

Certificate of Assessment

CML 14CA364

Issue 6

- 1 **Equipment** **Cable Glands**
 Models **E1W, E1W Insulated, E1W Lead Seal, E1W Integral Earth, E1X/Z, E1EX (VS)(QS)(VX), E1EX-U (VS)(QS)(VX), E1EX Lead Seal, E1EX-SP (QS)(VX), ARMORTEX (QS)(VX), D1W, D1EX (QS)(VX), FLP (QS)(VX), A2, A2F, A2F-R, A2F-H, A2F-H-R, A2F-FHC~(QS)(VX), A2X, A2FX, A2FX-R, A2FX-H, A2FX-H-R, A2EX (VS)(QS)(VX), A2EX FHC (VS)(QS)(VX), FLP-TR (QS)(VX), FLP Hose (QS)(VX), VRTX, VRTX SWA, UNITEx-D (VS), UNITEx-E, UNITEx~(QS)(VX), UNITEx-F, UNITEx-F~(QS)(VX) CW, CW_e, CW Insulated, CW INTEGRAL EARTH, IPlus CG, EXCG (VS)(QS)(VX), EXCG-Lead Seal, Posi Flex, Posi Grip (QS)(VX), BW, TMC, TMCX, CX/CZ and CX_e ranges of cable glands**

- 2 **Manufacturer** **CCG Cable Terminations Ltd**

- 3 **Address** **33-37 Forge Road
 Spartan Industrial Area
 Kempton Park 1619
 South Africa**

- 4 The components specified have been evaluated against the requirements of the standard specified in Section 6.

- 5 This evaluation is based on the following documents:
 R364A, R1618A, R1660A/00, R12552A/00, R13062A/00

- 6 **Specification:** IEC 62444:2010, Ed 1 BS EN 62444:2013
 (Metric and NPT threads) BS 6121-1:2005
 (Metric threads only)

 BS 6121-1:1989 (See note)
 BS EN 50262:1999 (See note)

 Note: BS EN 62444 replaces BS EN 50262:1999, BS 6121-1:2005 replaces BS 6121-1:1989

- 7 **Assessment** This is to certify that, on the basis of the testing carried out, that the above model ranges of Cable Glands were considered to comply with the requirements listed in section 6.

- 8 **Date:** 08 October 2020

- 9 **Marking** The glands have the following marking as a minimum:
 - Manufacturer's trademark
 - IP marking (as applicable)
 - Entry thread form and size



10 Description of Equipment

E1W, E1W Insulated, E1W Lead Seal, E1W Integral earth, E1X/Z, E1EX (VS)(QS)(VX), E1EX-U (VS)(QS)(VX), E1EX Lead Seal, E1EX-SP (QS)(VX), UNITE_x-D (VS), UNITE_x-E, UNITE_x~(QS)(VX), UNITE_x-F, UNITE_x-F~(QS)(VX), and ARMORTEX (QS) (VX) metallic gland ranges

The E1W, E1X/Z, E1EX, E1EX-U, UNITE_x-D, UNITE_x-E, UNITE_x-F and ARMORTEX type glands consist of an inner, body, cone, cone ring, outer nut, outer seal, inner seal, skid ring and a sealing gasket.

The E1W and E1X/Z type glands are mainly intended for industrial purposes with the E1EX, E1EX-U, UNITE_x-D, UNITE_x-E, UNITE_x-F and the ARMORTEX type glands being intended for use in hazardous areas, engaged into a threaded hole or secured with a locknut.

Variations:

- Lead Seal– Glands with inner lead seal
- (VS) – Glands with an internal contact for use with variable speed drive cables and lead sheath cables. Note that a standard cable gland type can be converted to a (VS) variant by retrofitting the internal contact components. The product marking does not need to be changed when these components are retro-fitted.
- (QS) – Barrier glands using QuickStop Ex barrier material
- (VX) – Barrier glands using Vortex barrier material
- E1W Integral earth – Integral earth bolt fitted to nut
- E1W Insulated – Non-metallic insulation ring
- E1X/Z – Specifically for braided and steel tape cable

See Annex for specific classification of gland series.

D1W, D1EX (QS)(VX) and FLP (QS)(VX) metallic gland ranges

The D1W, D1EX and FLP glands consist of an inner, outer, cone, cone ring, inner seal and a sealing gasket.

The D1W type glands are mainly intended for industrial purposes with the D1EX and FLP type glands being intended for use in hazardous areas, engaged into a threaded hole or secured with a locknut.

Variations:

(QS) – Barrier glands using QuickStop Ex barrier material

(VX) – Barrier glands using Vortex barrier material

See Annex for specific classification of gland series.

A2, A2X, A2F, A2F-R, A2F-H, A2F-H-R, A2F-FHC~(QS)(VX), A2FX, A2FX-R, A2FX-H, A2FX-H-R, A2EX (VS)(QS)(VX), A2EX FHC (VS)(QS)(VX), FLP-TR (QS)(VX) and FLP Hose (QS)(VX) metallic gland ranges

The A2 and A2F type glands consist of an inner, outer, bush, lock nut, gripper seal, skid ring and a sealing gasket. The A2F-FHC~(QS)(VX) gland has a coupler to connect it to a conduit system. The A2 and A2X glands can optionally have an entry component comprising a metal shell with a close-fitting plastic insert such that the assembly has the same shape as an all-metal component. The material of the plastic insert shall match the material of the sealing gasket to maintain the temperature range.

The A2X, A2FCG, A2FX, A2FX-R, A2FX-H, A2FX-H-R, A2EX, A2EX-FHC, FLP-TR and FLP Hose have two gripper seals.

The A2 and A2X type glands are mainly intended for industrial purposes with the A2F, A2EX and FLP type glands being intended for use in hazardous areas, engaging into a threaded hole or secured with a locknut.

Variations:

(QS) – Barrier glands using QuickStop Ex barrier material

(VX) – Barrier glands using Vortex barrier material

See Annex for specific classification of gland series.

CW, CW Insulated, CW Integral Earth, CW_e, CX_e and CX/CZ metallic gland ranges

The CW, CW_e, CX/CZ and CX_e glands consist of an inner, body, cone, cone ring, lock nut, bush, outer nut, skid ring, outer seal and a sealing gasket.

The CW and CX type glands are mainly intended for industrial purposes with the CW_e and CX_e type glands being intended for use in hazardous areas, engaged into a threaded hole or secured with a locknut.

Variations:

- CW Insulated – Non-metallic isolation ring
- CW Integral Earth – Integral earth bolt fitted to nut
- CX/CZ – For use with braided and steel tape cable

See Annex for specific classification of gland series.

IPlus CG , EXCG Lead Seal and EXCG (VS)(QS)(VX) metallic gland ranges

The IPlus CG and EXCG type glands consist of an inner, body, cone, cone ring, lock nut, IP corrosion guard outer, IP corrosion guard nut, skid ring, corrosion guard sealing ring, inner seal and outer seal. (The inner seal of the EXCG Lead Seal gland is made from lead.)

The IPlus CG type glands are mainly intended for industrial purposes with the EXCG type glands being intended for use in hazardous areas, engaging into a threaded hole or secured with a locknut.

Variations:

- (VS) – Glands with an internal contact for use with variable speed drive cables and lead sheath cables. Note that a standard cable gland type can be converted to a (VS) variant by retrofitting the internal contact components. The product marking does not need to be changed when these components are retro-fitted.
- (QS) – Barrier glands using QuickStop Ex barrier material
- (VX) – Barrier glands using Vortex barrier material

See Annex for specific classification of gland series

Posi Flex and Posi Grip (QS)(VX) composite gland ranges

The Posi Flex and Posi Grip (QS)(VX) glands consist of an inner, insert, lock nut, outer, nipple nut mould, Gripper seal, skid ring, nipple seal and a gasket.

The Posi Flex type glands are mainly intended for industrial operations with the Posi Grip (QS) type glands being intended for use in hazardous areas, engaging into a threaded hole or secured with a locknut.

Variations:

- (QS) – Barrier glands using QuickStop Ex barrier material
- (VX) – Barrier glands using Vortex barrier material

See Annex for specific classification of gland series.

BW metallic gland range

The BW glands consist of an inner, outer, cone and bush.

The glands are mainly intended for industrial operations, engaged into a threaded hole or secured with a locknut.

See Annex for specific classification of gland series.

VRTX and VRTX-SWA gland ranges.

The VRTX (VariTEx) gland consists of an inner, spacer, body, outer nut, skid ring, outer seal and a sealing gasket. There is an internal earthing arrangement to allow the gland to be used with VSD (Variable Speed Drive) cable.

The VRTX-SWA gland additionally has a cone and cone ring to allow the gland to be used with armoured VSD cable.

TMC and TMCX gland ranges

The TMC type glands consist of an inner, spacer, clamping spring, seal, skid ring and body. The TMCX uses similar components but added a barrier resin sleeve assembly and a clamping nut.

The TMC and TMCX type glands are intended for use in hazardous areas with MC, MC-HL and Teck type cables

Variation 1

This variation introduces the following modifications:

- i. To include assessment to BS 6121-1:2005

Variation 2

This variation introduces the following modifications:

- i. The introduction of the E1EX (LS), E1EX (VS) (QS), E1EX-U (VS) (QS), ARMORTEX (QS), D1EX (QS), FLP (QS), A2F (QS), A2FCG (QS), A2FH (QS), A2FX (QS), A2FX-R, A2EX (QS), A2EX FHC (QS), FLP-TR (QS), FLP Hose (QS), CWe, CG, EXCG (LS), EXCG (QS), Posi Grip (QS) and CXe ranges of cable glands intended for use in hazardous areas.

Variation 3

This variation introduces the following modifications:

- i. The introduction of the E1EX-U(LS), A2FX-R(QS), A2EX (VS)(LS), A2EX FHC (VS)(LS), VRTX, VRTX SWA, E1EX-D (VS)(LS)(QS), UNITEx (QS), UNITEx-F(QS) and EXCG (VS) ranges of cable glands intended for use in hazardous areas.

Variation 4

This variation introduces the following modifications:

- i. To permit an alternative EPDM seal material.
- ii. To permit a nylon alternative material for sealing gaskets and skid washers.
- iii. To update the product description temperature range for the alternative EPDM sealing gaskets and nylon sealing gaskets. Condition of safe use updated accordingly.
- iv. To permit the option to manufacture products with intermediate metric thread sizes.
- v. To increase the E1EX-D outer nut size.

Variation 5

This variation introduces the following modifications:

- i. To introduce an optional construction for A2 and A2X glands.
- ii. To include the Vortex (VX) barrier material option.

Variation 6

This variation introduces the following modifications:

- i. The introduction of the E1EX Lead Seal, E1EX-SP, A2F-R, A2F-H-R, A2F-FHC, A2FX-H, A2FX-H-R, TMC, TMCX, UNITEEx-E, UNITEEx-F and EXCG-Lead Seal cable gland ranges
- ii. Renaming of the E1EX-D cable gland to UNITEEx-D and renaming of the UNITEEx gland to UNITEEx-E.
- iii. Removal of the 'QS' and 'VX' options on the A2F cable gland range.
- iv. Removal of the 'LS' option (now incorporated within the 'VS' option).
- v. Removal of the A2F-CG range of cable glands from the certificate.

11 Conditions of Manufacture

The following are conditions of manufacture:

- i. The cable glands shall be marked the information in section 9 as a minimum, the marking shall be done in a clear, legible, visible and indelible manner.
- ii. All production shall be conducted under a third party quality system.
- iii. This certificate relates only to the cable glands specified herein as executed in the samples supplied for evaluation under MASC Report 11-303.and CML reports R979A/00, R979A/01, R11591A/00 and R12476A/00
- iv. In applying the marking to the glands, the manufacturer attests on its own responsibility that the product conforms to the documentation listed herein.
- v. The manufacturer shall make a copy of the certificate and instructions available. The instructions must include relevant application information including, thread form, type / size of cables, etc.

12 Special Conditions for Safe Use

The following relate to the installation and safe use of the equipment:

- i. The following service temperature ranges are applicable to the washers and seals utilised to maintain the IP rating:

Material	Allowable temperature	
	Minimum	Maximum
EPDM / HDPE / PTFE	-65°C	120°C
Silicone / PTFE	-65°C	175°C
QS resin	-50°C	115°C
Nylon	-65°C	120°C

Annex A – Gland Classification

Non-Armoured					
Gland range	According to material and cable	According to mechanical properties	According to electrical properties	According to resistance to external influences	According to sealing system
A2	Metallic, or metal & plastic assembly for unarmoured cable	Impact category 8 Anchorage type B	No requirement	IP66/67/68 Seals Silicone Gasket PTFE:: Temp. range -65°C to +175°C EPDM HDPE: -65°C to +120°C EPDM Nylon : -65°C to +120°C Single seal	Single sealing system
A2F, A2F-R, A2F-H, A2F-H-R, VRTX	Metallic for unarmoured cable	Impact category 8 Anchorage type B	No requirement	IP66/67/68 Seals Silicone Gasket PTFE: Temp. range -60°C to +160°C EPDM HDPE: -60°C to +95°C EPDM Nylon: -60°C to +100°C Single seal	Single sealing system
A2F-FHC (QS)(VX)	Metallic for unarmoured cable	Impact category 8 Anchorage type B	No requirement	IP66/67/68 Seals Silicone Gasket PTFE: Temp. range -60°C to +160°C EPDM HDPE: -60°C to +95°C EPDM Nylon: -60°C to +100°C QS/VX resin All: -50°C to +95°C Single seal	Single sealing system
A2X	Metallic, or metal & plastic assembly for unarmoured cable	Impact category 8 Anchorage type B	No requirement	IP66/67/68 Seals Silicone Gasket PTFE:: Temp. range -65°C to +175°C EPDM HDPE: -65°C to +120°C EPDM Nylon : -65°C to +120°C Double seal	Double sealing system
A2FX-H, A2FX-H-R, A2FX, A2FX-R, A2EX(VS)(QS)(VX), A2EX-FHC (VS)(QS)(VX), FLP-TR (QS)(VX), FLP Hose (QS)(VX)	Metallic for unarmoured cable	Impact category 8 Anchorage type B	No requirement	IP66/67/68 Seals Silicone Gasket PTFE: Temp. range -60°C to +160°C EPDM HDPE: -60°C to +95°C EPDM Nylon: -60°C to +100°C QS/VX resin All: -50°C to +95°C Double seal	Multi sealing system
Posi Flex	Composite for unarmoured cable	Impact category 7 Anchorage type B	No requirement	IP66/67/68 Seals Silicone Gasket PTFE:: Temp. range -65°C to +175°C EPDM HDPE: -65°C to +120°C EPDM Nylon : -65°C to +120°C UV resistant Single seal	Single sealing system
Posi Grip (QS)(VX)	Composite for unarmoured cable	Impact category 7 Anchorage type B	No requirement	IP66/67/68 Seals All Gasket All: Temp. range -20°C to +95°C UV resistant Single seal	Single sealing system

Armoured					
Gland range	According to material and cable	According to mechanical properties	According to electrical properties	According to resistance to external influences	According to sealing system
E1W E1W Lead Seal E1W Insulated	Metallic for SWA cable	Impact category 8 Anchorage type D	Calculated to Category A (no earth tag) Calculated to Category B (with earth tag)	IP66/67/68 Seals Gasket Temp. range Silicone PTFE:: -65°C to +175°C EPDM HDPE: -65°C to +120°C EPDM Nylon : -65°C to +120°C Double seal	Multi seal and cone for clamping
E1EX (VS)(QS)(VX), E1EX-U (VS)(QS)(VX), E1EX Lead Seal E1EX-SP (QS)(VX) UNITEx-D (VS), UNITEx-E UNITEx~(QS)(VX) UNITEx-F~(QS)(VX) UNITEx-F ARMORTEX (QS)(VX)	Metallic for SWA cable	Impact category 8 Anchorage type D	Calculated to Category A (no earth tag) Calculated to Category B (with earth tag)	IP66/67/68 Seals Gasket Temp. range Silicone PTFE: -60°C to +160°C EPDM HDPE: -60°C to +95°C EPDM Nylon: -60°C to +100°C QS/VX resin All: -50°C to +95°C Double seal	Multi seal and cone for clamping
E1W Integral Earth	Metallic for SWA cable	Impact category 8 Anchorage type D	Calculated to Category C	IP66/67/68 Seals Gasket Temp. range Silicone PTFE:: -65°C to +175°C EPDM HDPE: -65°C to +120°C EPDM Nylon : -65°C to +120°C Double seal	Multi seal and cone for clamping
D1W	Metallic for SWA cable	Impact category 8 Anchorage type D	Calculated to Category A (no earth tag) Calculated to Category B (with earth tag)	IP66/67/68 Seals Gasket Temp. range Silicone PTFE:: -65°C to +175°C EPDM HDPE: -65°C to +120°C EPDM Nylon : -65°C to +120°C Single seal	Single seal and cone for clamping
D1EX (QS)(VX) FLP (QS)(VX)	Metallic for SWA cable	Impact category 8 Anchorage type D	Calculated to Category A (no earth tag) Calculated to Category B (with earth tag)	IP66/67/68 Seals Gasket Temp. range Silicone PTFE: -60°C to +160°C EPDM HDPE: -60°C to +95°C EPDM Nylon: -60°C to +100°C QS/VX resin All: -50°C to +95°C Single seal	Single seal and cone for clamping
CW CW Insulated	Metallic for SWA cable	Impact category 8 Anchorage type D	Calculated to Category A (no earth tag) Calculated to Category B (with earth tag)	IP66 Seals Gasket Temp. range Silicone PTFE:: -65°C to +175°C EPDM HDPE: -65°C to +120°C EPDM Nylon : -65°C to +120°C Single seal	Single seal and cone for clamping
CWe VRTX-SWA	Metallic for SWA cable	Impact category 8 Anchorage type D	Calculated to Category A (no earth tag) Calculated to Category B (with earth tag)	IP66 Seals Gasket Temp. range Silicone PTFE: -60°C to +160°C EPDM HDPE: -60°C to +95°C EPDM Nylon: -60°C to +100°C Single seal	Single seal and cone for clamping



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Armoured					
Gland range	According to material and cable	According to mechanical properties	According to electrical properties	According to resistance to external influences	According to sealing system
CW Integral Earth	Metallic for SWA cable	Impact category 8 Anchorage type D	Calculated to Category C	IP66 Seals Silicone Gasket PTFE:: EPDM HDPE: EPDM Nylon : Single seal Temp. range -65°C to +175°C -65°C to +120°C -65°C to +120°C	Single seal and cone for clamping
IPlus CG	Metallic gland with composite screw on shroud for SWA cable	Impact category 8 Anchorage type D	Calculated to Category A (no earth tag) Calculated to Category B (with earth tag)	IP66/67/68 Seals Silicone Gasket PTFE:: EPDM HDPE: EPDM Nylon : UV resistant Double seal Temp. range -65°C to +175°C -65°C to +120°C -65°C to +120°C	Multi seal and cone for clamping
EX CG (VS)(QS)(VX), EX CG Lead Seal	Metallic gland with composite screw on shroud for SWA cable	Impact category 8 Anchorage type D	Calculated to Category A (no earth tag) Calculated to Category B (with earth tag)	IP66/67/68 Seals Silicone Gasket PTFE: EPDM HDPE: EPDM Nylon: QS/VX resin All: UV resistant Double seal Temp. range -60°C to +160°C -60°C to +95°C -60°C to +100°C -50°C to +95°C	Multi seal and cone for clamping
BW	Metallic for SWA cable	Impact category 8 Anchorage type D	Calculated to Category A (no earth tag) Calculated to Category B (with earth tag)	Temp range: Seals - Gasket PTFE: - HDPE: - Nylon : - - Temp. range -65°C to +175°C -65°C to +120°C -65°C to +120°C -100°C to +200°C	No sealing system. Cone for clamping
CX/CZ	Metallic for Braid Tape cable	Impact category 8 Anchorage type C	Calculated to Category A (no earth tag) Calculated to Category B (with earth tag)	IP66 Seals Silicone Gasket PTFE:: EPDM HDPE: EPDM Nylon : Single seal Temp. range -65°C to +175°C -65°C to +120°C -65°C to +120°C	Single seal and cone for clamping
CXe	Metallic for Braid Tape cable	Impact category 8 Anchorage type C	Calculated to Category A (no earth tag) Calculated to Category B (with earth tag)	IP66 Seals Silicone Gasket PTFE: EPDM HDPE: EPDM Nylon: Single seal Temp. range -60°C to +160°C -60°C to +95°C -60°C to +100°C	Single seal and cone for clamping
E1X/Z	Metallic for Braid Tape cable	Impact category 8 Anchorage type C	Calculated to Category A (no earth tag) Calculated to Category B (with earth tag)	IP66/67/68 Seals Silicone Gasket PTFE:: EPDM HDPE: EPDM Nylon : Double seal Temp. range -65°C to +175°C -65°C to +120°C -65°C to +120°C	Multi seal and cone for clamping
TMC	Metallic for MC, MC-HL and Teck cable	Impact category 8 Anchorage type D	Category B	IP66/67/68 Seals Silicone Gasket PTFE: EPDM HDPE: EPDM Nylon: Single seal Temp. range -60°C to +160°C -60°C to +95°C -60°C to +100°C	Single seal and clamping spring for clamping



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Armoured					
Gland range	According to material and cable	According to mechanical properties	According to electrical properties	According to resistance to external influences	According to sealing system
TMCX	Metallic for MC, MC-HL and Teck cable	Impact category 8 Anchorage type D	Category B	IP66/67/68 Seals Gasket Temp. range QS/VX resin All: -50°C to +95°C Single seal	Single seal and clamping spring for clamping

Table 1 – Gland Classification

Note: The temperature ranges of the cable glands also certified for use in hazardous areas are defined by their hazardous area certification.