATEX1167X, CML 21UKEX1161X and IECEx CML 19.0045X					

The following component drawings are common to each of the cable gland as indicated.  
Approved/issued date 27-09-2021.

	Drawing No.	Sheets	Rev	Title	501/453/Univ	ICG/653/Univ	753	710	711	501/421	501/423	501/452/RAC	PSG/421	PSG/553/RAC	501/414	SB 474	CSB 656N	501/453/RAC
a	320008	1 of 1	A	OMNI Entry	x	x	x	x	x									
b	320001	1 of 1	A	Diaphragm Seal	x													
c	320007	1 of 1	A	Deluge boot	x	x	x	x	x									
d	320002	1 of 1	A	Armour clamping ring	x	x	x					x		x				x
e	320009	1 of 1	A	Middle nut	x	x	x	x	x			x		x				x
f	320003	1 of 1	A	Back nut seal	x	x	x	x	x					x				x

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	Drawing No.	Sheets	Rev	Title	501/453/Univ	ICG/653/Univ	753	710	711	501/421	501/423	501/452/RAC	PSG/421	PSG/553/RAC	501/414	SB 474	CSB 656N	501/453/RAC
g	320010	1 of 1	A	Back nut	x	x	x	x	x					x				x
h	320011	1 of 1	A	Thread forms	x	x	x	x	x		x	x	x	x	x	x	x	x
i	320012	1 of 1	A	External clamp	x	x	x	x	x	x				x				x
j	320082	1 of 1	A	GMC	x	x	x	x	x	x	x			x				x
k	320031	1 of 1	A	ALT Compound Chamber Entry		x	x	x	x								x	
l	320030	1 of 1	A	Std Compound Chamber		x	x	x	x									
m	320032	1 of 1	A	ALT Compound Chamber		x											x	
n	320083	1 of 1	A	ALT Compound Chamber			x	x	x									
o	320044	1 of 1	A	Spacer spigot				x										
p	320045	1 of 1	A	Diablo					x									
q	320017	1 of 1	A	Compression seal entry						x	x	x	x	x	x	x		x
r	320018	1 of 1	A	Compression seal						x	x	x			x			x
s	320022	1 of 1	A	Compression spigot						x	x		x					
t	320023	1 of 1	A	Tail nut						x	x		x		x	x	x	
u	3027 2K	1 of 1	A	Nylon skid washer						x								
v	3077 Os-2K	1 of 1	A	Spigot 411/321/421 2K Gland						x								
w	320027	1 of 1	A	Body nut							x							
x	320036	1 of 1	A	PSG Seal									x	x		x		

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	Drawing No.	Sheets	Rev	Title	501/453/Univ	ICG/653/Univ	753	710	711	501/421	501/423	501/452/RAC	PSG/421	PSG/553/RAC	501/414	SB 474	CSB 656N	501/453/RAC
y	320039	1 of 1	A	Conduit gland body											x	x	x	

## Issue 1

	Drawing No.	Sheets	Rev	Approved date	Title
01	320036	1 of 1	B	31 Mar 2022	PSG Seal Schedule Drawing
02	320037	1 of 1	B	31 Mar 2022	PSG/553/RAC Schedule Drawing
03	320040	1 of 1	B	31 Mar 2022	SBS474 Schedule Drawing
04	320091	1 of 1	A	31 Mar 2022	PPSG Seal Schedule Drawing
05	320043	1 of 1	B	31 Mar 2022	711 Schedule Drawing

## Issue 2

This issue is applicable to APEX Range of Cable Glands

Drawing No	Sheets	Rev	Approved date	Title
320002	1 of 1	B	08 May 2023	Armour Clamping Ring
320007	1 of 1	B	08 May 2023	Deluge Boot
320011	1 to 3	A	08 May 2023	Thread Specification
320092	1 of 1	A	08 May 2023	APEX A2F Schedule Drawing
320093	1 of 1	A	08 May 2023	APEX C*e Schedule Drawing
320094	1 of 1	A	08 May 2023	APEX E1F* Schedule Drawing
320095	1 of 1	A	08 May 2023	APEX A-Type Compression Seal Entry
320096	1 of 1	A	08 May 2023	APEX A-Type Compression Seal
320097	1 of 1	A	08 May 2023	APEX A-Type Tailnut
320098	1 of 1	A	08 May 2023	APEX C-Type Compression Seal Entry
320099	1 of 1	A	08 May 2023	APEX E-Type Compression Seal Entry
320100	1 of 1	A	08 May 2023	APEX Flameproof Seal
320101	1 of 1	A	08 May 2023	Dedicated RAC
320103	1 of 1	A	08 May 2023	Middlenut

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Drawing No	Sheets	Rev	Approved date	Title
320104	1 of 1	A	08 May 2023	APEX E/C Type Backnut seal
320105	1 of 1	A	08 May 2023	APEX E/C Type Backnut
320106	1 of 1	A	08 May 2023	Gland metallic materials