

Victor Products Ltd
 Unit 3A, Tyne Dock East Side
 Port of Tyne,
 South Shields,
 Tyne and Wear
 NE33 5SQ
 United Kingdom
 Tel : +44(0)191 2808000
 Fax : +44(0)191 2808080



Making Hazardous Environments Work

11kV HALF COUPLER – TYPE CCBX1A

ATEX Certificate Number MECS02ATEX5182U I M2 Ex db I Mb

UKEX Certificate Number BAS22UKEX0168U I M2 Ex db I Mb

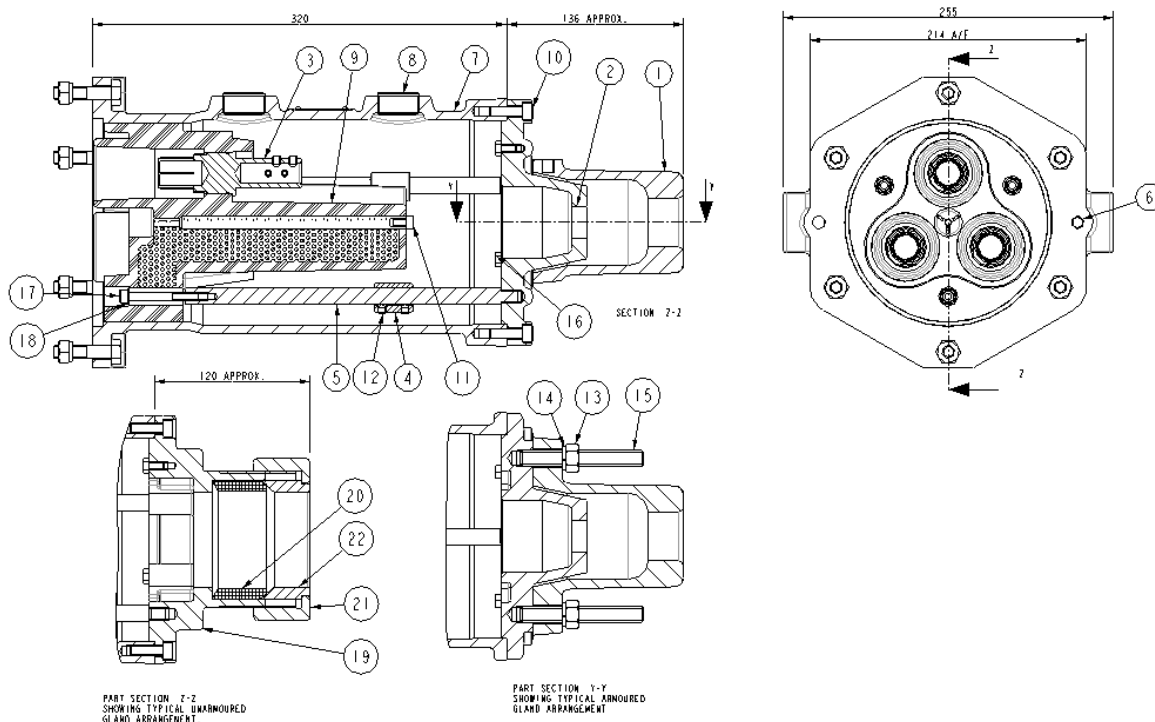
The certificates carry the group and category marking I M2

Where: I signifies suitability for use in mining, and M2 signifies suitability for use in mines where it must be de-energised in the presence of an explosive atmosphere

For India only – The half coupler has been designed in accordance with IS/IEC 60079-0:2004 and IS/IEC 60079-1:2007. Test report number ERTL (E)/TES/V051/0079/11-11.

Victor Products Ltd South Shields, NE33 5SQ.UK	
TYPE CCBX1A HALF COUPLER MECS02ATEX5182U BAS22UKEX0168U I M2 Ex db I Mb	2813 0518
TWO UNITS MECS02ATEX5182U FORM APPARATUS TYPE CCBX1A COUPLER MECS02ATEX5183 I M2 Ex db I Mb	TWO UNITS BAS22UKEX0168U FORM APPARATUS TYPE CCBX1A COUPLER BAS22UKEX0169 I M2 Ex db I Mb
WARNING - DO NOT SEPARATE WHEN ENERGISED	
11000 VOLT 500 AMP	SERIAL No.

Typical Nameplate



MAIN COMPONENTS

1. Armour Clamp
2. Inner Cone
3. Contact tube
4. Earth bosses
5. Support Pillars
6. Dowel pin
7. Coupler body
8. FLP Stopper plug
9. Insulator
10. Inner cone gland fixing screws
11. Insulator screw
12. Earth boss grub screws
13. Armour clamp nut
14. Armour clamp spring washer
15. Armour clamp stud
16. Inner cone screen screw
17. Insulator retaining screw
18. Insulator washer
19. Un-armoured gland
20. Cable seal ring
21. Gland nut
22. Clamp washer

SPECIFICATION:-

11000 VOLTS 500 AMPS, GENERALLY FOR USE WITH THE FOLLOWING CABLES.

CABLE TYPES:-

Suitable for use with SWA, DWA cables to BCC spec 295 and 656, PWA to BCC spec 504, generally constructed in accordance with these specifications, SWB and un-armoured cables. PVC, XLPE or EPR insulated cables.

Contact tubes are available to suit stranded copper suit stranded copper.

Note - It is the end users responsibility to follow the installation roles protecting other equipment energized via the connectors against the hazards arising from power failures.

Installation, maintenance, and inspection, must be carried out by suitably qualified personnel in accordance with established codes of practice.

PRE-CABLE MAKE OFF - Prior to cable make off the half coupler should be disassembled and the parts kept in a clean and safe area. For SWA, DWA and PWA cables the armour clamp (1) should be passed over the cable until clear of the jointing area. For unarmoured cable the gland nut (21), clamp washer (22) and sealing ring (20) should be passed over the cable until clear of the jointing area.

TABLE 1

CODE.		STRANDED COPPER
		ALL CONDUCTOR SIZES
A	Armour length	75
B	Core Length	245
C	Insulation Removal	50
D	Contact Tube Position prior to compression	*
E	Cable Make off length	**

NOTE

1. INNER SHEATH FLUSH WITH CONE FACE
2. FOR CLARITY, INSULATOR NOT SHOWN.

Figure 2.

* 214mm for body length 320 - 250mm for body length 355

CABLE MAKE OFF LENGTH

** SWA/DWA - 294mm for body length 320 - 330mm for body length 355

** PWA - 394mm for body length 320 - 430mm for body length 355

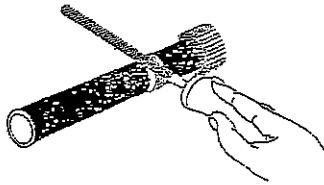


Fig.3a

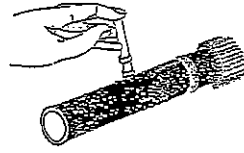


Fig.3b

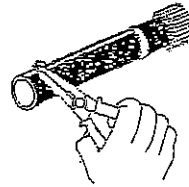


Fig.3c

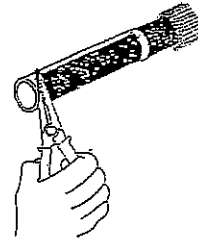


Fig.3d

CABLE MAKE OFF – SWA AND DWA

1a) Prepare the cable to dimensions in Table 1 taking care not to damage conductor insulation when removing inner sheath. Remove Melinex tapes to a point in line with exposed armour wires.

1b) Position the inner cone (2) under the armour and slide down the armour clamp (1), fit spring washers (14) and nuts (13) to stud and tighten. If the cable is DWA fit the inter armour split sleeve between the layers of armour.

1c) Straighten the cable cores out of lay and pre-form to position conductors on 76mm PCD as shown in Fig.2.

1d) Apply a PVC tape binder to each core 25mm from the armour wire, unwinding the copper screen tape and semi-conducting tape up to the PVC binder. Thoroughly clean the surfaces of the core insulation removing all traces of semi-conducting material.

1e) Relay the semi-conducting tape as shown in Fig.2. Apply a PVC binder to provide a straight edge around the core at maximum 65mm dimension. Rewind semi-conducting tape back along for two turns and cut off excess tape.

1f) Relay the copper tape to a point 5 mm short of the semi-conducting tape and then fold the copper tape to provide a straight edge around the core at this point. Rewind copper tape back along the core and apply PVC binder to secure.

1g) For cables with Extruded Semi-Conducting Layer perform operations 1c – 1e but remove the semi-conducting layer using a special fixed depth scoring tool see Fig.3b. alternatively using a round file abrade an annular groove through the semi-conducting layer adjacent to the PVC binder ensuring the groove cuts through to expose the white under lying insulation see Fig.3a

1h) With a depth gauge set to 0.4mm cut two parallel 'tram lines', 5mm apart to the cable end. See Fig.3c.

1i) Using a pair of long nose pliers remove the semi conducting layer from between the 'tram lines'. Starting at cable end rotate the pliers to remove the tape in a progressive and controlled manner until the annular groove is reached. See fig. 3d.

1j) After the first strip has been removed use the pliers in a similar manner to remove the remainder.

1k) Clean the surface of the insulation with a fresh paper wipe moving the cleaner wiper from the end of the cable towards the semi conducting layer, so any fine particles remain on the edge of the screen and not on the insulation. If any fine cuts or light surface damage is present, abrade away using fine Aluminium Oxide paper.

CABLE MAKE OFF – PWA.

2a) Remove the outer insulation to expose the armoured wires to a minimum length of 430mm. The armour can now be un-laid.

2b) Remove the inner sheath to dimension 'B' in Table 1. This will line up approx. with the front face of inner cone (2) when it is fitted.

2c) Remove all the conductor insulation on the earth core to the front face of the inner cone (2).

2d) Where applicable, unwind the screening on the power cores onto the earth core ready for termination into the earth bosses.

2e) Position the inner cone (2) under the armouring, locating the armour clamp (1) over the armouring with the armouring split equally to either side of the studs, fit retaining nuts and tighten down.

2f) The armouring should be turned back along the armour clamp (1). Using a jubilee type clip securely clamp the armouring midway along the armour clamp (1). The excess armouring can now be removed.

2g) Prepare the cable to dimensions in Table 1 and pre-form to position conductors on a 76mm PCD.

2h) If the conductors have tape screening or a semi-conducting layer, follow steps 1c – 1k. Braided screening can be either terminated onto the inner cone (2) at screen terminating points, or if fitted, into the earth bosses (4) at final assembly.

CABLE MAKE OFF – UNARMoured OR SWB

3a) Remove the outer insulation down to the insulated power cores to dimension 'B' + 15mm in Table 1 taking care not to damage the insulation around the conductors.

3b) Position the Un-armoured gland (19) on the cable to position 'B' in Table 1. Sliding the gland nut (21), and the clamp washer (22) and the sealing ring (20) along the cable, locate the sealing ring into the recess of the gland body (19) and hand tighten the gland nut (21).

3c) If the cable has metallic braiding and this is required for earthing purposes, termination should be made onto the face of the Un-armoured gland body at the screen termination points.

3d) Prepare the cable to dimensions in Table 1 and pre-form to position conductors on a 76mm PCD.

3e) If the conductors have tape screening or a semi-conducting layer follow steps 1c – 1e. Braided screening can be either terminated onto the Un-armoured gland body at the screen terminating points or if fitted, into the earth bosses (4) at final assembly.

CONTACT TUBE CRIMPING

4a) Remove conductor insulation to dimension 'C' Table 1, firmly wire-brush each exposed conductor – IMPORTANT - do not use the same wire brush for copper and aluminium cable.

4b) Select the correct die set from Table 2.

4c) Compact the first half of conductor then make a second compression leaving approx. 5 mm of compacted conductor protruding from dia.

4d) Position the contact tube (3) onto the end of conductor and complete the pre-compacting of the conductor with an additional compression and finally push the contact tube onto the conductor. Repeat for the remaining conductors.

4e) Check dimension 'D' Fig.2. Line up one of the flats on contact tubes (3) with location flats on insulator (9) mark tube position on conductor insulation.

4f) Crimp each tube in turn between the knurled lines. Reset the cores to the pre-compression positions and ensure the location flats on tubes correspond with those in insulator bores.

TABLE 2		
Conductor Size	Stranded Copper Indentor Die	Nest Die
16mm ²	Up 35-70 CP1-U10AD-1	UN70C
25mm ²	"	"
35mm ²	"	"
50mm ²⁺	Up 75-300 CP1-U10AD-1	UN150C
70mm ²	"	"
95mm ²	"	"
120mm ²	"	"
150mm ²	"	"
185mm ²	"	UN185C

STRESS CONTROL – 3M TAPE METHOD.

NOTE:- stress control tubes/tapes are not supplied with the half-coupler. For further information on alternative stress kits please contact the Technical Department.

5a) Apply two highly stretched half lap layers of Scotch 13 semi conducting tape as shown in Fig.3, commencing at the termination of the copper tape screen extending over the semi conducting layer 5mm onto the primary insulation and back 5mm onto the copper screen.

5b) Apply two half lapped layers of Scotch 2220 stress control tape (silver side out) starting 10mm below the Scotch 13 tape then going 60mm up the core and back again to the starting point.

5c) Apply two half lap layers Scotch 23 tape from the connector over the entire core.

5d) Fit the contact tubes (3) into the insulator (9) and secure by fitting the contact tube locking rings – do not over tighten.

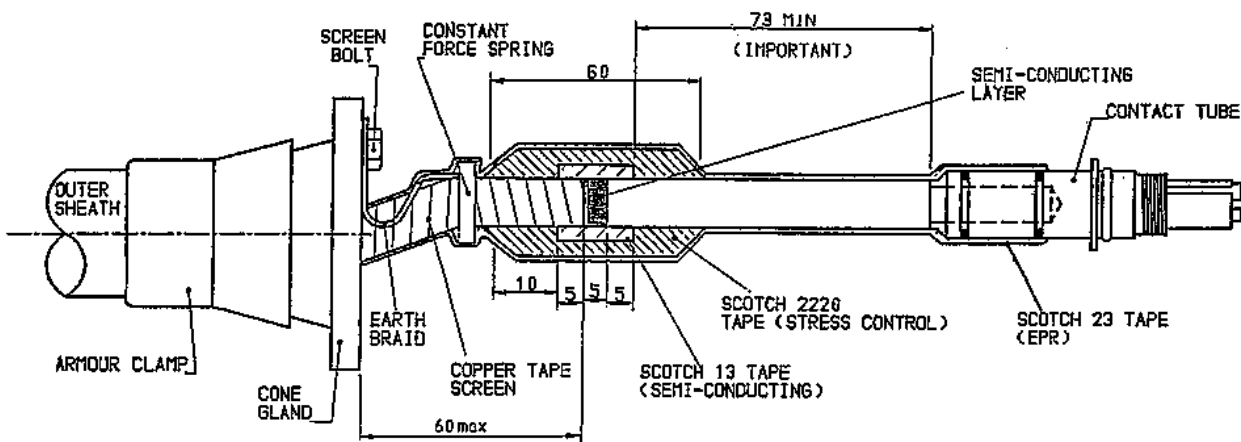


Figure.3

HALF COUPLERS WITH CENTRE PILOT.

6a) For half couplers with a centre pilot, the pilot core conductor should be cut to a length that will allow the boss, when clamped onto the bared conductor, to fit snugly into the crutch of the preformed power cores. After determining this length, remove 15mm of insulation and insert into boss and tighten grub screws. Apply half lap layers of self amalgamating tape to cover the boss to a point 15mm along both cable insulations and position into the crutch of the power cores.

HALF COUPLERS WITH AUXILLIARY CONTACTS

7a) For further information on the auxiliary circuits please contact the Technical Department.

GENERAL ASSEMBLY

8a) Locate and tighten the 3 steel or brass support pillars (5) into the inner cone (2) or unarmoured gland body (19). If earth bosses (4) are fitted, any screening from around the insulated conductor cores or earths can be terminated into these bosses.

8b) Locate the insulator (9) onto the contact tubes (3) ensuring the small protrusion on one of the contact tube housings corresponds with the cast arrows on the inner cone (2) or unarmoured gland body (19). Using the 3 insulator retaining screws (17), tighten the insulator (9) onto the support pillars (5).

8c) Locate the contact tube retaining rings and without over tightening, clamp into the insulator (4).

8d) The coupler body (7) can now be assembled to the insulator/cable gland body assembly ensuring that the small protrusion on the insulator is in line with the filling ports on the coupler body (7). The inner cone (2) or unarmoured gland body spigot (19) should fit neatly into the rear end of the coupler body (7). Using the 6 screws (10) provided, tighten to a torque of 70Nm the gland plate assembly onto the coupler body, ensuring that no distortion occurs.

8e) **IMPORTANT** – before filling ensure that the insulator (9) is flush or below the FLP face of the coupler body (7) using a straight edge – if not tighten insulator screws (11).

8f) Perform the pre-insulation test.

FILLING PROCEDURE

9a) Check the coupler to ensure correct make off then position coupler level with filling ports at the top.

9b) Using the **approved Victor Products Limited polyurethane resin GPC18-1** thoroughly mixing the resin to the mixing instructions, fill to the bottom of the FLP filler port screw thread. If topping up is required this should be done within 10 minutes of the main fill, then fit the approved FLP stopper plugs (8).

9c) Allow 2 hours for setting before moving or commencing high voltage testing.

NOTE: ONLY VICTOR PRODUCTS LIMITED RESIN GPC18-1 SHOULD BE USED WHEN FILLING THE VICTOR PRODUCTS RANGE OF HALF COUPLERS AND ADAPTORS.

MAINTENANCE AND INSPECTION.

1. When assembled to an associated half coupler or adaptor with an interface flange the electrical contact is made between each component by the insertion of three 3 contact pins or if fitted the pilot/auxiliary contact pins into their respective contact tubes.

2. When assembled to a blanking cover, adaptor or half coupler a rubber sealing ring must be used between the two interface flanges with the flanges secured by using the interconnecting kit.

3. After assembly the gap between the two mating faces should be checked using feeler gauges and should not exceed 0.4 mm.

4. Ensure there is an adequate earth connection from the Half Coupler. This can be achieved by an earth connection from the studs on the rear of the armoured gland plate or from the earth boss on the rear of the un-armoured gland plate to the Half Couplers mating part.

HEALTH AND SAFETY AT WORK etc. ACT 1974

In the United Kingdom all equipment must be installed, operated and disposed of (as required) within the legislative requirements of the Health and Safety at Work etc. Act 1974. Leaflet No. HSS L1 refers to the Company's obligation and is available on request.

It is the responsibility of the user to select, install, operate and maintain the equipment in accordance with the relevant legislation and appropriate code of practice.



EU Only

Prices and design are subject to alteration without notice. All products are sold subject to our conditions of sale, copies of which are available on request.

We reserve the right to change characteristics of our products. All data is for guidance only

UK Attestation of Conformity




Victor Products Ltd
Unit 3A, Tyne Dock East Side
Port of Tyne,
South Shields,
Tyne and Wear
NE33 5SQ
United Kingdom

11kV HALF COUPLER – TYPE CCBX1A

Certification number BAS22UKEX0168U | M2 Ex db | Mb

Victor Products Ltd

Hereby declare our sole responsibility that the product which is the subject of this attestation is in conformity with the following standards or normative documents.

Number and date of standard	UK Legislation
BS EN IEC 60079-0:2018 BS EN 60079-1:2014	Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016
EN50082 (1992) EN55015 (1993) EN 60555-2 (1987)	2014/30/EU: Electromagnetic Compatibility
UK Approval Body: CSA Group Testing UK Ltd Deeside CH5 3US Notified Body No. 0518	 P. Devlin Operations Manager January 2024

SERIAL NUMBER

Attestation of Conformity

Attestation de Conformité
Konformitätsbescheinigung



Victor Products Ltd
Unit 3A, Tyne Dock East Side
Port of Tyne,
South Shields,
Tyne and Wear
NE33 5SQ
United Kingdom

11kV HALF COUPLER – CCBX1A

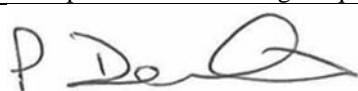
Certification number MECS02ATEX5182U I M2 Ex db I Mb

Victor Products Ltd

Hereby declare our sole responsibility that the product which is the subject of this attestation is in conformity with the following standards or normative documents.

Erklären in alleiniger Verantwortung, daß das Product auf das sich diese Bescheinigung bezieht, mit der/den folgenden Norm(en) oder normativen Dokumenten Ubereinstimmt.

Déclarons de notre seule responsabilité, que le produit auquel cette attestation se rapporte, est conforme aux norme(s) ou aux documents normatifs suivants

Number and date of standard Nr. Sowie Ausgabedatum der Norm No. Ainsi que date d'émission des normes.	Directive description Bestimmungen der Richtlinie Prescription de la directive
BS EN IEC 60079-0:2018 BS EN IEC 60079-1:2014	Equipment and protective systems intended for use in potentially explosive atmospheres. This Attestation is valid for directive 2014/34/EU. Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen. Diese Bescheinigung gilt für die Richtlinie 2014/34 /EU. Appareils et systèmes de protection destinés à être utilisés en atmosphères explosibles. Cette Attestation est valable pour la directive 2014/34 /UE.
EN50082 (1992) EN55015 (1993) EN 60555-2 (1987)	89/336 EEC: Electromagnetic Compatibility 89/336 EWG: Elektromagnetische Verträglichkeit 89/336 CEE: Compatibilité électromagnétique
Notified Body: CSA Group Netherlands B.V. Notified Body No. 2813	 P. Devlin Operations Manager January 2024

SERIAL NUMBER