Nexans

Power Cable Accessories up to 72kV

Product Catalogue

6th Edition

Nexans Australmold, a division of Olex Australia Pty Ltd, is proud to present our latest range of power cable accessories, in an easy to use format, by interface and application.

Since 1985, Australmold has introduced innovation and new products to the Australian and New Zealand markets. Initially in the Utilities market with Euromold and Elastimold, tried and tested pre-moulded separable connectors (elbows), bushings, ferrules and lugs (crimp and shear bolt), transformer accessories and tooling.

In more recent years since Nexans acquired Australmold in 2008, we have expanded our product portfolio into joints and terminations using both heat shrink and cold shrink technology.
We now serve a broader range of markets in addition to Utilities, including Renewable Energy (Wind & Solar farms), Rail (Rolling stock & Infrastructure) and Resources (Oil & Gas).

To meet these extra demands, we have increased our stock holding, sales team and technical resource. This ensures we can continue our commitment for fast response times, shorter lead times and provide a high level of technical support and expertise to provide the right solutions.

We leverage our activities in this market with our association with Nexans Olex, the largest cable manufacture in ANZ as well as the global support of the Nexans Group. With an industrial presence in 40 countries and commercial activities worldwide, Nexans employs 25,000 people with sales in excess of 7 billion euros.

Nexans Australmold – your solution provider of Medium Voltage Power Cable Accessories.

We stock and technically support a complete range.

Call us today to discuss your next project.

Nexans Network Solutions
Euromold

Thomas & Betts
Elastimold

Nexans Italy

Central Moloney

Nexans Power Accessories
Germany (GPH)

HJ International

Ripley Tools

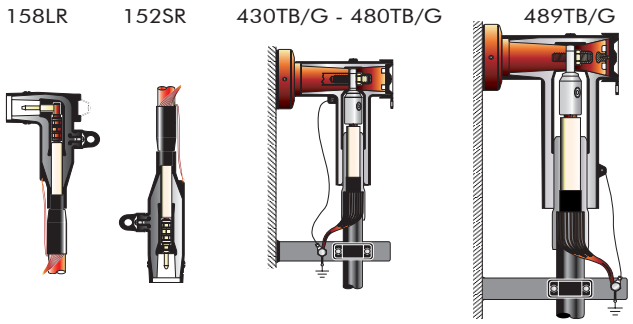
And more...

Nexans Australmold
Product Catalogue - 6th Edition
Power Cable Accessories up to 72kV

Nexans

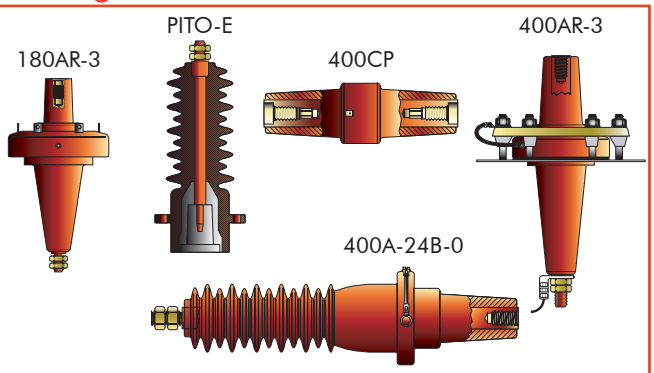
Your Solution provider for Power Cable Accessories up to 72kV.
We stock and technically support a complete range.... Call us today to discuss your next project.

Connectors



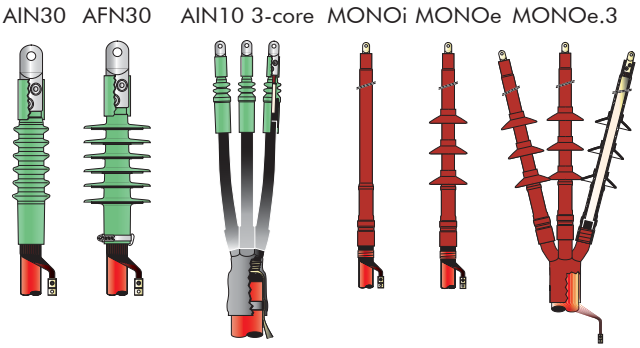
Connectors from 10 kV to 72 kV 2,500Amps
and 25 mm² to 1200 mm²

Bushings



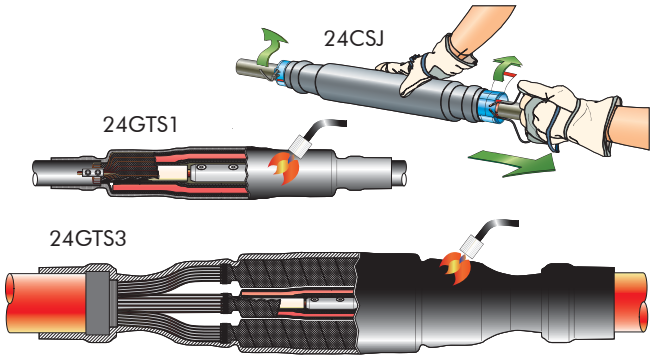
Equipment bushings from 10 kV to 72 kV 2,500Amps

Terminations



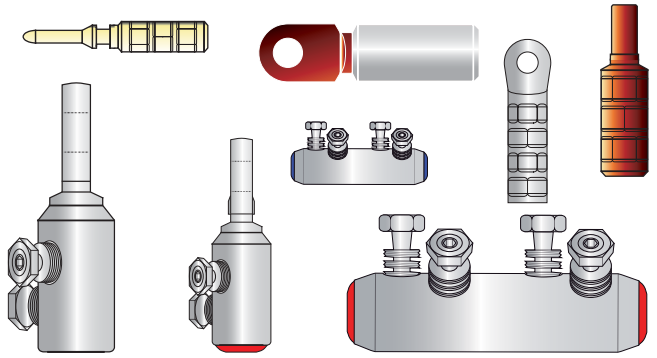
Terminations from 10 kV to 72 kV and 25 mm² to 1000 mm²

Joints



Joints from 10 kV to 72 kV and 25 mm² to 1200 mm²

Links & Lugs



Mechanical connectors and compression joints

For over 30 years Nexans Australmold, a division of Olex Australia Pty Ltd has supplied Power Accessories of the highest quality to Power Utilities, OEM's, Contractors, Approved Service Providers, Renewable Energy, Rolling Stock and the Resources market.

We also offer custom cable leads, cable preparation tooling, technical publications on the theory and installation of accessories as well as product awareness workshops and certified training on our products.

Nexans Australmold - Building 2, 69 Dalton Road Thomastown VIC 3074
Tel.: +61 3 9205 8400
WEB: www.australmold.com.au - E: sales@australmold.com.au

Nexans

What's NEW?

Heatshrink

Nexans MONO Heat Shrink Medium Voltage Terminations (up to 36kV)
Available in both indoor and outdoor versions, the MONO terminations are a one tube solution for an easy and quick installation on XLPE insulated cables with copper wire or copper tape screens. The MONO termination consists of a dual-wall tube that has an inner stress control and outer anti-tracking layer and can accommodate either crimp or mechanical lugs for cables up to 630mm^2.
Larger cross sections available upon request.

Page 82-83

Separable Connectors (Elbows)

480TB/G 909TB/G

Nexans Euromold 480TB Elbows - Interface C - Page 39
The new 480TB connector is rated up to 1250A and 42kV.
Also available is the 800PB coupler for parallel applications.
Nexans Euromold 909TB Elbows - Interface F - Page 49-50
The new 909TB connector is rated up to 2500A and 72kV. The 909PB coupler is also rated at 2500A and 72kV. This provides a new solution for cables over 800mm^2 and is an alternative to inner cone technology.

Mechanical Connectors

Nexans GPH Mechanical Lug and Connector M800 - 1200
These are range taking medium voltage lugs and connectors, equipped with shear-off head bolts for connecting and branching large cross-sections. Suitable for copper and aluminum conductor cross-sections from 800 - 1200mm^2. This mechanical lug and connector can be installed with common commercially available inner and outer hexagon tools. As with all lug and connectors by Nexans GPH, the M800 - 1200 has been tested and passed IEC 61238-1 standard for class A connectors.

Page 101

Cable Preparation Tooling

Page 160-164

Medium Voltage Cable Preparation and Installation Tools
We have selected a range of tools made in Germany and USA, available separately or as a kit supplied in a high impact safe case. Tools available are for removing cable outer sheath, scoring and stripping semi-conductive layers, removing XLPE insulation and chamfering XLPE insulation. In addition to cable preparation, we also have installation accessories including mechanical connector holding tool, torque amplifier tool, impact sockets and long hex keys.

Pre-Assembled Cable Leads

Pre-Assembled MV Cable Leads. Cable assemblies made to order
Custom, ready-to-install cable leads are available equipped with Interface A to F connectors and terminations (Heat Shrink, Cold Shrink and Slip on). Cable types available are standard MV XLPE and Class 5 Flexible cables, when smaller bending radius is needed. Just specify connector/termination type, cable type and length and we will take care of the rest - assembled and tested.

Page 147-151

Notes / Comments :

index

index

index

index

PROPERTIES OF EPDM a

The EPDM rubber used in products manufactured by Euromold is a terpolymer of ethylene, propylene and a nonconjugated diene. The resultant hydrocarbon-based elastomer has all the advantages of general purpose rubbers but it's performance excels in electrical strength and resistance to environmental conditions.

The silicone rubber used by Euromold in the cold-shrinkable terminations has been selected for it's excellent tracking resistance as well as it's unique hydrophobic properties.

Electrical properties

	EPDM		
Typical Values	Insulation	Conductive	Silicone Insulation
Dielectric strength (kV/mm)	33	-	24
Dielectric constant	2.7 to 3.1	-	26
Dissipation factor (x 10^{-3})	2.5	-	4
Volume resistivity at 20 ^{o}C (Ohm-cm)	10^{14}	50	10^{15}

Ozone/Corona Resistance

Both EPDM and silicone rubbers can be considered resistant to ozone attack. As a consequence, the outstanding resistance to corona is due to the ability of the EPDM to withstand ozone and other chemical compounds formed by the discharge, as well as it's resistance to heat. The excellent fitting due to low hardness of silicone rubber provides excellent corona values.

Radiation Resistance

Some utilities use EPDM connectors in nuclear containment areas.

Chemical Resistance

Products made from EPDM resist attack by many acids, alkalis, detergents, phosphates, esters, ketones, alcohols and glycols. They give particularly outstanding service in the presence of hot water and high pressure steam. Like all hydro carbon-based elastomers, EPDM is not resistant to hydrocarbon solvents and oils or chlorinated hydrocarbons.

Resistance to the Environment

EPDM rubber has properties comparable with the best speciality elastomers in resistance to weather. Accelerated life and salt spray tests suggest excellent properties which have been proven in practice by more than 35 years experience in widely varied applications all over the world. Silicone rubber has outstanding long term resistance to weather in aggressive environments (industrial, coastal and desert).

Resistance to Water

Water has little effect on the properties of EPDM hydrocarbon rubber. Even long immersion in hot water results in minimal loss of tensile strength. Tests also show a very low degree of water absorption. Silicone rubbers retain their surface hydrophobicity, which is a considerable advantage for outdoor applications.

Resistance of Mechanical Abuse

EPDM has good resistance to compression, cutting, impact, tearing and abrasion over a wide temperature range.

a PROPERTIES OF EPDM

Other Physical Properties

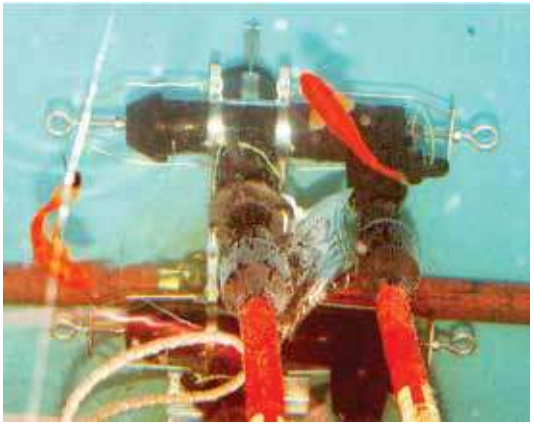
Typical Values	EPDM		Silicone Insulation
	Insulation	Conductive	
Specific gravity (kg/dm^3)	1.33	1.12	1.15
Tensile strength (N/mm^2)	4.8	11	8.5
Shore hardness (Shore A)	65	80	47
Elongation (%)	400	450	700
Abrasion resistance	good	excellent	poor
Heat ageing	good	good	good
Temperature range (^{o}C)	-60 to +130	-60 to +130	-80 to +200
Resistance to:			
- U.V.	good	good	good
- Ozone	excellent	excellent	excellent
- Sunlight	outstanding	outstanding	outstanding
- Water absorption	very good	very good	excellent
- Solvent	poor	poor	poor
- Hydrocarbon oil	poor	poor	good
- Silicone oil	good	good	poor

For further information on silicone and EPDM rubbers, please contact your local representative.

The EPDM Separable Connectors and Accessories :

- are fully screened, touchable and provide complete safety for personnel.
- are fully watertight, fully submersible and can be installed outdoors.
- their resistance level to the following conditions are :
    - UV radiation . . . . . Good
    - Ozone. . . . . Excellent
    - Sunlight . . . . . Outstanding
    - Extreme temperatures (60oC up to +130oC) . . . Good
    - Pollution (salt-fog, nuclear environments, steel - and cement works) Excellent
- have interfaces that conform to the international standards :
    - CENELEC EN 50180 and 50181
    - ANSI/IEEE 386
    - C33-051
- are designed to terminate any type of polymeric cable.
- can be energised immediately after installation on it's mating part.

ELBOWS IN AN EXPOSED ENVIRONMENT



SUBMERSED ELBOWS

CABLE STRESS RELIEF a

The design and construction of screened power cable is primarily based on two types of electrical stress - a radial stress which can be represented by lines of flux (Fig.1) and a longitudinal stress, which can be considered as lines of equipotential (Fig.2).

Fig. 1 RADIAL STRESS

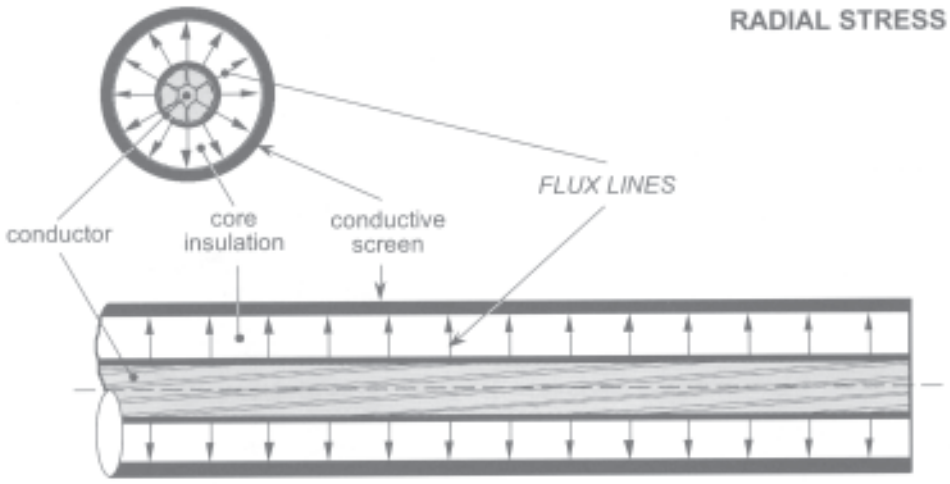
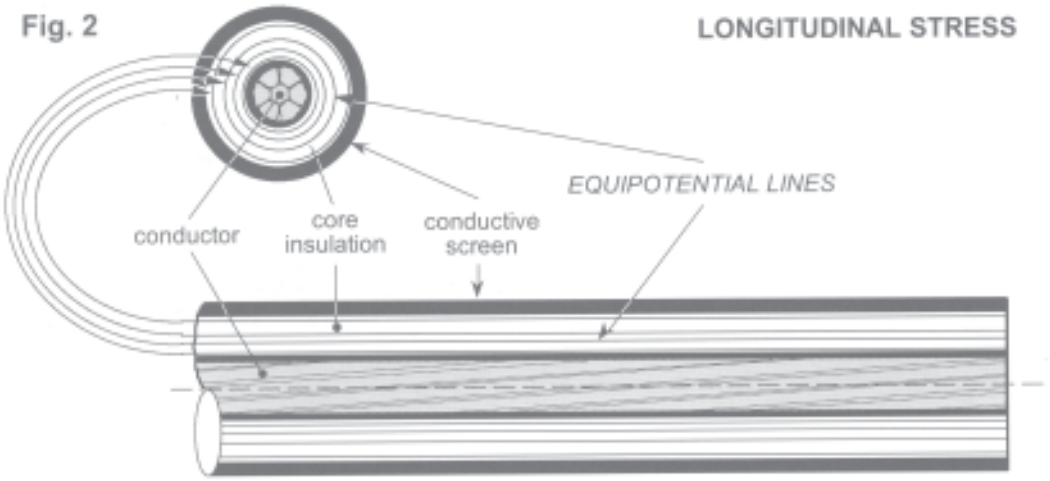


Fig. 2 LONGITUDINAL STRESS



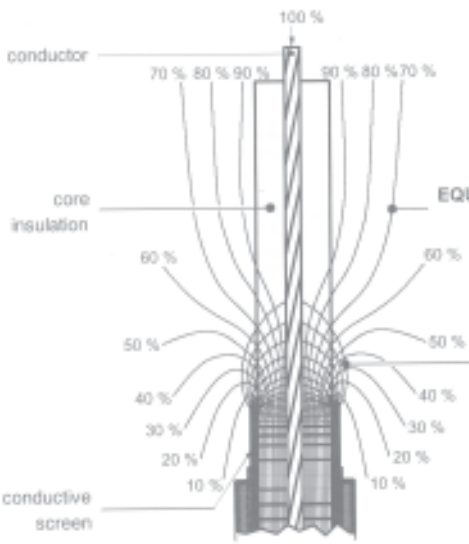
When the semi-conducting core screen is cut, the electrical field distribution changes radically. The surrounding air becomes overstressed as does the dielectric material in the cable immediately in the vicinity of the cut screen (Fig.3). To prevent rapid breakdown of the cable, it is necessary to apply a stress cone (Fig.4) or a linear stress relief tube (Fig.5) at the end of the screen.

The cone has an insulating portion to reinforce the primary cable insulation and a conductive portion to mate with the semi-conducting core screen. This controls the lines of equipotential so that when they finally emerge into the air, they are sufficiently far apart not to cause ionisation.

Stress cones manufactured by Euromold / Elastimold are designed to carry out this function specifically but stress relief is automatically built into all the accessories by the precision moulding of conductive and insulating rubber (Fig.6).

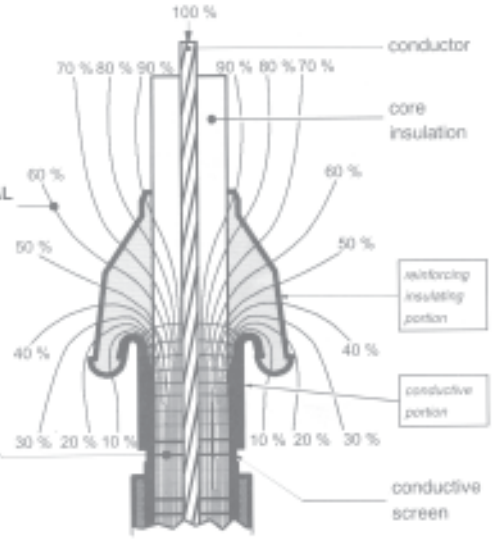
a CABLE STRESS RELIEF

Fig. 3



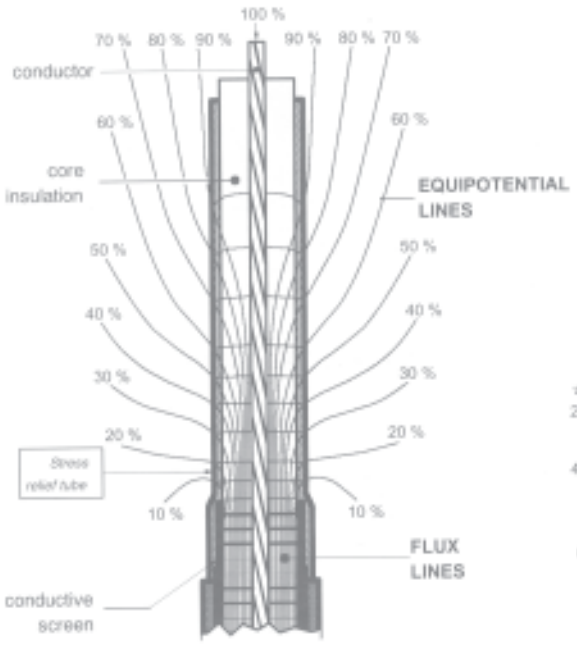
Without stress relief

Fig. 4



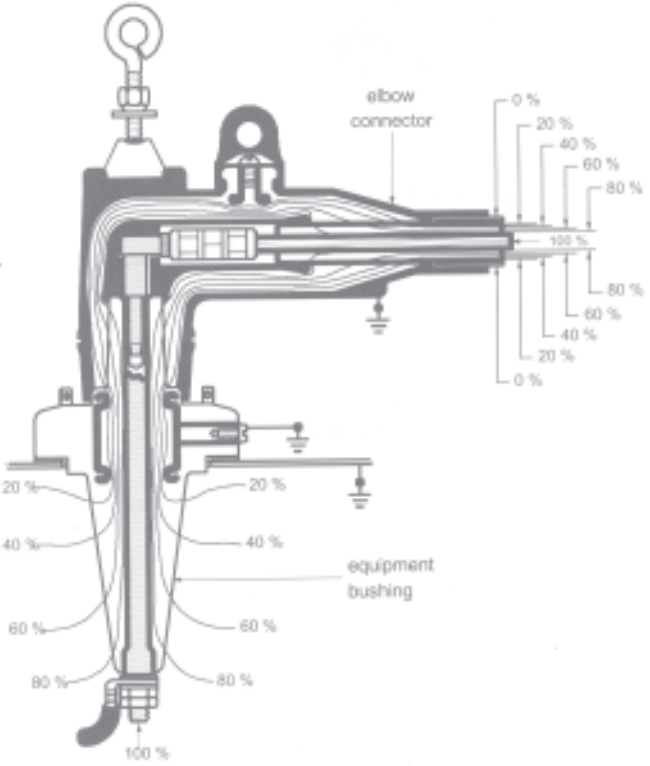
Stress relief with a premoulded stress cone

Fig. 5



Stress relief with a linear stress relief tube

Fig. 6

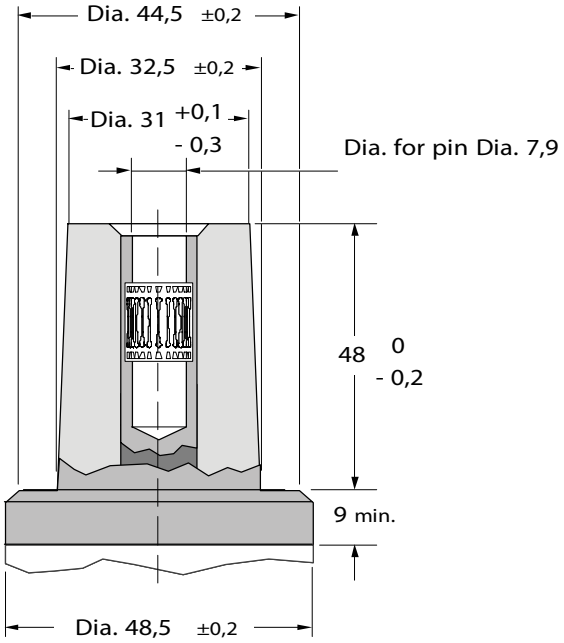


Stress distribution in a typical combination

a SEPARABLE CONNECTORS
200 AMP DEADBREAK

Elastimold / Euromold Separable Connectors and other cable accessory products have been designed and tested per applicable portions of IEEE, ANSI, NEMA and other industry standards including:

- IEEE 386 Standard for Separable Connectors
- IEEE 404 Standard for Cable Joints and Splices
- IEEE 48 Standard for Cable Terminations
- IEEE C62.11 Standard for Metal Oxide Surge Arrestors
- ANSI C37.41 Standard for Current Limiting Fuses
- IEEE 592 Standard for Exposed Semi-conducting Shields
- ANSI C119.4 Standard for Copper and Aluminium Conductor Connectors
- AEIC CS5 and CS6 Standards for XLP and EPR Insulated Cables



Interface A Profile

Technical Specifications

25kV Class Ratings :

- Operating Voltage	
Maximum line-to-ground	15.2kV
- BIL Impulse withstand 1.2 x 50 microsecond wave	125kV
- Withstand Voltage	
AC One Minute	40kV
DC Fifteen Minute	78kV
- Corona Extinction Level @ 3 pC Sensitivity	19kV
Continuous Current	200 AMP*
Symmetrical Momentary Current	10kA sym, 10 cycle duration
Overload	300 AMP RMS 8 hour period

* Designed for 90oC maximum continuous operating temperature

Application Information :

1. Products are designed and constructed for all applications including padmount, subsurface, vault, indoor, outdoor, direct sunlight, direct buried and continuous submersion in water.

2. Products are designed and rated for ambient temperatures of -40oC to +65oC

K158LR-W-X OR 156LR-W-X

11kV, 22kV(K)

Primary Use : Transformer connections / ring main switchgear

- Accommodates cable to max. 120mm2
- Mates with insert K1501-A1, K1502-A1

Cable size sensitive - refer to chart on page 17 for complete part number.

Kit complete with :

 +  +  OR +  + Grease & Instructions

Elbow Pin/Probe Shear or Crimp Lug Bail

K1501-A1

11kV, 22kV(K)

Primary Use : Transformer connections

- Mates with bushing well and K158LR, K152SR, K150DR, 156LR, K151SR
- See 'Bushings' for choice of well - Pages 110 - 113

Kit complete with :

 + Grease & Instructions

Insert

K1502-A1

11kV, 22kV(K)

Primary Use : Dual connection for transformer (Feed thru)

- Mates with bushing well and K158LR, K152SR, 156LR, K151SR
- See 'Bushing's for choice of well Pages 110 - 113

Kit complete with :

 +  + Grease & Instructions

Insert Bracket

K150-DR+152BA

11kV, 22kV(K)

Primary Use : Insulation of bushing

- Mates with insert, K1501-A1, K1502-A1 and single piece Integral 200 amp Deadbreak Bushings

Kit complete with :

Receptacle +  Bail + Grease & Instructions

---

K150-DP

11kV, 22kV(K)

Primary Use : Insulation of elbow interface

- Mates with bushing well and K158LR, K152SR, 156LR, K151SR

Kit complete with :

Plug + Nylon Venting Rod + Grease & Instructions

K152SR-W-X OR K151SR-W-X

11kV, 22kV(K)

Primary Use : Suits straight transformer / switchgear connections in-line disconnectable joints

- Accommodates cable to max. 120mm2
- Accepts insulation dia. 16mm-26mm
- Mates with K1501-A1, K150-T and single piece Integral 200 amp Deadbreak Bushing

Cable size sensitive - refer to chart on page 17 for complete part number.

Kit complete with :

Receptacle +  Shear or Crimp Probe +  Bail + Grease & Instructions

a SEPARABLE CONNECTORS
200 AMP DEADBREAK

K151SP-W-X

11kV, 22kV(K)

Primary Use : Disconnectable joints

- Accommodates cable to max. 120mm2
- Accepts insulation Dia. 16mm-26mm
- Mates with K150T, K151SR, K152SR

Cable size sensitive, refer to chart on page 17 for complete part number

Kit complete with :

Straight Plug

+

Contact

+ Grease & Instructions

K150-S

11kV, 22kV(K)

Primary Use : Disconnectable joints

- Mates with K151SR, 156LR, K152SR & K158LR

Kit complete with :

Straight

+ Grease & Instructions

K150-T

11kV, 22kV(K)

Primary Use: Disconnectable joints

- Mates with K151SR, 156LR, K152SR & K158LR

Tee Splice

+ Grease & Instructions

11kV, 22kV(K)

K151-SOP

Primary use : To isolate a connector (reconstitution of dielectric integrity)

- Mates with 156LR, K151SR, K158LR & K152SR
- Mounts on parking stand 151-PS-A

Kit complete with :

Stand Off Plug + Grease & Instructions

151-GP

Primary use : For grounding or earthing of connector

- Mates with 156LR, K151SR, K158LR & K152SR
- Mounts on parking stand 151-PS-A

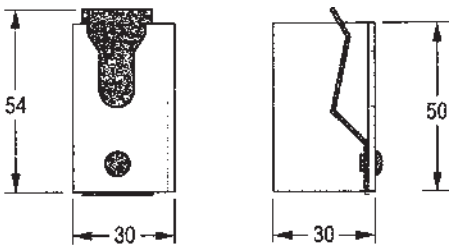
Note : 250GP also available
The 250GP has no earth lead and is mounted directly onto an earth bar

Kit complete with :

Grounding Plug + Grease & Instructions

151-PS-A

Parking Stand - Mates with K151-SOP, 151GP, K1501-FT



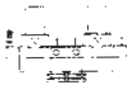
a SEPARABLE CONNECTORS
200 AMP DEADBREAK

K1501-FT

11kV, 22kV(K)

Primary use: For loop through or grounding

- Mates with 156LR, K150DR, K150T, K151SR, K152SR & K158LR
- Use with Parking Stand 160-PS



Feed Thru

Kit complete with :

\+ Grease & Instructions

K1501-J3U

11kV, 22kV(K)

Primary use: 3 way junction for connecting 3 cables

- Mates with 156LR, K150DR, K150T, K151SR, K152SR & K158LR

Junction

Kit complete with :

\+ Grease & Instructions

Connector Selection Size Chart

Ordering formula: To order your connector, use the tables below to substitute for W and X.

1. From Table W — Select the symbol which gives the best centering of your core insulation diameter.

2. From Table X — According to your conductor size, select the designation which completes the part number

Part number example :

I want to order a K152SR-W-X : The cable is a 22kV, 35mm2, cable with a diameter over core insulation of 19.6mm

Order a K152SR-FG-35KM-12-1 as the minimum cable insulation size for 'FG' is 18.4mm and the maximum is 21.1mm. Therefore your 19.6mm fits ideally in the middle.

Table W

156LR
F- 16.3 - 20.8
G- 19.3 - 24.1
H- 21.6 - 26.7
J- 24.9 - 30.0

K152SR/G K158LR/G
11- 12.6 - 16.1
13- 14.6 - 22.7

K152SR K158LR
FG- 18.4 - 21.2
GA- 19.7 - 22.5
GAB- 21.0 - 23.8
GH- 23.6 - 26.4

GAS- 19.7 -25.4

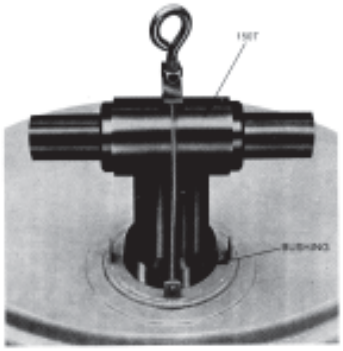
K151SR K151SP
A- 14.61 - 18.79
B- 16.13 - 22.98
C- 20.45 - 26.92
D- 22.61 - 30.98

Table X

Conductor mm2	Product Type			
	156LR	K151SR K151SP		K152SR K158LR
		AL	CU	
16	190	2AX		
25	200	2AX	2	
35	220	1AX	1	35KM-12-1
50	230	0AX	0	50KM-12-1
70	250	20AX	30	70KM-12-1
95	260	30AX	30	95KM-12-1
120	270	40AX	40	

200 AMP DEADBREAK

150TB-1



Bailing Assembly

Application :
The Elastimold 150TB-1 bailing assembly kit consists of a modified hold down bail for securing an Elastimold tee splice (150T or K150T) to any apparatus supplied with Elastimold 200 amp non loadbreak bushings. This assembly provides positive hold-down force on the tee splice, minimising the possibility of cable movement in the mating parts dislodging the tee splice from the apparatus bushing.

Note : For correct, safe installation of a bailing assembly, refer to the instructions packed with each assembly.

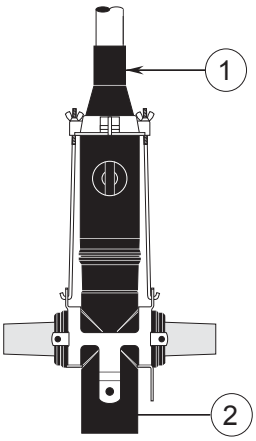
UNI-BA

Universal 200 amp Bail Assembly Holder

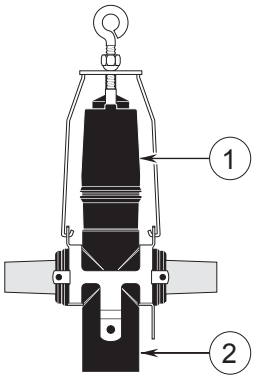
Application:
This metal holder has many Bail Tabs to facilitate the installation of 200 amp Connectors onto;

K150-S - Elastimold straight connector
K150-T - Elastimold 3 Way connector
200T - Euromold 3 Way connector
200X - Euromold 4 Way connector

For use with :
1. (K)152SR straight connector,and
2. (K)200X cross connector



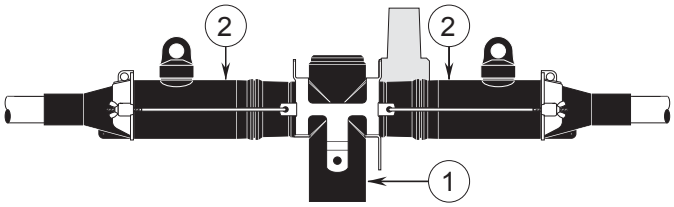
For use with :
1. (K)158LR elbow connector, and
2. (K)200X cross connector



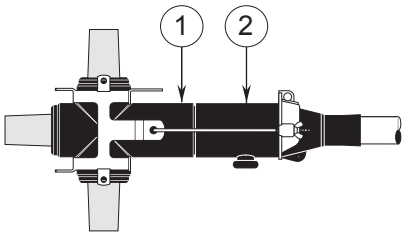
Universal 200amp Bail Assembly Holder

UNI-BA

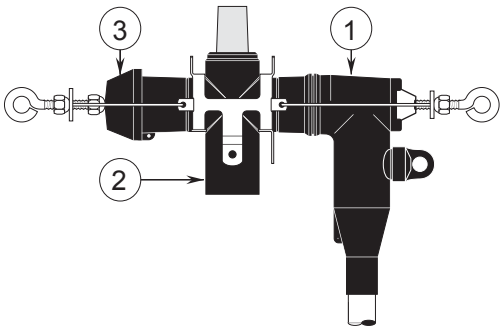
For use with :
1. (K)200X cross connector and
2. 2 x (K)152SR straight connector



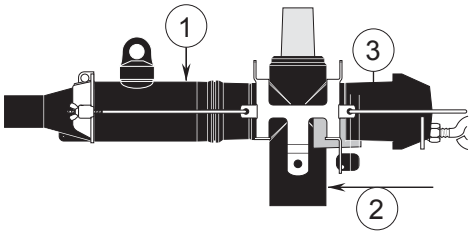
For use with :
1. (K)200X cross connector and
2. (K)151SP straight plug.



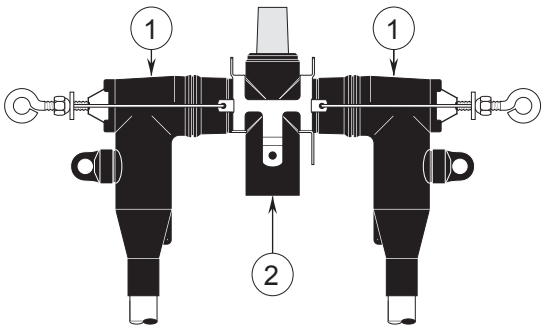
For use with :
1. (K)158LR elbow connector,
2. (K)200X cross connector and
3. (K)150DR dead-end receptacle.



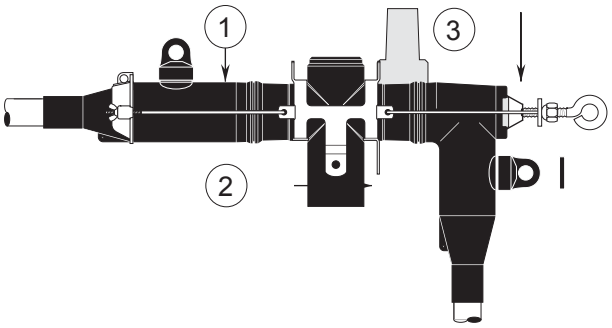
For use with:
1. (K)152SR straight connector,
2. (K)200X cross connector and
3. (K)150DR dead-end receptacle.



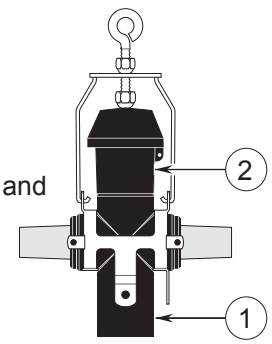
For use with:
1. 2 x (K)158LR elbow connector and
2. (K)200X cross connector.



For use with:
1. (K)152SR straight connector,
2. (K)200X cross connector and
3. (K)158LR elbow connector.



For use with:
1. (K)200X cross connector and
2. (K)150DR dead-end receptacle.



a SEPARABLE CONNECTORS
200 AMP LOADBREAK

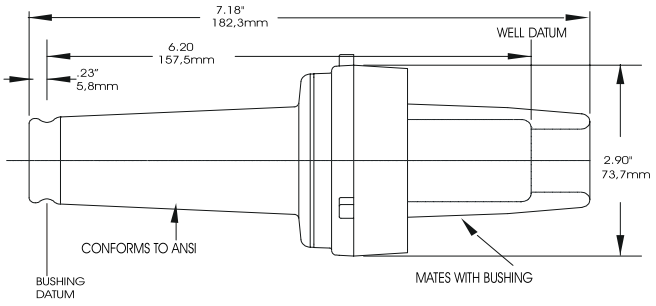
200 amp loadbreak connectors and accessories provide a convenient method to connect/disconnect cable and equipment on power distribution systems. Loadbreak elbows include provisions for energised operation using standard hotstick tools, allowing loadmake/break operation and a visible disconnect. Components can be isolated with insulated caps, plugs and parking bushings.

Optional accessories allow system grounding, testing, bypass, lightning surge protection and current limiting fusing. Additional connecting points and taps can be provided by use of junctions or feed - thrus.

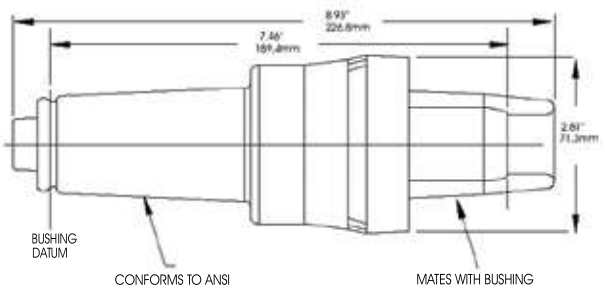
Elastimold Separable Connectors, and other cable accessory products have been designed and tested per applicable portions of IEEE, ANSI, NEMA and other industry standards including :

- IEEE 386 Standard for Separable Connectors
- IEEE 404 Standard for Cable Joints and Splices
- IEEE 48 Standard for Cable Terminations
- IEEE C62.11 Standard for Metal Oxide Surge Arrestors
- ANSI C37.41 Standard for Current Limiting Fuses
- IEEE 592 Standard for Exposed Semi-conducting Shields
- ANSI C119.4 Standard for Copper and Aluminium Conductor Connectors
- AEIC CS5 and CS6 Standards for XLP and EPR Insulated Cables

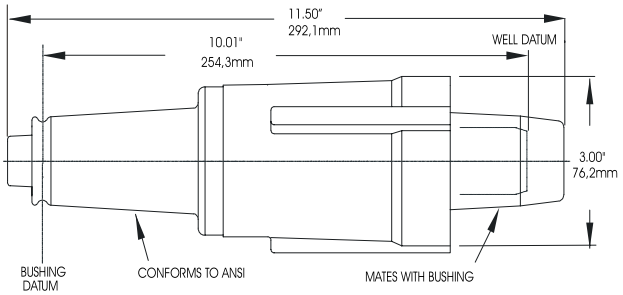
1601-A4 Bushing Insert



2701-A4 Bushing Insert



3701-A3 Bushing Insert



Technical Specifications

TABLE 1	15kV Class Ratings	25kV Class Ratings	35kV Class Ratings
- Operating Voltage Maximum line to ground	8.3kV	15.2kV	21.1kV
- BIL Impulse withstand 1.2x50	95kV	125kV	150kV
- Withstand Voltage AC one minute DC fifteen minute	 34kV 53kV	 40kV 78kV	 50kV 103kV
- Corona Extinction Level @ 3pC sensitivity	 11kV	 19kV	 26kV
200AMP Products Continuous current Symmetrical momentary current	 200AMP* 10kA sym, 10 cycle duration * designed for 90oC maximum continuous operating temperature		

TABLE 2	LOADMAKE/LOADBREAK SWITCHING	FAULT CLOSE
15kV	- 1ø and 3ø circuits 8.3kV line to ground 14.4kV max. across open contacts	1 fault close operation at 8.3kV or 14.4kV; 10,000 Amps, rms, sys.10 cycles (0.17 sec) 1.3 max. asym
Class Ratings	- 10 loadmake/break operations at 200 amps max with 70 to 80% lagging power factor	Factor applies to new or used mating parts (up to maximum designated switching operations)
25kV	- 1ø and 3ø circuits 15.2kV line to ground 26.3kV max. across open contacts	1 fault close operation at 15.2kV or 26.3kV; 10,000 Amps, rms, sys. 10 cycles (0.17 sec) 1.3 max asym
Class Ratings	- 10 loadmake/break operations at 200 amps max with 70 to 80% lagging power factor	Factor applies to new or used mating parts (up to maximum designated switching operations)
35kV	- 1ø and 3ø circuits 21.1kV line to ground 36.6kV max. across open contacts	1 fault close operation at 21.1kV or 36.6kV; 10,000 Amps, rms, sym. 10 cycles (0.17 sec) 1.3 max asym
Class Ratings	- 10 loadmake/break operations at 200 amps max with 70 to 80% lagging power factor	Factor applies to new or used mating parts (up to maximum designated switching operations)

Application Information:

1. Products are designed and constructed for all applications including padmount, subsurface, vault, indoor, outdoor, direct sunlight, direct buried and continuous submersion in water.

2. Products are designed and rated for ambient temperatures of -40oC to +65oC

a SEPARABLE CONNECTORS
200 AMP LOADBREAK

166LR (11kV) | 276LR(22kV) | 376LR (33kV)

Primary Use : Transformer connections
- Accommodates cable to max. 120mm2
- Mates with insert
  1601-A4, 1602-A3R (11kV)
  2701-A4, 2702-A1 (22kV)
  3701-A3, 3702-A1 (33kV)

Cable size sensitive, refer to chart on page 25 for complete part number.

Kit complete with :

Elbow + Pin +  Lug + Grease & Instructions

---

1601-A4 (11kV) | 2701-A4(22kV) | 3701-A3 (33kV)

Primary Use : Provides a 200amp loadbreak interface for connection
- Mates with bushing well & mating elbow as above
- See ‘Bushings’ for choice of well
  Pages 110 - 113

Kit complete with :

Insert + Grease & Instructions

1602-A3R (11kV) | 2702-A1(22kV) | 3702-A1 (33kV)

Primary Use : Dual connection for transformer tap off

- See ‘Bushings’ for choice of well
  Pages 110 - 113

Kit complete with :

Insert + Bail Assembly + Grease & Instructions

160DRG (11kV) 273DRG (22kV) 375DRG (33kV)

Primary Use :

Provides insulation of loadbreak insert, comes complete with grounding lead

- Mates with insert as per voltage

Kit complete with :

Deadbreak Receptacle

\+ Grease & Instructions

160GLR (11kV) 370GLR (22kV) 370GLR (33kV)

Primary Use :

Grounding of circuit

- Mates with insert
  1601-A4, 1602-A3R (11kV)
  2701-A4, 2702-A1 (22kV)
  3701-A3, 3702-A1 (33kV)

Kit complete with :

Grounding Elbow

\+ Grease & Instructions

161SOP (11kV) 272SOP (22kV) 372SOP (33kV)

Primary Use :

To isolate mating elbow (reconstitute dielectric integrity)

- Mates with elbow as per voltage
- Mounts on Parking Stand 160-PS

Kit complete with :

Stand Off Plug

\+ Grease & Instructions

a SEPARABLE CONNECTORS
200 AMP LOADBREAK

161GP (11kV)

272GP (22kV)

272GP(33kV)

Primary Use: For grounding or earthing of connector

- Mates with Elbow as per voltage
- Mounts on Parking Stand 160PS

Kit complete with :

Grounding Plug + Grease & Instructions

164FT (11kV)

274FT (22kV)

373FT (33kV)

Primary Use: For loop through or grounding

- Mates with Elbow as per voltage

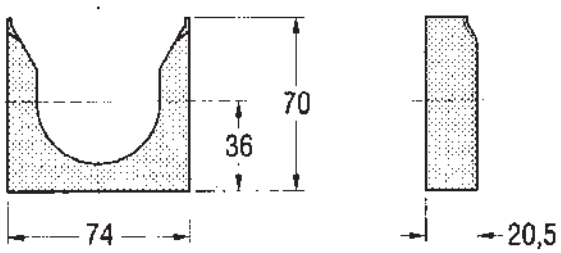
Kit complete with :

Feed Thru + Grease & Instructions

160-PS

Parking Stand

Primary Use: - For use with FT, GP, SOP



Connector Selection Size Chart

Ordering formula: To order your connector, use the tables below to substitute for W and X.

1. From Table W — Select the symbol which gives the best centering of your core insulation diameter.

2. From Table X — According to your conductor size, select the designation which completes the part number

Part number example:

I want to order a 376LR-W-X : The cable is a 33kV, 95mm2 cable with a diameter over core insulation of 29.2mm

Order a 376LR-K-260 as the minimum cable insulation size for 'K' is 27.7mm and the maximum is 33.3mm, therefore your 29.2mm fits ideally in the middle.

Table W

11kV

166LR	
A-	14.61 - 18.79
B-	16.13 - 22.98
C-	21.08 - 26.92
D-	23.62 - 30.98

22kV

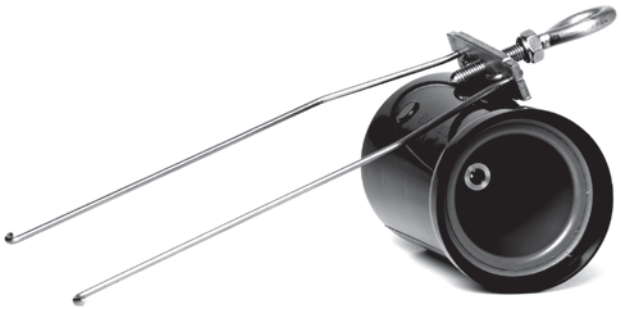
276LR	
B-	16.13 - 22.98
CC-	20.32 - 26.92
DD-	23.87 - 29.72

33kV

376LR	
J-	24.9 - 30.0
K-	27.7 - 33.3

Table X

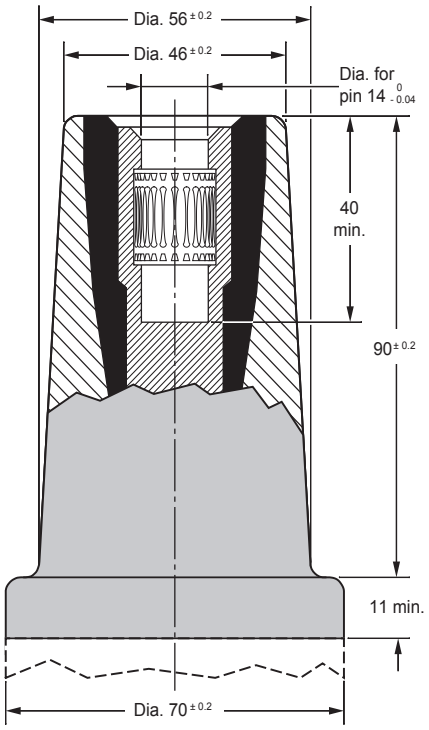
Conductor mm2	Product Type		
	166LR	276LR	376LR
16	190	190	190
25	200	200	200
35	220	220	220
50	230	230	230
70	250	250	250
95	260	260	260
120	270	270	270



400 SERIES (DIN, PIN TYPE - 400 AMP)

Technical Specifications

Voltage (kV) System Um or Ur	12	24	36
Partial Discharge extinction (@ 5Pc)	11	21	31
Impulse (1.2 x 50 us)	75	125	170
Industrial Power Frequency (50Hz - 1 min)	35	55	75
Current (A) Continuous Ir	400	400	400
Overload (8hrs in 24hr period)	600	600	600
Short Circuit	16kA RMS SYM, 1 Sec.		

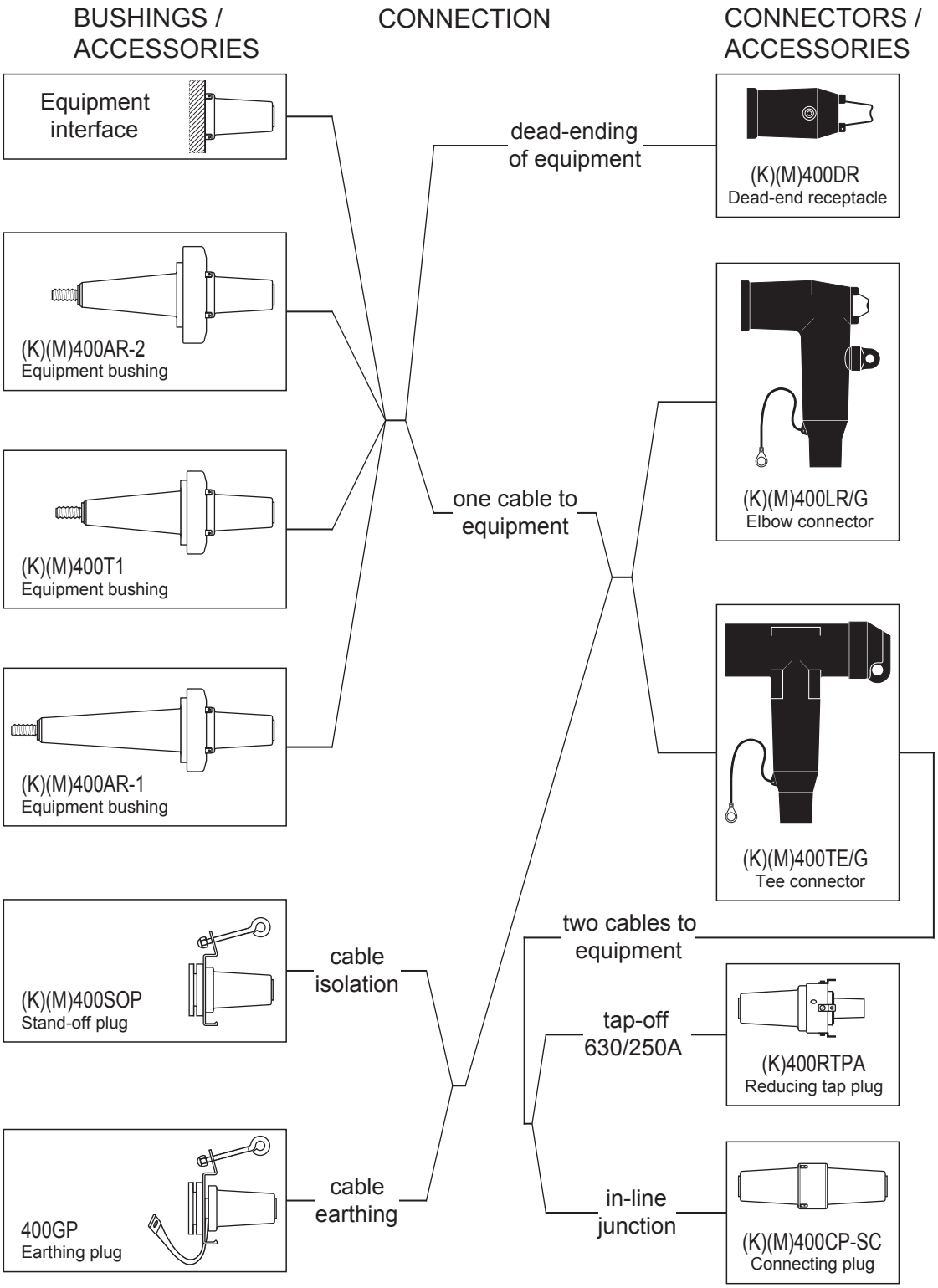


Interface B Profile

SEPARABLE CONNECTORS

400 SERIES (DIN, PIN TYPE - 400 AMP)

Connecting Possibilities



400 SERIES (DIN, PIN TYPE - 400 AMP)

K400LR-W-X

11kV 22kV(K) 33kV(M)

Primary use: Separable elbow connector (plug in type) designed to connect polymeric insulated cable to Interface B equipment (transformers, switchgear, motors ...)

- Accommodates cable to max. 300mm2 in CU
- Accepts insulation dia. 12.5mm - 37.5mm
- Mates with K400-T1/J Interface B Bushing

Cable size sensitive - refer to chart on page 32 for complete part number.

Kit complete with :

Elbow + Pin + Lug + Adapter + Bail + Grease & Instructions

K400TE-W-X

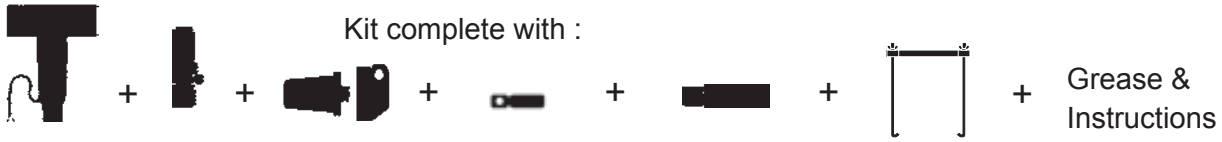
11kV 22kV(K) 33kV(M)

Primary use: Separable elbow connector (plug in type) designed to connect polymeric insulated cable to Interface B equipment (transformers, switchgear, motors ...)

- Accommodates cable to max. 300mm2 in CU
- Accepts insulation dia. 12.5mm - 37.5mm
- Mates with K400-T1/J Interface B Bushing

Cable size sensitive - refer to chart on page 32 for complete part number.

Kit complete with :



Elbow + Pin + BIP + Lug + Adapter + Bail + Grease & Instructions

---

K400DR

11kV 22kV(K) 33kV(M)

Primary use: Fits over an isolating 400 Series interface to provide “dead-end” facility

- Renders full screen protection
- Continues full screen protection
- Supplied with integral earth lead and bail restraint
- Mates with K400-T1/J Interface B Bushing

Kit complete with :

Adaptor + Bail + Grease & Instructions

b SEPARABLE CONNECTORS
400 SERIES (DIN, PIN TYPE - 400AMP)

K400RTPA

11kV, 22kV(K)

Primary Use :

Provides a connection interface suitable for (200amp) deadbreak tap offs.

- Mates with K400TE, 156LR, K158LR, K151SR & K152SR

Kit complete with :

\+ Grease & Instructions

Reducing Tap Plug

K400CP

11kV 22kV(K) 33kV (M)

Primary Use :

For connecting two or more din profile elbows

- As a cable joint
- For multiple cable connections to equipment
- Epoxy insulated part with central screening
- Mates with 400TB/G, 440TB/G, 400LB, 400TE, 450SR

Kit complete with :

\+ Grease & Instructions

Connecting Plug

---

400 SERIES (DIN, PIN TYPE - 400 AMP)

400GP

Primary Use: Is designed to support and earth 400 Series, 400amp Connectors, 400LR/G, 400TE/G, when removed from equipment

- Is secured by the 160PS parking stand
- Has earth fault current capability equal with mating part
- when assembled with mating part, the product assumes the same electrical rating

Kit complete with :

Grounding Plug + Grease & Instructions

K400SOP

11kV 22kV(K) 33kV(M)

Primary Use: Designed to support and “dead-end” 400 Series elbow or tee connectors when removed from equipment

When assembled with mating part, the product assumes the same electrical rating

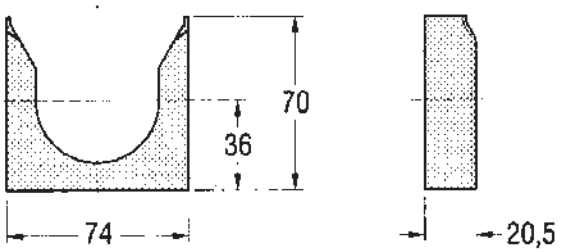
Kit complete with :

Grounding Plug + Grease & Instructions

160-PS

Parking Stand

- For use with FT, GP, SOP



400 SERIES (DIN, PIN TYPE - 400AMP)

Ordering instructions

(K) = “K” Denotes 24kV rated product
(M) = “M” Denotes 36kV rated product
(K)(M) 400LR/G-W-X
(K)(M) 400TE/G-W-X

To order the connector, use the tables below to substitute for W and X from the formulas above:

1. From Table W: Select the symbol that corresponds with the range best centreing the core insulation diameter
2. From Table X: According to your conductor size, select the designation according to connector model, to complete the part number

Example: A K400LR/G-W-X to suit 185mm2, 22kV cable with an insulation diamater of 29.1mm:

Order a K400LR/G-25-185KM-12-1

Table W - Cable Reducer
411CA-W

Part No.	Insulation Dia Min.	Insulation Dia Max.	Symbol W
K400LR/G	12.5	17.5	11
K400TE/G	16.0	22.0	15
	20.0	26.5	19
	23.5	31.0	22
	26.5	32.5	25
	28.5	37.5	27

Table W - Cable Reducer
400CA-W

Part No.	Insulation Dia. Min.	Insulation Dia. Max.	Symbol W
K400LR	15.9	18.7	FAB
K400TE	18.4	21.2	FG
	23.6	26.4	GH
	26.4	29.9	HAB
	27.8	31.5	HB
	29.5	33.2	HJ

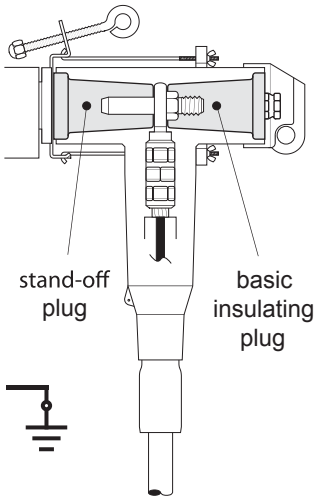
Table X - Lug

CABLE SIZE	K400LR/G K400TE/G	K400LR/G K400TE/G	K400LR/G
	Al	Cu	SHEAR CONNECTOR
35mm2	35KM-12-1	35KM-11-2	35-95
50mm2	50KM-12-1	50KM-11-2	35-95
70mm2	70KM-12-1	70KM-11-2	35-95
95mm2	95KM-12-1	95KM-11-2	35-95
120mm2	120KM-12-1	120KM-11-2	35-95
150mm2	150KM-12-1	150KM-11-2	95-240
185mm2	185KM-12-1	185KM-11-2	95-240
240mm2	240KM-12-1	240KM-11-2	95-240
300mm2		300KM-11-2	

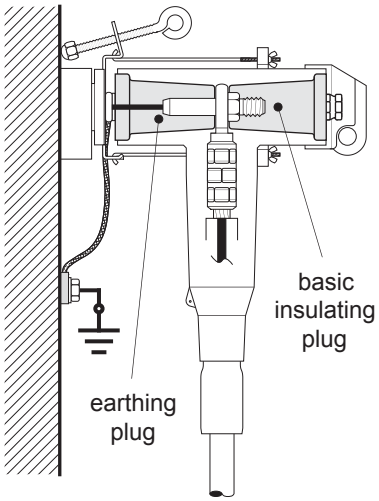
400 SERIES (DIN, PIN TYPE - 400 AMP)

Possible Combinations

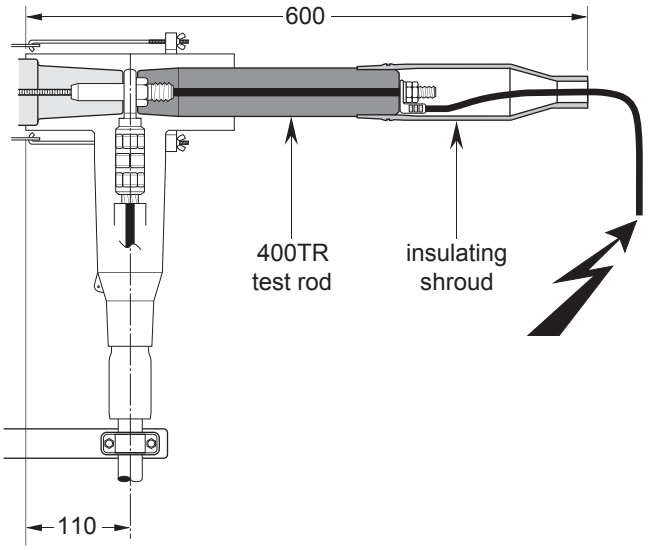
Connector on stand-off plug
Order 400SOP for 12kV,
K400SOP for 24kV or
M400SOP for 36kV applications



Connector on earthing plug
Order 400GP for 12kV, 24kV
and 36kV applications



Cable and equipment testing

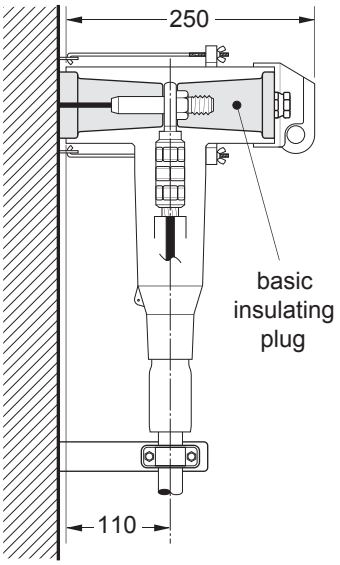


b 400 SERIES (DIN, PIN TYPE - 400 AMP)

Possible Combinations

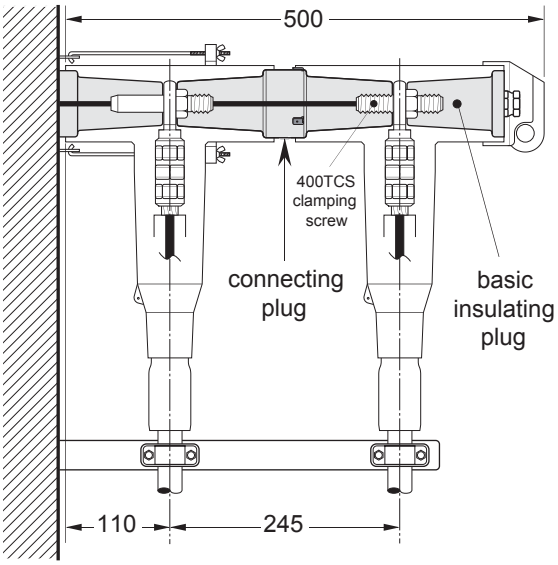
400TE/G Single cable arrangement.

Order : 400TE/G for 12kV,
K400TE/G for 24kV,
M400TE/G for 36kV
applications



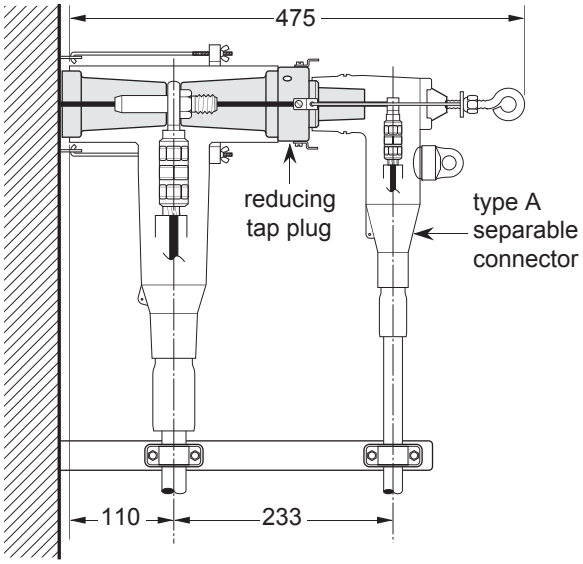
400TE/G-P2 Dual cable arrangement.

Order : 400TE/G-P2 for 12kV,
K400TE/G-P2 for 24kV, or
M400TE/G-P2 for 36kV
applications



400TE/G-PE Single cable arrangement with tap-off.

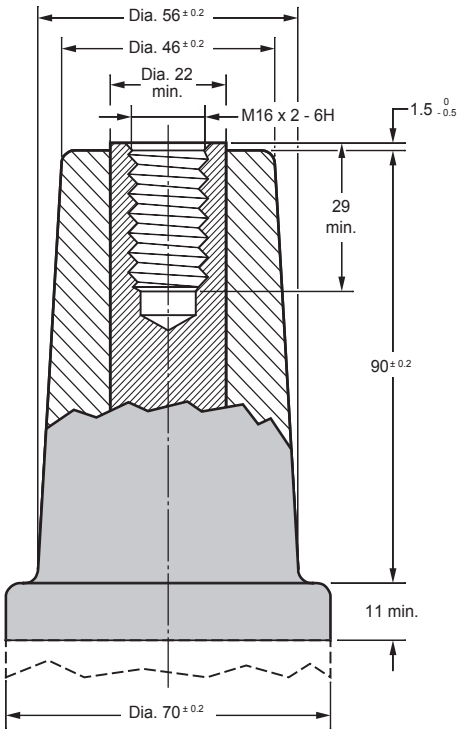
Order : 400TE/G-P4 for 12kV, or
K400TE/G-P4 for 24kV
applications



400 SERIES (DIN, BOLTED - 630 AMP)

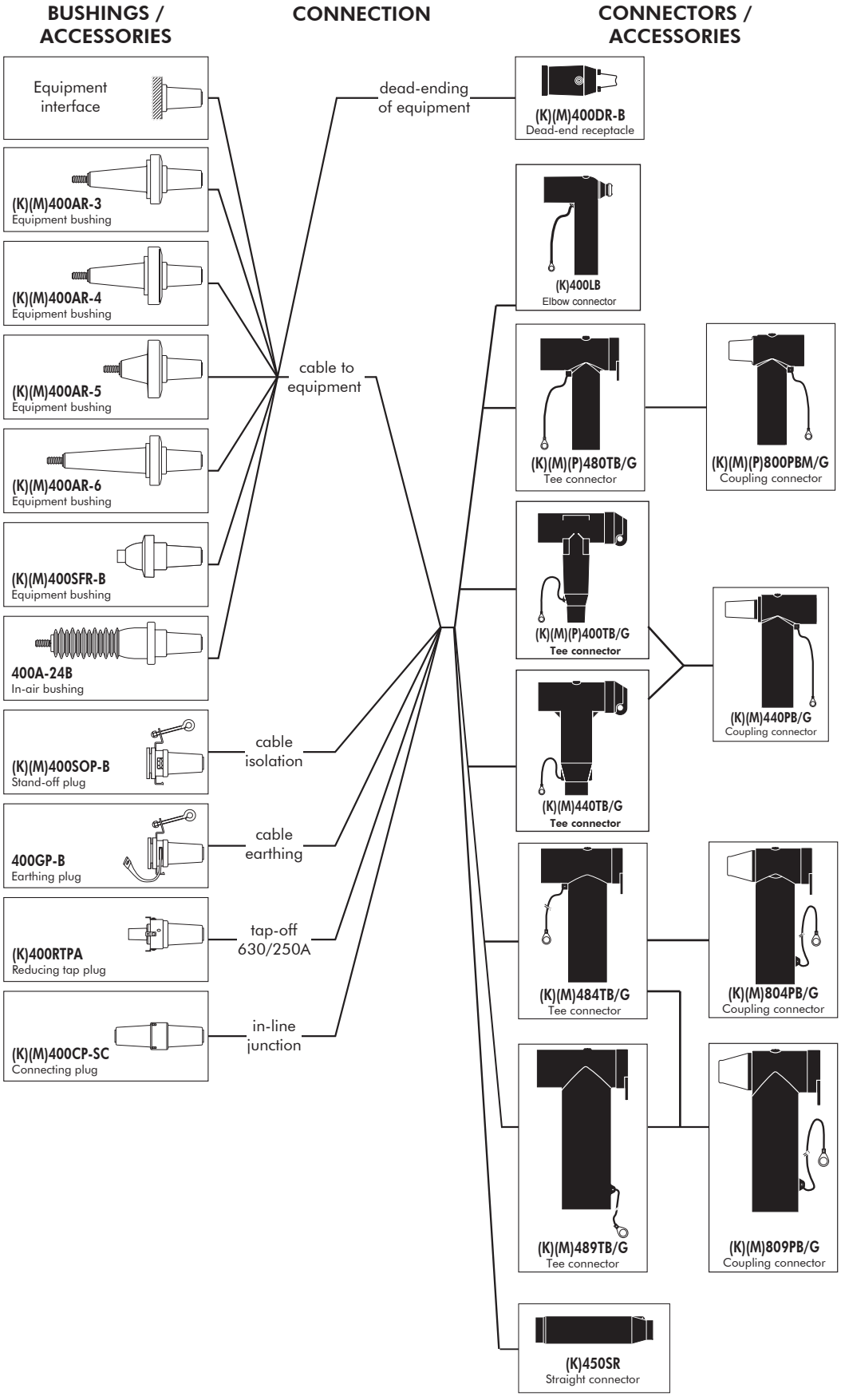
Technical Specifications

Voltage System Um or Ur	12	24	36
Partial discharge extinction (at 5pC)	11	21	31
Impulse (1.2 x 50 ps)	75	125	170
Industrial power frequency (50hz - 1 min)	35	55	75
Current rating :	630A continuous 28KA RMS Sym, 1 seconds		



Interface C Profile

400 SERIES (DIN, BOLTED - 630 AMP)



C SEPARABLE CONNECTORS
400 SERIES (DIN, BOLTED - 630 AMP)

400LB-W-X

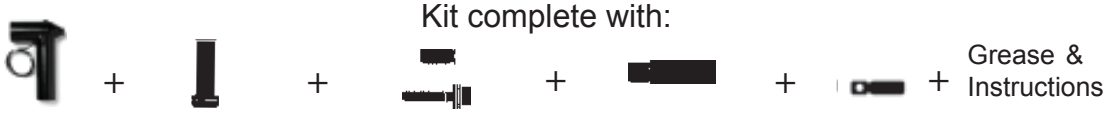
11kV, 22kV (K)

Primary Use: Screened connector designed to connect cable to equipment (transformers, switchgear, motors), etc

- No capacitive test point
- Accommodates cable to max. 240mm2
- Mates with 400AR-3, 400A-24B, 400-SOP-B, 400GP-B

Cable size sensitive - refer to chart on page 44 for complete part number.

Kit complete with:



Elbow + Plug + Transition Assembly + 400CA OR 411CA Adapter + Crimp Lug + Grease & Instructions

400TB/G-W-X

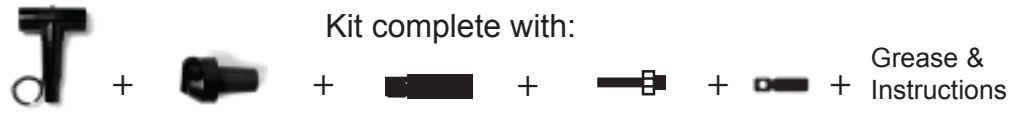
11kV, 22kV (K), 33kV (M), 41kV (P)

Primary Use: Screened connector designed to connect cable to equipment (transformers, switchgear, motors), etc

- Complete with capacitive test point
- Accommodates cable to;
  Max 22kV = 300mm^2
  Max 33kV = 240mm^2
- Mates with 400AR-3, 400A-24B, 400-SOP-B, 400GP-B, 400CP, 400RTPA

Cable size sensitive - refer to chart on page 44 for complete part number.

Kit complete with:



Elbow + Basic Insulating plug + 400CA OR 411CA Adapter + 400TCS Screw + Crimp or Shear Lug + Grease & Instructions

440TB/G-W-X

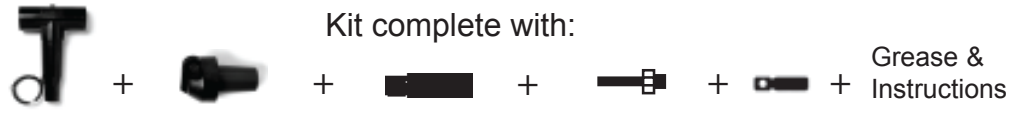
11kV, 22kV (K), 33kV (M)

Primary Use: Screened connector designed to connect cable to equipment (transformers, switchgear, motors), etc

- Complete with capacitive test point
- Accommodates cable to max. 630mm2
- Mates with 400AR-3, 400A-24B, 400-SOP-B, 400GP-B, 400CP, 400RTPA

Cable size sensitive - refer to chart on page 44 for complete part number.

Kit complete with:



Elbow + Basic Insulating plug + 400CA OR 411CA Adapter + 400TCS Screw + Crimp or Shear Lug + Grease & Instructions

400 SERIES (DIN, BOLTED - 630 AMP)

480TB-W-X

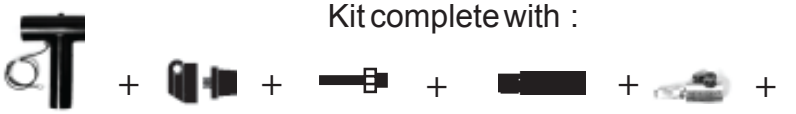
11kV, 22kV (K), 33kV (M)

Primary Use: Screened connector designed to connect cable to equipment (transformers, switchgear, motors), etc

- Complete with capacitive test point
- Accommodates cable to;
  Max 33kV = 300mm ^{2}
  Max 42kV = 240mm ^{2}
- Mates with 400AR-3, 400A-24B, 400-SOP-B & 400GP-B

Cable size sensitive - refer to chart on page 44 for complete part number.

Kit complete with :



Elbow + Basic Insulating Plug + 430TCS Screw + 411CA / 430CA Adapter + Shear or Crimp Lug + Grease & Instructions

***Note: This connector replaces 430TB**

800PB-W-X

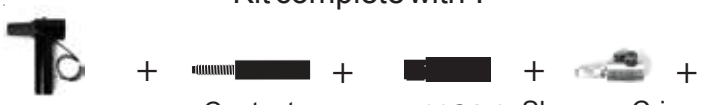
11kV, 22kV (K), 33kV (M)

Primary Use: Screened connector designed to connect cable to equipment (transformers, switchgear, motors), etc

- Mates with 480TB.
- Accommodates cable to;
  Max 33kV = 300mm ^{2}
  Max 42kV = 240mm ^{2}
- Ability to install 2 cables (when used in conjunction with 480TB) with a total depth of 290mm.

Cable size sensitive - refer to chart on page 44 for complete part number.

Kit complete with :



Elbow + Contact Rod + 411CA / 430CA Adapter + Shear or Crimp Lug + Grease & Instructions

450SR-W-X

11kV, 22kV (K)

Primary Use: Screened connector designed to connect cable to equipment (transformers, switchgear, motors), etc

- Accommodates cable to max. 300mm2
- Accepts insulation dia. 16.5mm to 36mm.
- Rated to 400amps.

Cable size sensitive - refer to chart on page 44 for complete part number.

Kit complete with :

Receptacle + Locking Disk + Retaining Ring + Adapter + Contact Assembly + Grease & Instructions

C 400 SERIES (DIN, BOLTED - 630 AMP)

434TB/G-W-X

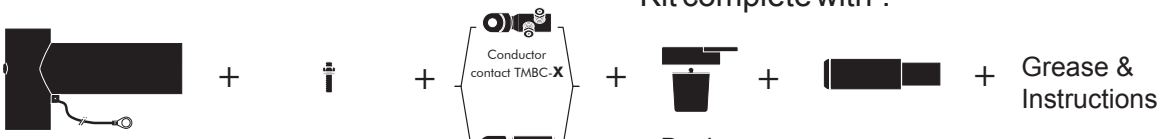
11kV, 22kV (K), 33kV (M)

Primary Use: Separable tee shape connector (bolted type) designed to connect polymeric insulated cable to equiptment (transformers, switchgear, motors)

- Complete with capacitive test point
- Accommodates cable to max. 630mm2
- Mates with 400AR-3, 400A-24B, 400-SOP-B, 400GP-B, 400CP, 400RTPA
- Accepts insulation dia. 23.5mm to 56.0mm.

Cable size sensitive - refer to chart on page 44 for complete part number.

Kit complete with :



Elbow | Clamping Screw | Shear or Crimp Lug | Basic Insulating Plug | 611CA Adapter | Grease & Instructions

484TB/G-W-X

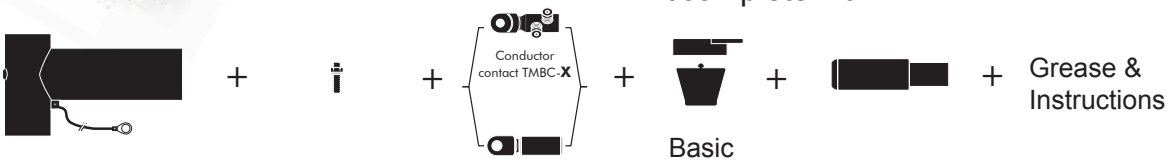
11kV, 22kV (K), 33kV (M)

Primary Use: Separable tee shape connector (bolted type) designed to connect polymeric insulated cable to equiptment (transformers, switchgear, motors)

- Accommodates cable to max. 630mm2
- Accepts insulation dia. 16.0mm to 53.0mm.
- Rated to 630amps.

Cable size sensitive - refer to chart on page 44 for complete part number.

Kit complete with :



Elbow | Clamping Screw | Shear or Crimp Lug | Basic Insulating Plug | 611CA Adapter | Grease & Instructions

804PB/G-W-X

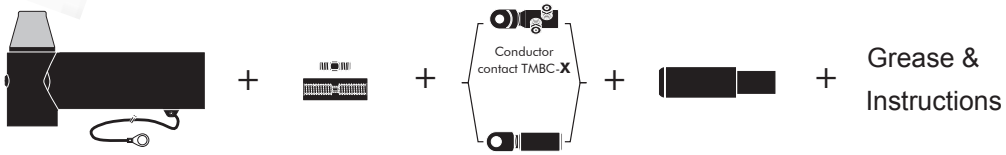
11kV, 22kV (K), 33kV (M)

Primary Use: Separable coupling connector (bolted type) for duel cable arrangment. It has been designed to be used with 484TB separable connector

- Accommodates cable to max. 630mm2
- Accepts insulation dia. 16.0mm to 53.0mm.
- Rated to 630amps.

Cable size sensitive - refer to chart on page 44 complete part number.

Kit complete with :



Elbow | Contact rod and stud | Shear or Crimp Lug | 611CA Adapter | Grease & Instructions

400 SERIES (DIN, BOLTED - 1250AMP)

489TB/G-W-X

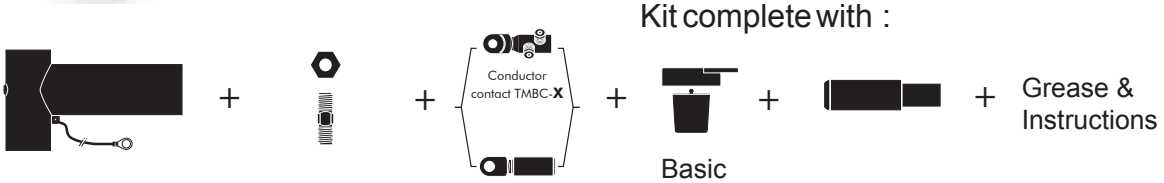
11kV , 22kV (K) , 33kV (M) , 42kV (P)

Primary Use: Separable tee shape connector (bolted type) designed to connect polymeric insulated cable to equiptment (transformers, switchgear, motors)

- Accommodates cable to max. 1200mm2
- Mates with 400AR-3, 400A-24B, 400-SOP-B, 400GP-B, 400CP, 400RTPA
- Accepts insulation dia. 40.0mm to 68.0mm.

Cable size sensitive - refer to chart on page 44 for complete part number.

Kit complete with :



Elbow + Stud + Nut + Shear or Crimp Lug + Basic Insulating Plug + 911CA Adapter + Grease & Instructions

809PB/G-W-X

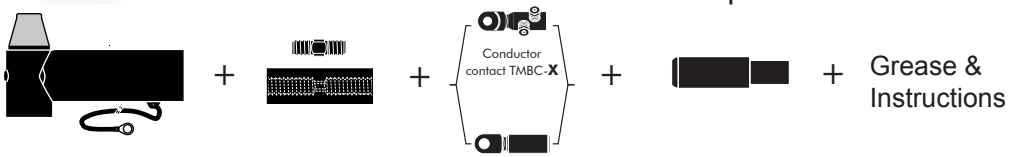
11kV , 22kV (K) , 33kV (M) , 42kV (P)

Primary Use: Separable coupling connector (bolted type) for dual cable arrangement. It has been designed to be used with 484TB and 489TB separable Tee connector.

- Accommodates cable to max. 1200mm2
- Accepts insulation dia. 40.0mm to 68.0mm.
- Rated to 1250amps.

Cable size sensitive - refer to chart on page 44 for complete part number.

Kit complete with :



Connector Housing + Contact Rod and Stud + Shear or Crimp + 911CA Adapter + Grease & Instructions

C SEPARABLE CONNECTORS
400 SERIES (DIN, BOLTED - 630 AMP)

400SOP-B

11kV, 22kV(K), 33kV(M)

Primary Use : Designed to support and "dead-end" 400 series elbow or tee connectors when removed from equipment.

- When assembled with mating part, the product assumes the same electrical rating.

Kit complete with :

Stand Off Plug

\+ Grease & Instructions

400GP-B

Primary Use : Designed to support and earth 400 series elbow or tee connectors when removed from equipment.

- Secured by parking stand 160-PS
- Earth fault current capability identical with mating part

Kit complete with :

Grounding Plug

\+ Grease & Instructions

400RTPA

11kV, 22kV(K)

Primary Use : Provides a connection interface suitable for 156LR and K158LR (200 amp) tap offs.

- Mates with K400TB, K440TB to 156LR, K158LR

Kit complete with :

Reducing Tap Plug

\+ Grease & Instructions

400 SERIES (DIN,BOLTED - 630 AMP)

11kV, 22kV(K), 33kV(M)

400-CP
440-CP

Primary Use : For connecting two or more din profile elbows (piggy back)

- 400-CP Mates with K400TB, 440TB, 400LB, 400TE
- 440-CP Mates with K440TB
- As a cable joint for multiple cable connection to equipment
- Epoxy insulated part with central screening.

Kit complete with :

Connecting Plug

+

Grease & Instructions

11kV, 22kV(K), 33kV(M)

400-BIPA

Primary Use : Tightening plug for the 400TE, 400TB/G and 440TB connectors

- Contains the capacitive test point.
- Epoxy insulated part.

Kit complete with :

Basic Insulating Plug

+

Grease & Instructions

11kV, 22kV(K), 33kV(M)

400DR-B

Primary Use : Fits over and insulates 400 Series interface to provide "dead-end" facility.

- Renders full screen protection
- Continues full screen protection
- Supplied with integral earth lead

Kit complete with :

Dead End Receptable

+

Grease & Instructions

400 SERIES (DIN, BOLTED - 630 AMP)

Ordering Instructions

(K) = "K" Denotes 24kV rated product
(M) = "M" Denotes 36kV rated product
(P) = "P" Denotes 41.5kV rated product

To order the connector, use the tables below to substitute for W and X as shown:

1. From table W : Select the symbol that corresponds with the range best match for the core insulation diameter.
2. From table X : According to your conductor size, select the designation according to connector model to complete the part number.

Example : A 400TB/G-W-X to suit 185mm2,22kV cable with an insulation diameter of 29.1mm and a Crimp Lug.

Order a K400TB/G-25-185KM-12-1.

Table W - Cable Reducer

Table W - Cable Reducer
411CA-W

Part No.	Insulation Dia. Min.	Insulation Dia. Max.	Symbol W
480TB 400TB/G 400LB 800PB	12.5	17.5	11
	16.0	22.0	15
	20.0	26.5	19
	23.5	31.0	22
	26.5	32.5	25
	28.5	37.5	27

Table W - Cable Reducer
430CA-W

Part No.	Insulation Dia. Min.	Insulation Dia. Max.	Symbol W
480TB 800PB	15.9	18.7	11
	18.4	21.2	16
	23.6	26.4	18
	26.4	29.9	27
	27.8	31.5	30

Table W - Cable Reducer
611CA-W

Part No.	Insulation Dia. Min.	Insulation Dia. Max.	Symbol W
440TB/G 434TB/G 484TB/G 804PB	23.5	31.0	22
	28.5	37.5	27
	34.0	42.5	32
	39.0	48.5	37
	45.5	56.0	43

Table W - Cable Reducer
450CA-W

Part No.	Insulation Dia. Min.	Insulation Dia. Max.	Symbol W
450SR	16.5	21.5	6
	19.9	24.4	8
	23.2	28.0	10
	26.1	31.0	12
	30.0	36.1	14

Table W - Cable Reducer
911CA-W

Part No.	Insulation Dia. Min.	Insulation Dia. Max.	Symbol W
489TB/G 809PB/G	40.0	48.0	37
	46.0	54.0	43
	53.0	59.0	50
	56.0	62.0	53
	59.0	65.0	56
	62.0	68.0	59

400 SERIES (DIN, BOLTED - 630 AMP)

Table X - Lugs

400TB 430TB 300PB			440TB 434TB 484TB 804PB			489TB 809PB
CRIMP AL	**CRIMP CU**	**SHEAR**	**SHEAR**	**CRIMP AL**	**CRIMP CU**	**SHEAR**
35KM-12-1	35KM-11-2					
50KM-12-1	50KM-11-2					
70KM-12-1	70KM-11-2					
95KM-12-1	95KM-11-2	16-95	16-95			
120KM-12-1	120KM-11-2					
150KM-12-1	150KM-11-2	50-150	50-150			
185KM-12-1	185KM-11-2					
240KM-12-1	240KM-11-2	95-240	95-240			
	300KM-11-2	120-300	120-300	300KM-12-1	300KM-11-2	
			185-400	400KM-12-1	400KM-11-2	
				500KM-12-1	500KM-11-2	
			400-630	630KM-12-1	630KM-11-2	400-630
						800-1000

Table X - Lugs

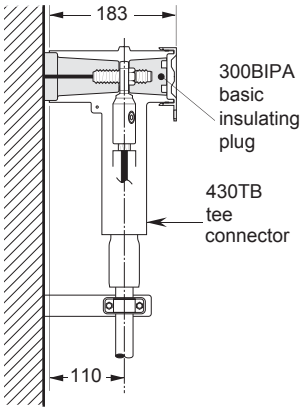
Conductor mm2	450SR		400LB	
	CRIMP AL	CRIMP CU	BI-METAL AL	COPPER CU
16			AUS16-12	CLU16-12
25			AUS25-12	CLU25-12
35	35KM-12-2	35KM-11-2	AUS35-12	CLU35-12
50	50KM-12-2	50KM-11-2	AUS50-12	CLU50-12
70	70KM-12-2	70KM-11-2	AUS70-12	CLU70-12
95	95KM-12-2	95KM-11-2	AUS95-12	CLU95-12
120	120KM-12-2	120KM-11-2	AUS120-12	CLU120-12
150	150KM-12-2	150KM-11-2	AUS150-12	CLU150-12
185	185KM-12-2	185KM-11-2	AUS185-12	CLU185-12
240	240KM-12-2	240KM-11-2	AUS240-12	CLU240-12
300	300KM-12-2	300KM-11-2	AUS300-12	

Shear connectors can meet a range i.e. 50-150 will cover sizes from 50mm2 to 150mm2. Please ensure that the adaptor (Table W) will also achieve the range you require.
This is absolutely critical.

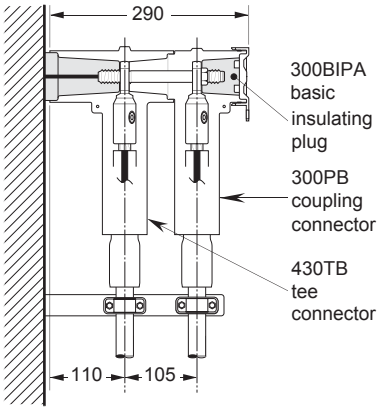
C 400 SERIES (DIN, BOLTED - 630 AMP)

Possible Combinations

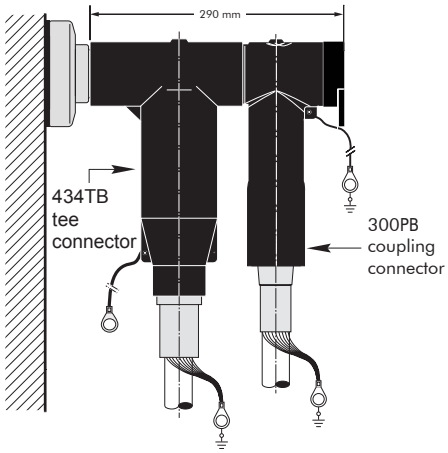
430TB
Single cable arrangement.



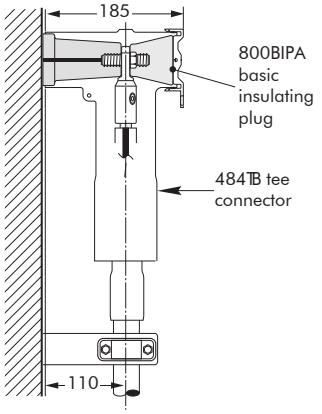
430TB+300PB
Dual cable arrangement.



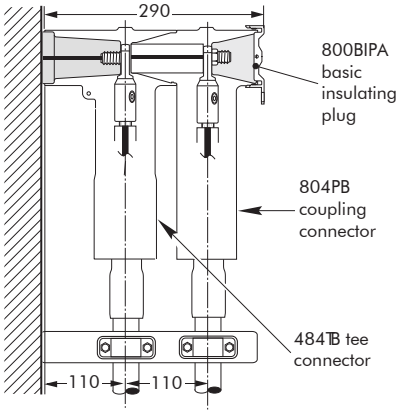
434TB/G+300PB
Dual cable arrangement.



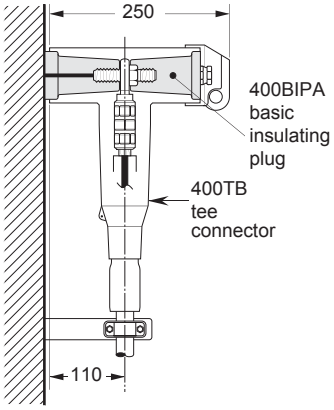
484TB/G
Single cable arrangement.



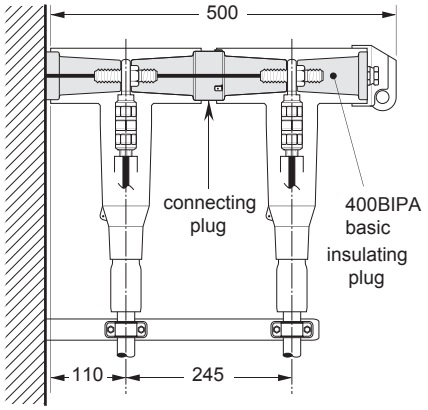
484TB/G+804PB
Dual cable arrangement.



400TB/G
Single cable arrangement.



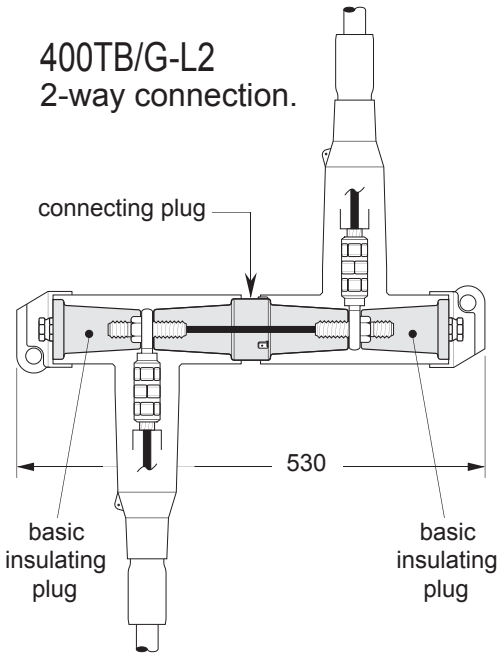
400TB/G-P2
Dual cable arrangement.



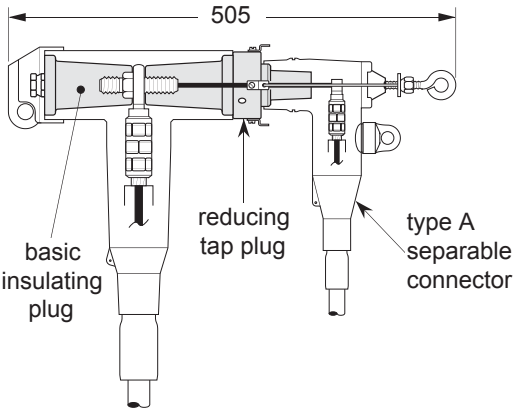
In mm.

400 SERIES (DIN, PIN TYPE - 630 AMP)

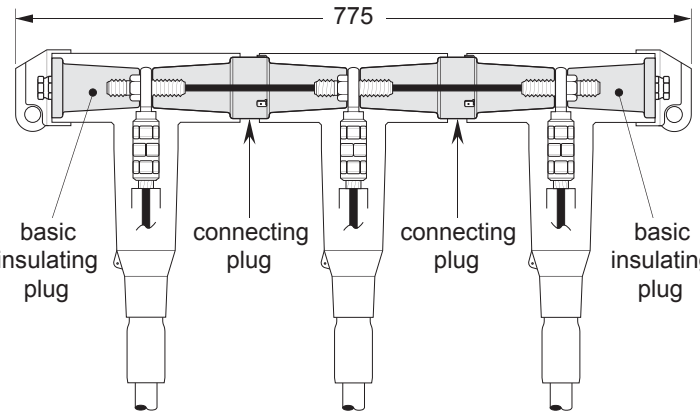
400TB/G-L2
2-way connection.



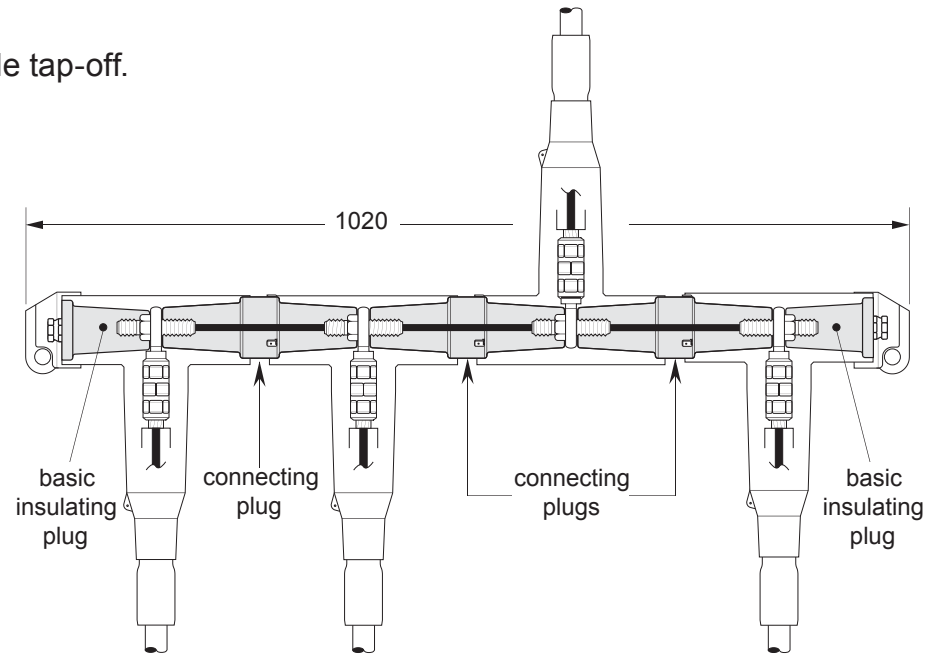
400TB/G-L5
2-way connection with tap-off.



400TB/G-L3
3-way connection.



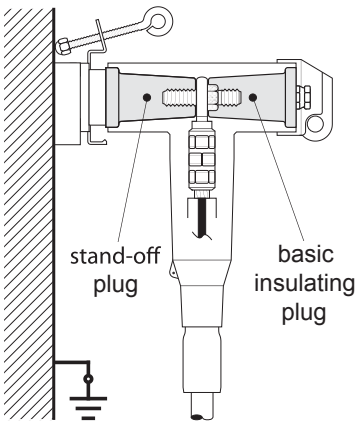
400TB/G-L4
Disconnectable tap-off.



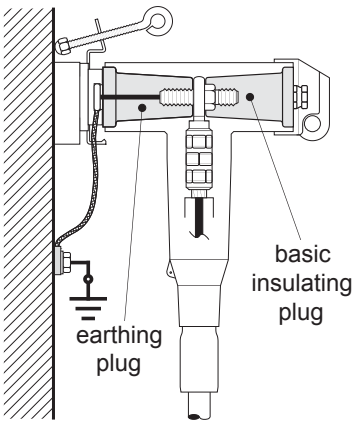
C 400 SERIES (DIN, BOLTED - 630 AMP)

Possible Combinations

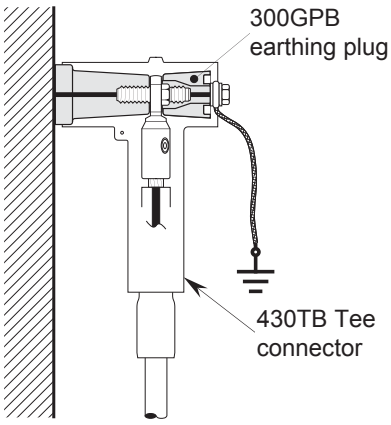
Connector on stand-off plug



Connector on earthing plug



Earthing plug on connector



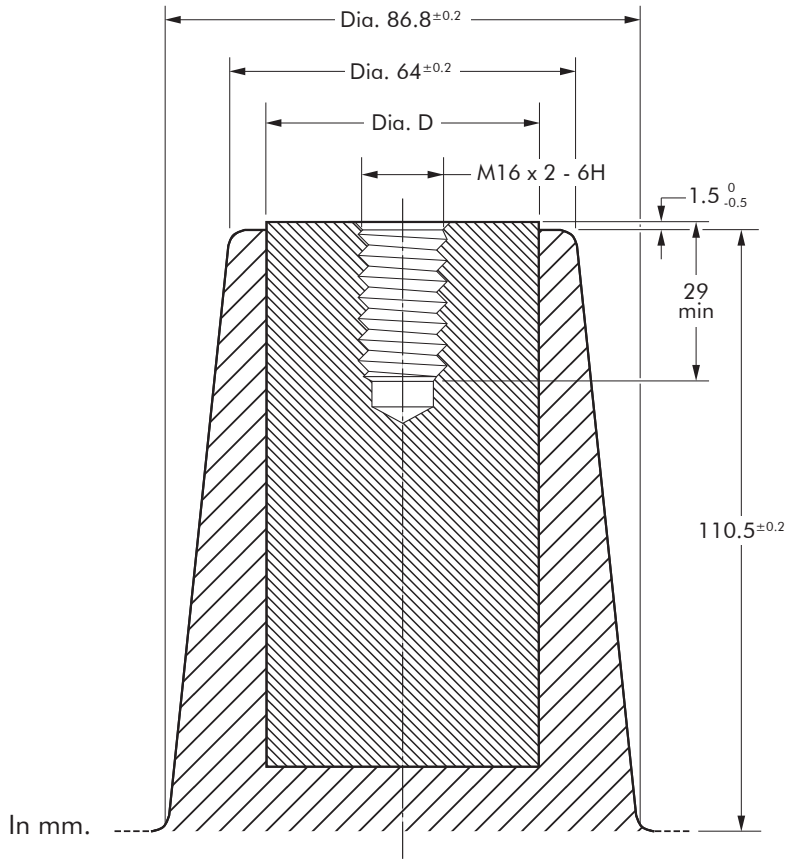
C INTERFACE F(DIN, BOLTED - 2500 AMP)

Technical Specifications

Voltage System Um or Ur	12	24	36	52
Partial discharge extinction (at 5pC)	11	21	31	52
Impulse (1.2 x 50 ps)	75	125	170	250
Industrial power frequency (50hz - 1 min)	35	55	75	117

Current rating :

630A continuous
28KA RMS Sym, 1 seconds
1250A continuous
75kA RMS Sym, 1 seconds



C INTERFACE F(DIN, BOLTED - 2500 AMP)

909TB/G-W-X

11kV , 22kV (K) , 33kV (M) , 42kV (P)

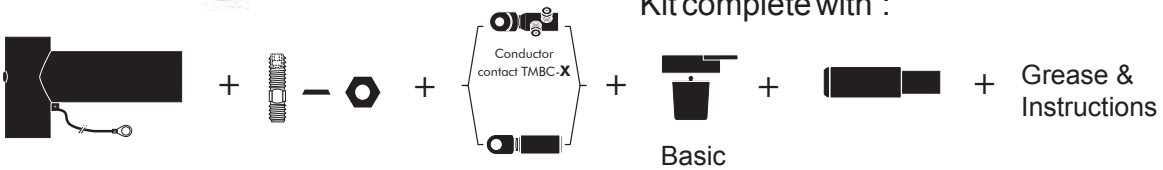
Primary Use:

Separable tee shape connector (bolted type) designed to connect polymeric insulated cable to equiptment (transformers, switchgear, motors)

- Accommodates cable to max. 1200mm2
- Mates with 900AR, 900DR-B/G, 900-SOP-B, 900GP-B, 900BE/G
- Accepts insulation dia. 35.0mm to 68.0mm.

Cable size sensitive - refer to chart on page 44 for complete part number.

Kit complete with :



Elbow | Stud+Nut+Washer | Conductor contact | Basic Insulating Plug | 911CA Adapter | Grease & Instructions

909PB/G-W-X

11kV , 22kV (K) , 33kV (M) , 42kV (P)

Primary Use:

Separable coupling connector (bolted type) for dual cable arrangement. It has been designed to be used with 909TB separable Tee connector.

- Accommodates cable to max. 1200mm2
- Accepts insulation dia. 35.0mm to 68.0mm.
- Rated to 2500amps.

Cable size sensitive - refer to chart on page 44 for complete part number.

Kit complete with :

Connector Housing | Contact Rod and Stud | Conductor contact | 911CA Adapter | Grease & Instructions

944TB/G-W-X

11kV , 22kV (K) , 33kV (M) , 42kV (P)

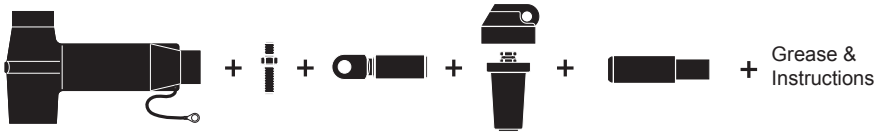
Primary Use:

Separable Asymmetrical tee shape connector (bolted type) designed to connect polymeric insulated cable to equiptment (transformers, switchgear, motors)

- Accommodates cable to max. 630mm2
- Mates with 900AR, 900DR-B/G, 900-SOP-B, 900GP-B, 900BE/G
- Accepts insulation dia. 16.0mm to 56.0mm.

Cable size sensitive - refer to chart on page 44 for complete part number.

Kit complete with :



Connector housing (K)(M)(P)944BT/G | Clamping screw 400TCS | Conductor contact 900TBC-**X** | Basic insulating plug (K)(M)(P)400BIPA + rubber cap | Cable reducer 611CA-**W** | Grease & Instructions

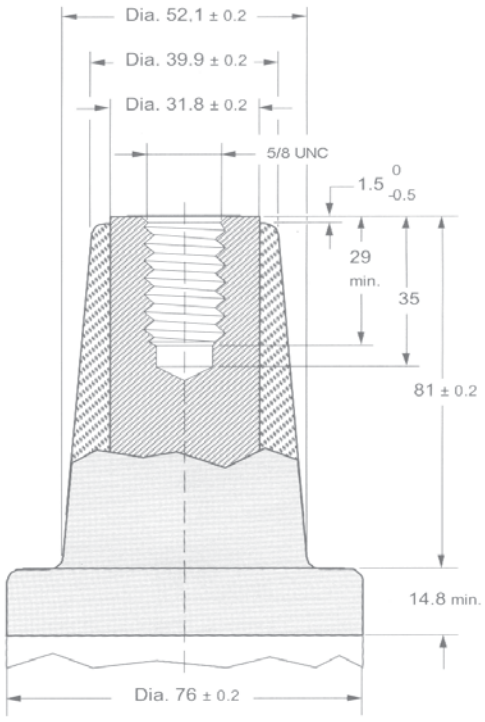
600 SERIES (ANSI) DEADBREAK

600 Series deadbreak elbows, straight receptacles, junctions, vault stretchers and accessories are usd to connect equipment and cable on primary feeder and network circuits. Designs accommodate large conductors and feature bolted connections and deadfront modular construction for maximum reliability, performance and versatility.

DE-ENERGISED connectors can be quickly and easily connected and disconnected using standard hand tools and equipment in accordance with accepted operating practices. Optional accessories allow visible and external separation, by-pass, isolation, dead-ending, grounding and testing as well as adding taps, surge arresters and circuit protection.

Elastimold Separable Connectors and other cable accessory products have been designed and tested per applicable portions of IEEE, ANSI, NEMA and other industry standards including :

- IEEE 386 Standard For Separable Connectors
- IEEE 404 Standard For Cable Joints and Splices
- IEEE 48 Standard For Cable Terminations
- IEEE C62. 11 Standard For Metal Oxide Surge Arresters
- ANSI C37.41 Standard For Current Limiting Fuses
- IEEE 592 Standard For Exposed Semiconducting Shields
- ANSI C119.4 Standard For Copper and Aluminium Conductor Connectors
- AEIC CS5 and CS6 Standards For XLPE and EPR Insulated cables

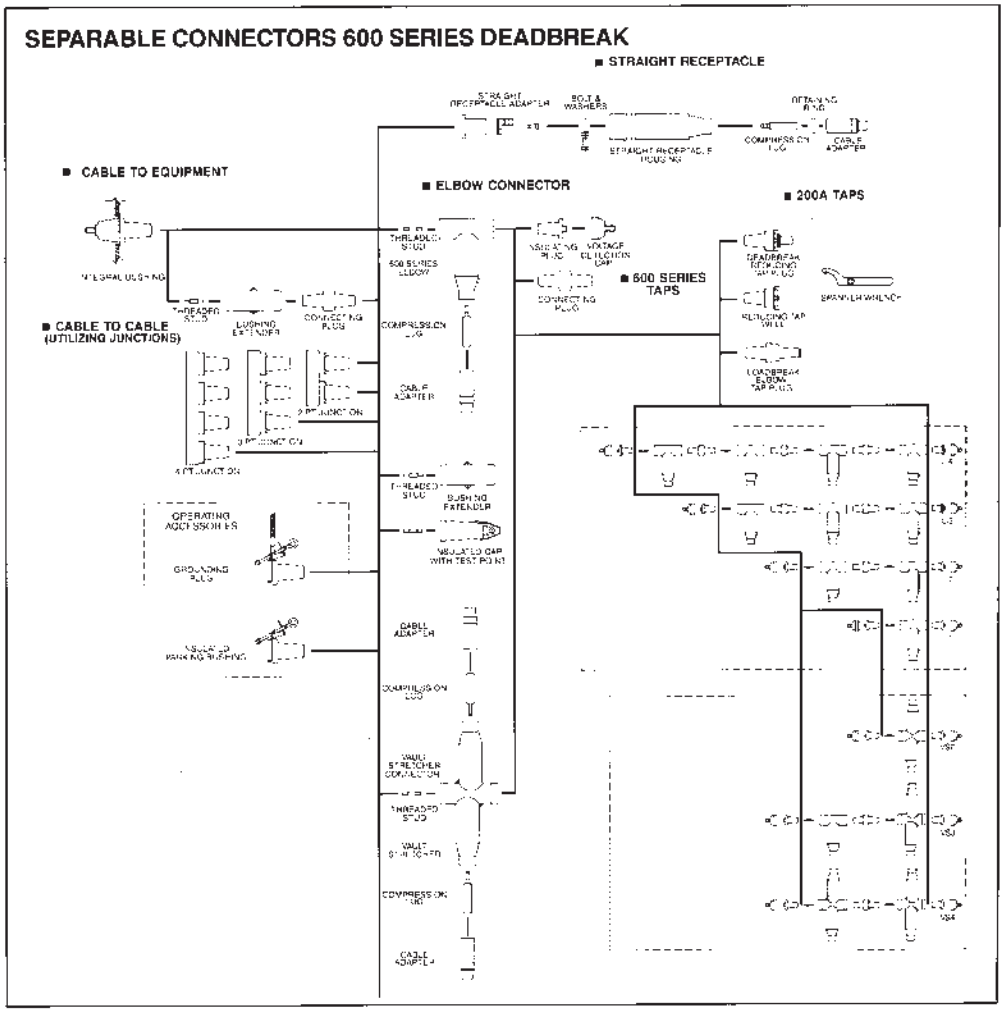


22kV 600 Series ANSI Profile

600 SERIES (ANSI) DEADBREAK

TABLE 1	15kV Class Ratings	25kV Class Ratings
- OPERATING VOLTAGE		
Maximum line to ground (See Application Info Note 1)	8.3kV	15.2kV
- BIL		
Impulse withstand 1.2x50 microsecond wave	95kV	125kV
- WITHSTAND VOLTAGE		
AC One Minute	34kV	40kV
DC Fifteen Minute	53kV	78kV
- CORONA EXTINCTION LEVEL		
@ 3pC Sensitivity	11kV	19kV
600 Series Products		
Continuous Current	600 and 900 AMP*	
Symmetrical Momentary Current	25kA sym, 10 cycle duration	

* Designed for 90oC maximum continuous operating temperature.



SEPARABLE CONNECTORS

600 SERIES (ANSI) DEADBREAK

655LR- W - X

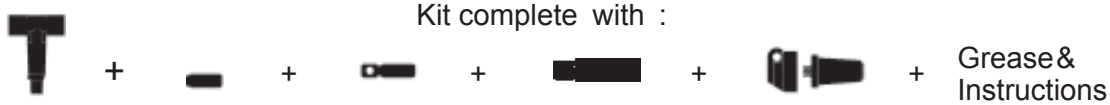
11kV , 22kV(K) ANSI / ANSI profile

Primary Use : Designed to connect cable to equipment (transformers, motors, switchgear) also connects cable to cable.

- Fully screened, fully submersible
- Accepts cable 35mm2 - 630mm2
- Mates with applicable ANSI interface

Cable size sensitive - refer to chart on page 59 for complete part number.

Kit complete with :



Elbow + Stud + Lug + Adapter + BIP + Grease & Instructions

655BCETP-W-X

11kV, 22kV(K)

Primary Use : Designed to connect cable to equipment (transformers, motors, switchgear) also connects cable to cable.

- Fully screened, fully submersible
- Accepts cable 35mm2 - 630mm2
- Mates with applicable ANSI interface

Cable size sensitive - refer to chart on page 59 for complete part number.

Kit complete with :

Elbow + Stud + Lug + Adapter + Grease & Instructions

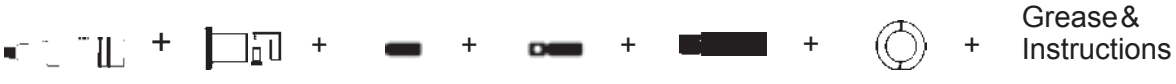
655SR-W-X

11kV, 22kV(K)

Primary Use : Straight equipment connections (transformers, motors, switchgear)

- Fully screened, fully submersible
- Accepts cable 35mm2 - 630mm2
- Mates with applicable ANSI interface

Cable size sensitive - refer to chart on page 59 for complete part number.



Housing + Profile Adapter + Stud + Lug + Adapter + Retaining Ring + Grease & Instructions

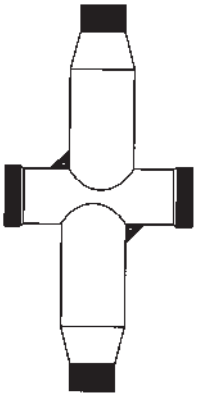
600 SERIES (ANSI) DEADBREAK

655VS-W-X

11kV , 22kV(K)

Primary Use : Multiple cable connection

- Connects to 600 Series equipment
- Requires 600 Series accessories to complete connection



Cable size sensitive - refer to chart on page 59 for complete part number.

Kit complete with :

Vault Stretcher +  Stud + Grease & Instructions

---

656CY-W-X

11kV , 22kV(K)

Primary Use : Used to join cables in a disconnectable 3 way installation .

- Suitable for small vaults and manholes due to its size
- Fully shielded, fully submersible
- Includes integral capacitive test point

Cable size sensitive - refer to chart on page 59 for complete part number.

Kit complete with :

BUS +  3X Housing +  3X Adapter + 3X Lug +  3X Retaining Ring +  3X Aluminium Bolt + Grease & Instructions

---

655BE

11kV , 22kV(K)

Primary Use : Provides an extension piece to allow cables to stand away from equipment.

- Is used in conjunction with a connecting plug
- Is a fully screened, watertight, moulded rubber part

Kit complete with :

 + Grease & Instructions

Bushing Extender

600 SERIES (ANSI) DEADBREAK

656DR

11kV , 22kV(K)

Primary Use : Insulated cap designed to insulate, shield and water seal 11/22kV 600 Series bushing interface.

- Has a capacitive test point which can be used to check if the system is energized.

Kit complete with :

Receptable + Stud + Grease & Instructions

650SOP

11kV , 22kV(K)

Primary Use : Is designed to support and deadend 600 Series connectors when removed from equipment.

- When assembled with mating part, the product assumes the same electrical rating.

Kit complete with :

Stand Off Plug + Grease & Instructions

650CP

11kV , 22kV(K)

Primary Use : For connecting 2 or more 600 Series connectors together.

- As a cable joint
- For multiple cable to equipment
- Is an epoxy insulated part with central screening
- For assembly, a 600SW or TSW-4550 spanner is required.

Kit complete with :

Connecting Plug + Grease & Instructions

600 SERIES (ANSI) DEADBREAK

650RTP

11kV, 22kV (K)

Primary Use: Provides a 200amp deadbreak interface from the 600amp product.

- Is an epoxy insulated part with central screening
- For assembly, a 600SW or TSW-4550 spanner is required

Kit complete with :

Reducing Tap Plug

+

Grease & Instructions

650RTW

11kV, 22kV (K)

Primary Use: The tap well permits 200amp tap off of 600 series connectors .

- The well will accept either 200amp loadbreak or deadbreak inserts.
- For assembly, a 600SW or TSW-4550 spanner is required

Kit complete with :

Reducing Tap Well

+

Grease& Instructions

650ETP

11kV, 22kV (K)

Primary Use: The elbow tap lug permits a 200amp tap off of a mating 600amp connector using loadbreak elbows.

- The tap plug is installed with a 600AT or 600ATM assembly tool.

Kit complete with :

Elbow Tap Plug

+

Grease & Instructions

600 SERIES (ANSI) DEADBREAK

655YDR

11kV, 22kV(K)

Primary Use : Designed to deadend, cap off any leg of the K656CY joint.

- Can be used as a permanent deadend or temporary deadend during maintenance.

Kit complete with :

Grounding Cap

\+

Bail

\+ Grease & Instructions

650YGDR

Primary Use : Designed to ground separable cable joint (bus bar side) during maintenance.

- The ground lead is 95mm2 with a length of 1500mm.

Grounding Cap

Kit complete with :

\+ Grease & Instructions

650GP

Primary Use : For grounding or earthing of a 600 series connector

- Supplied with 70mm2 x 750mm long grounding cable
- Mounts on 160PS parking stand

Kit complete with :

Grounding Cap

\+ Grease & Instructions

Ordering Instructions

To order the connector, use the tables below to substitute for W and X

1. From Table W : Select the symbol that corresponds with the range best suiting the core insulation diameter.
2. From Tablx X : According to your conductor size, select the lug according to connector model. This completes the part number.

(K) Denotes 22kV for the 655LR, 656SR, 655VS

Example : A 655LR-W-X to suite 185mm2, 22kV cable with an insulation diameter of 29.1mm :

Order a K655LR-K-0300

Table W - Cable Adapters

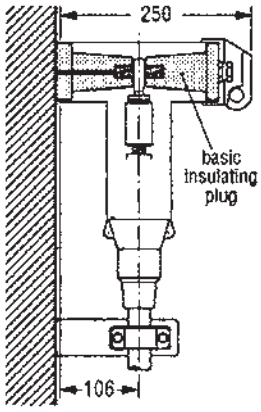
Part No.	Insulation Dia.		Symbol
	Min.	Max.	W
655LR	13.1	17.0	E
656CY	16.3	20.8	F
655SR	19.3	24.1	G
655VS	21.6	26.7	H
	24.9	30.0	J
	27.7	33.3	K
	30.0	37.2	L
	34.8	41.4	M
	38.5	45.2	N
	43.8	49.1	P

Table X - Lugs

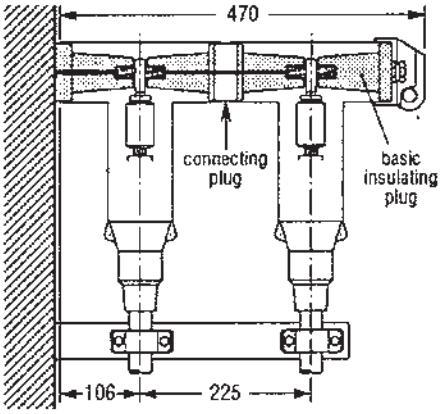
Conductor mm2	655LR / 656CY 655SR / 655BVS	755LR
35	0220	
50	0230	0230
70	0250	0250
95	0260	0260
120	0270	0270
150	0280	0280
185	0300	0300
240	0320	0320
300	0330	0330
400	0360	0360
500	0400	0400
630	0420	0420

600 SERIES (ANSI) DEADBREAK

On equipment

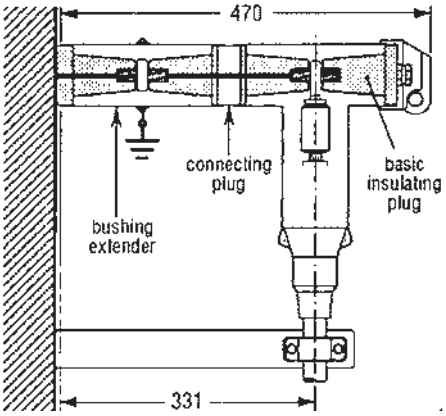


Single cable arrangement:
type 655LR or K655LR

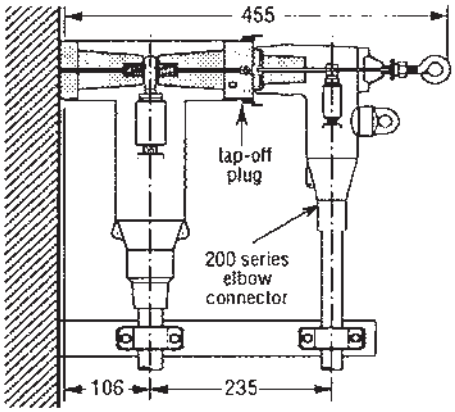


Dual cable arrangement:
type 655P2 or K655P2

On equipment

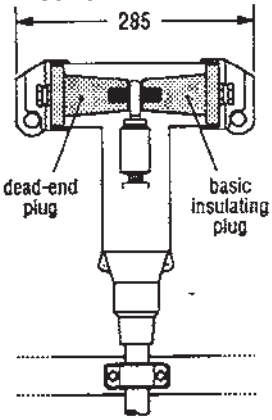


Connector standing away
from equipment

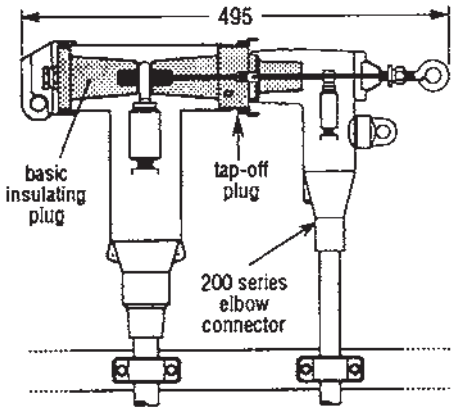


Single cable arrangement
with 200 series tap off

In network



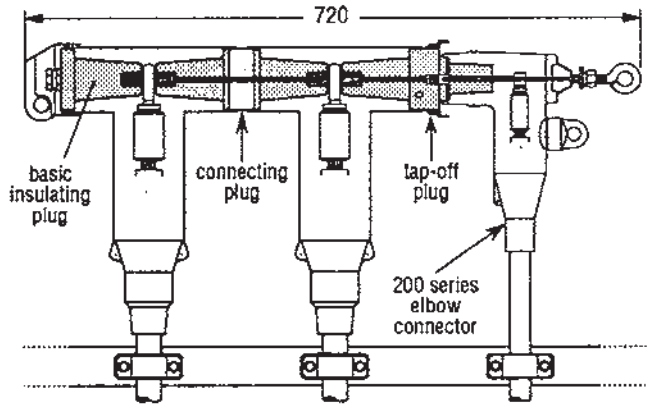
Dead - Ending
type 655L1 or K655L1



2-way connection with
600 / 200 series tap off

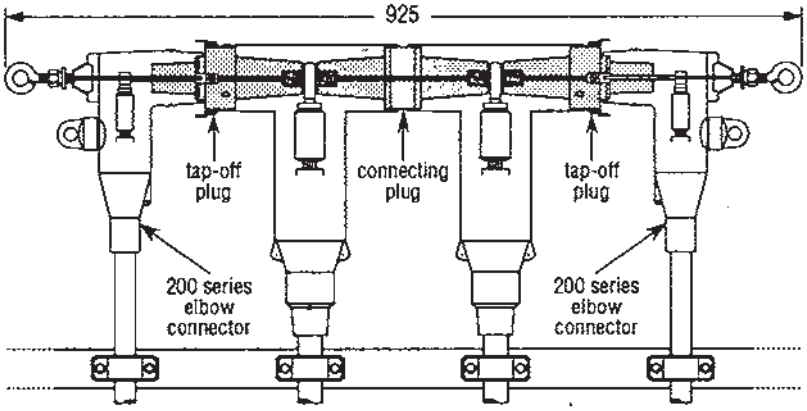
600 SERIES (ANSI) DEADBREAK

In network



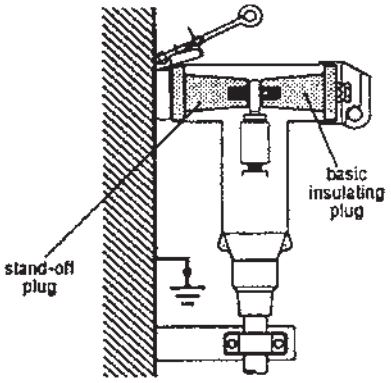
3-way connection with one 600/200 series tap off
(deadbreak / loadbreak)

In network

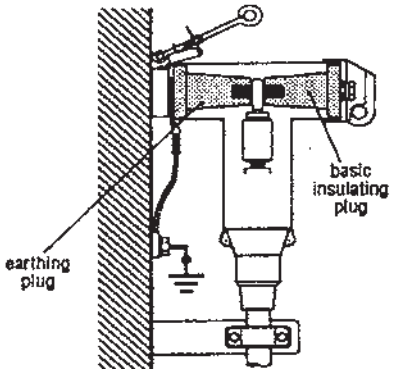


4-way connection with two 600/200 series tap offs
(deadbreak / loadbreak)

On cable

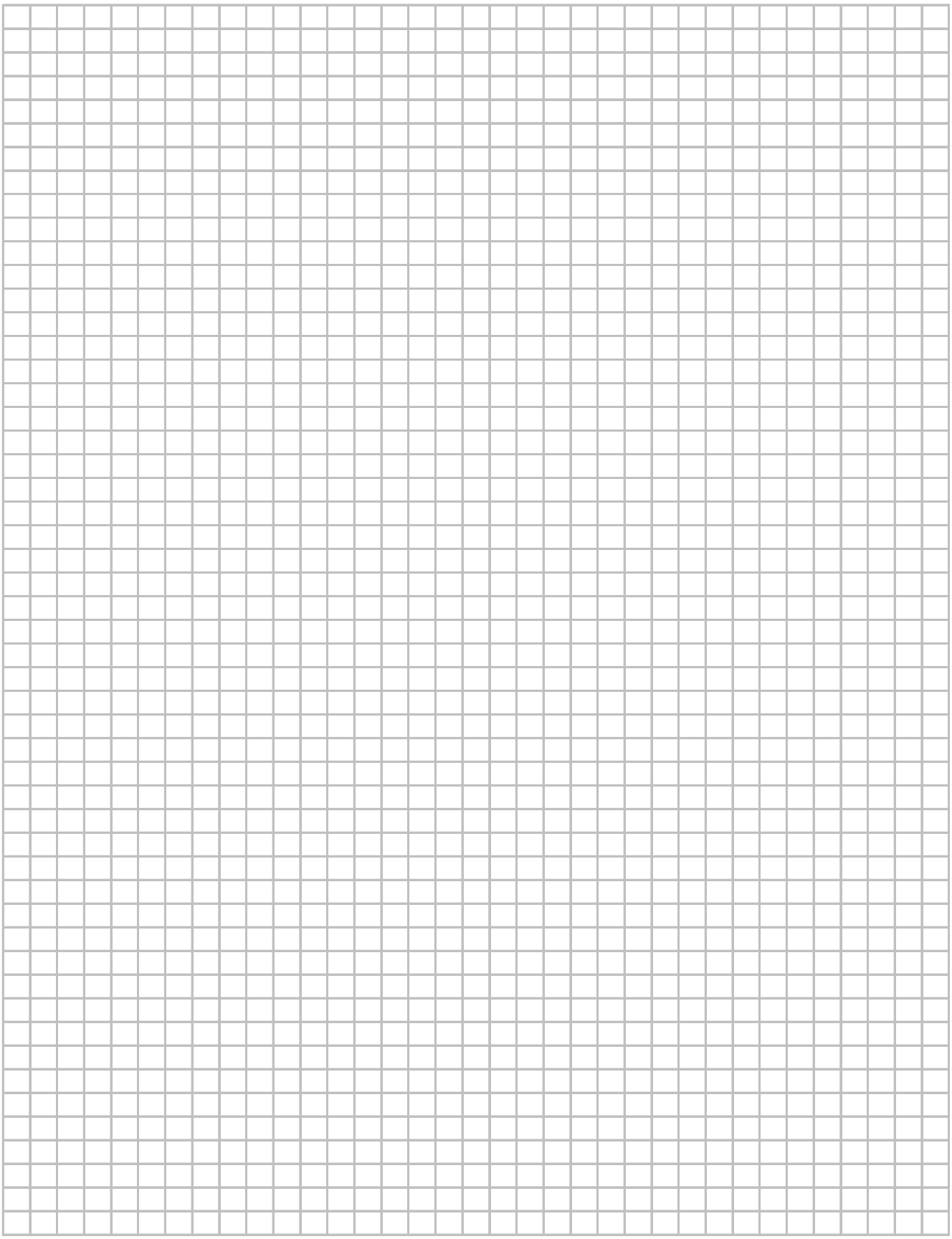


Connector on stand-off plug



Connector on earthing plug

Notes / Comments :



Notes / Comments :

SEPARABLE CONNECTORS

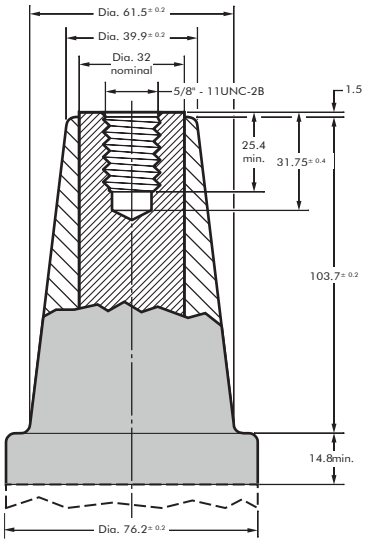
700 SERIES (ANSI) DEADBREAK

600 Series deadbreak elbows, straight receptacles, junctions, vault stretchers and accessories are used to connect equipment and cable on primary feeder and network circuits. Designs accommodate large conductors and feature bolted connections and deadfront modular construction for maximum reliability, performance and versatility.

DE-ENERGISED connectors can be quickly and easily connected or disconneted using standard hand tools and equipment in accordance with accepted operating practices. Optional accessories allow visible external separation, by-pass, isolation, dead-ending, grounding, and testing as well as adding taps, surge arresters and circuit protection.

Elastimold Separable Connectors and other cable accessory products have been designed and tested per applicable portions of IEEE, ANSI, NEMA and other industry standards including:

- IEEE 386 Standard for Separable Connectors
- IEEE 404 Standard for Cable Joints and Splices
- IEEE 48 Standard for Cable Terminations
- IEEE C62.11 Standard for Metal Oxide Surge Arrestors
- ANSI C37.41 Standard for Current Limiting Fuses
- IEEE 592 Standard for Exposed Semi-conducting Shields
- ANSI C119.4 Standard for Copper and Aluminium Conductor Connectors
- AEIC CS5 and CS6 Standards for XLP and EPR Insulated Cables

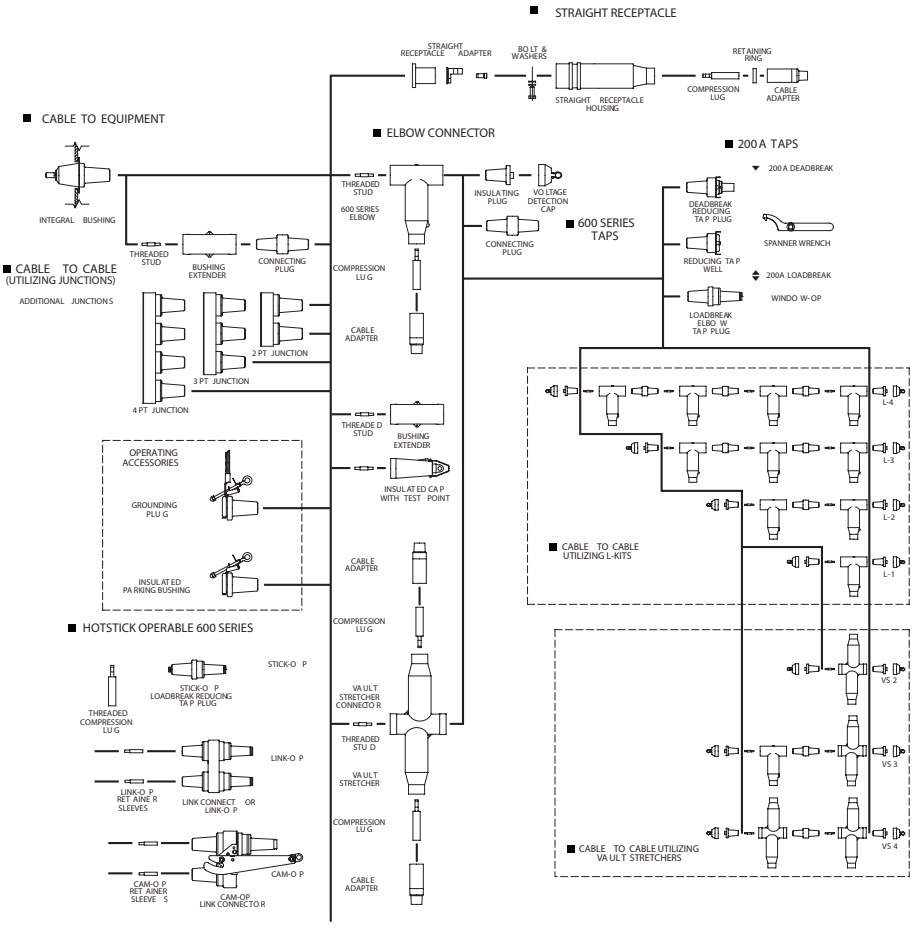


33kV 600 Series ANSI Profile

700 SERIES (ANSI) DEADBREAK

TABLE 1 **35kV Class Ratings**

- OPERATING VOLTAGE	
Maximum line to ground	21.1kV
(See Application Info Note 1)	
- BIL	
Impulse withstand 1.2x50 microsecond wave	150kV
- WITHSTAND VOLTAGE	
AC One Minute	50kV
DC Fifteen Minute	103kV
- CORONA EXTINCTION LEVEL	
@ 3pC Sensitivity	26kV
600 Series Product	
Continuous Current -	600 and 900 AMP*
Symmetrical Momentary Current	25kA sym, 10 cycle duration



SEPARABLE CONNECTORS

700 SERIES (ANSI) DEADBREAK

755LR-W-X

33kV

Primary Use: Designed to provide fully shielded, deadfront submersible cable connnections to high voltage apparatus bushings.

- Accommodates cable to max. 630mm2
- Accepts insulation dia. 19.3-53.9mm
- Mates with 750-S1

Cable size sensitive - refer to chart on page 68 for complete part number.

Kit complete with :

 +  +  +  +  + Grease & Instructions

Elbow Stud Lug Adapter BIP

755BE

33kV

Primary Use: Provides an extension piece to allow cables to stand away from equipment and to "Dead End" the 750-S1 Bushing.

- Is used in conjunction with connecting plug
- Is a fully screened, fully submersible, moulded rubber part
- Use with 750-BIP to achieve "Dead End".

Kit complete with :

 +  + Grease & Instructions

Bushing Extender Stud

750GP

33kV

Primary Use: For grounding or earthing of a 700 series connector.

- Supplied with 70mm2 x 750mm long grounding cable
- Mounts on 160PS parking stand

Kit complete with :

+ Grease & Instructions

Grounding Plug

700 SERIES (ANSI) DEADBREAK

750CP

33kV

Primary Use: For connecting 2 or more 700 Series connectors together.

- As a cable joint for multiple cable connections to equipment
- Is an epoxy insulated part with central screening

Kit complete with :

Connecting Plug

+

Grease & Instructions

750SOP

33kV

Primary Use: Is designed to support and dead-end 700 Series connectors when removed from equipment.

- When assembled with mating part, the product assumes the same electrical rating.

Kit complete with :

Stand Off Plug

+

Grease & Instructions

750ETP

33kV

Primary Use: Permits a 200amp tap off of a mating 700 Series connector, using loadbreak elbows.

- The 750ETP is installed with a 600AT or 600ATM assembly tool.

Kit complete with :

Elbow Tap Plug

+

Grease & Instructions

700 SERIES (ANSI) DEADBREAK

Ordering instructions

To order the connector, use the tables below to substitute for W and X.

1. From Table W : Select the symbol that corresponds with the range best suiting the core insulation diameter.
2. From Table Y : According to your conductor size, select the lug according to connector model. this completes the part number.

Example : A 755LR-W-X to suit 300mm2, 33kV cable with an insulation diameter of 38.00mm:

Order a 755LR-M-0300.

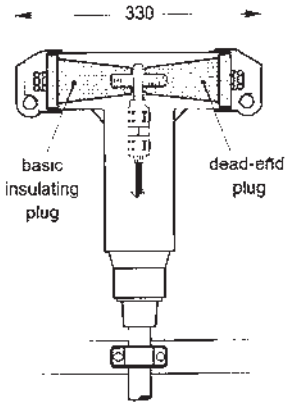
Table W - Cable Adapters

Part No.	Insulation Dia.		Symbol
	Min.	Max.	W
755LR	21.6	26.7	H
	24.9	30.0	J
	27.7	33.3	K
	30.0	37.2	L
	34.8	41.4	M
	38.5	45.2	N
	43.8	49.1	P

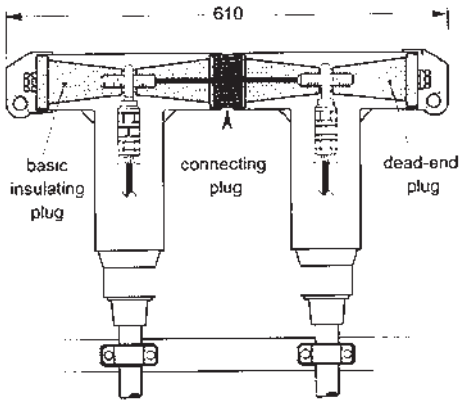
Table X - Lugs

Conductor mm2	655LR / 656CY 655SR / 655BVS	755LR
35	0220	
50	0230	0230
70	0250	0250
95	0260	0260
120	0270	0270
150	0280	0280
185	0300	0300
240	0320	0320
300	0330	0330
400	0360	0360
500	0400	0400
630	0420	0420

In network

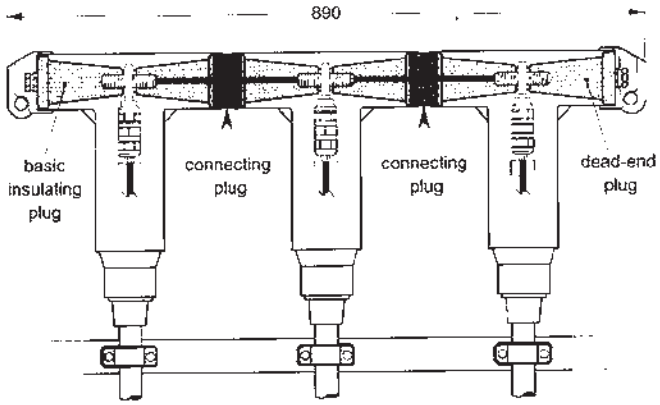


Dead-ending : type 755L1



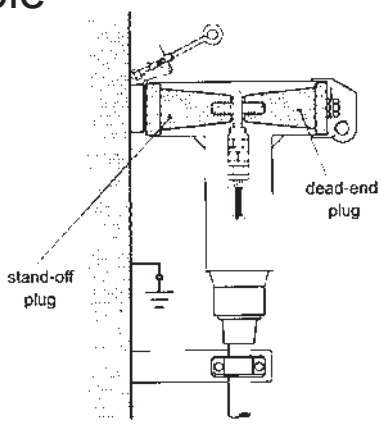
2-way connection 755L2

In network

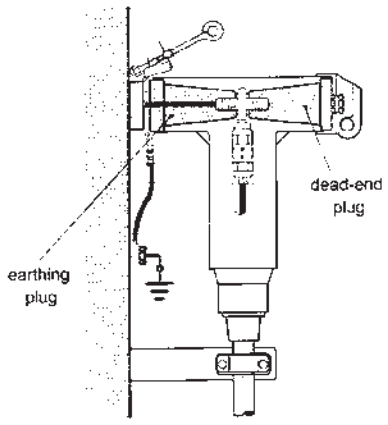


3-way connection 755L3

On cable



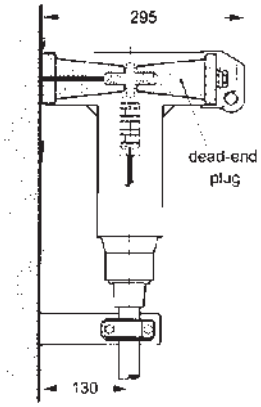
Connector on stand-off plug



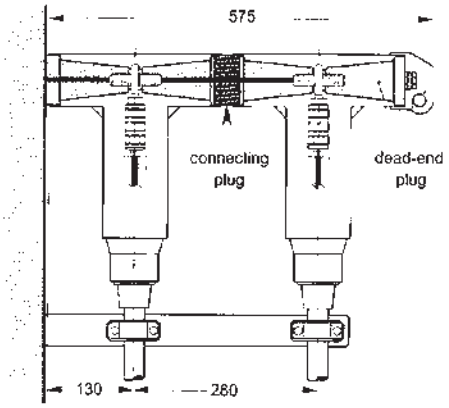
Connector on earthing plug

700 SERIES (ANSI) DEADBREAK

On equipment

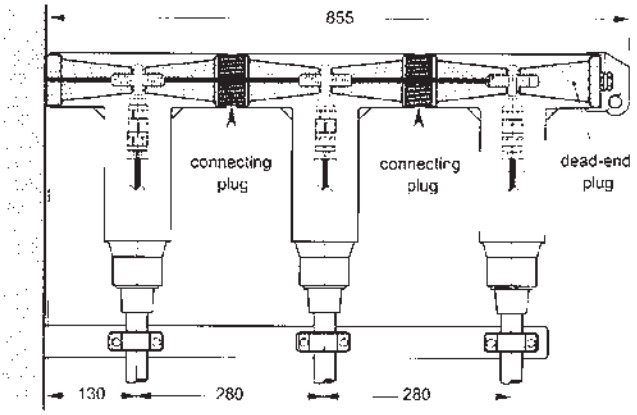


Single cable arrangement:
type 755LR



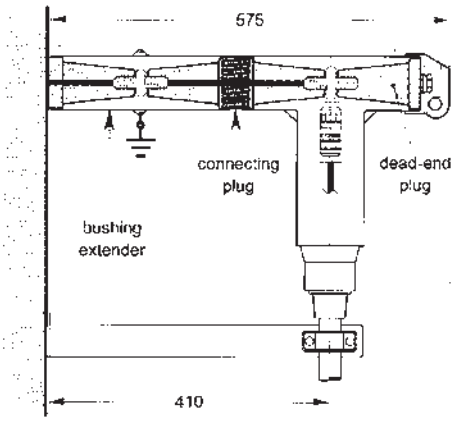
Dual cable arrangement:
type 755P2

On equipment



Triple cable arrangement:
type 755P3

On equipment



Connector standing away from equipment

SURGE ARRESTERS

200 AMP LOADBREAK INTERFACE

ELASTIMOLD Metal oxide varistor (MOV) surge arresters are fully shielded, fully-submersible and are equipped with IEEE 386 interfaces for convenient energised connection with other 200amp load break elbow components. Units are compact, allowing installation in existing cabinetry. For application ease, arresters are available in 3 styles; Elbow (ESA), Parking Stand (PSA) and Bushings (BSA). The PSA and BSA arresters permit direct connection, eliminating the need for additional accessories.

Elastimold arresters provide high voltage lightning and switching surge protection of transformers, cable, equipment and other components typically located on underground power distribution systems. Proper placement, voltage selection and co-ordination with riser pole arresters minimises damaging system surge voltages by improving protective margins.

Typical applications include installing an arrester at the end of a radial system or at both ends of an open point on a loop system. Additional arresters can be added at strategic locations upstream from the end point for optimum protection. Request Form 2068 (Surge Protection Options For Underground Distribution) and Form 2069 (Arrester Applications - Underground Electrical Systems) for additional application and margin of protection information.

ELECTRICAL RATINGS & PROTECTIVE CHARACTERISTICS

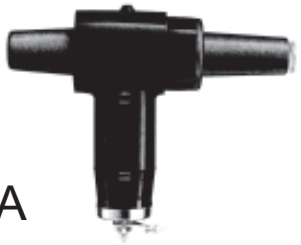
Performance :

High Current Short Duration - All MOV Arresters withstand two discharges of 40kA crest

Low current Long Duration - All MOV Arresters withstand 20 surges of 75 amperes / 20000 microsecond duration

Duty Cycle Test - All MOV Arresters withstand 22 operations of 5kA crest 8 x 20 microsecond duration while energised at rated voltage for the initial 20 operations and at maximum continuous operating voltage (MCOV) for the final two operations.

Following each of the preceding tests, MOV Arresters demonstrate thermal recovery at MCOV.



BSA

PROTECTIVE CHARACTERISTICS

	MCOV (kVrms) Note 1	Duty Cycle Rating (kVrms)	Max. Discharge Voltage (kV crest) 8x20 microsecond current wave 1.5kA	3kA	5kA	10kA	20kA	FQW Protective Level (kV crest) Note 2
15kV CLASS	2.6	3	10.5	11.0	11.5	13.0	14.5	13.0
	5.1	6	20.5	21.5	23.0	25.5	30.0	25.5
	8.4	10	30.5	32.5	34.5	38.5	43.5	38.5
	10.2	12	40.0	42.5	45.0	50.0	56.5	50.0
	12.7	15	48.0	51.0	54.0	60.0	68.0	60.0
	15.3	18	56.5	60.0	64.0	71.0	80.5	71.0
25kV CLASS	8.4	10	30.5	32.5	34.5	38.5	43.5	38.5
	10.2	12	40.0	42.5	45.0	50.0	56.5	50.0
	12.7	15	48.0	51.0	54.0	60.0	68.0	60.0
	15.3	18	56.5	60.0	64.0	71.0	80.5	71.0
	17.0	21	65.5	69.5	74.0	82.5	93.0	82.5
35kV CLASS	19.5	24	78.5	83.5	89.0	99.0	112.0	99.0
	22.0	27	87.5	93.0	99.0	110.0	124.5	110.0
	24.4	30	95.5	101.5	108.0	120.0	136.0	120.0

ESA

PSA

Notes :

1. MCOV = Maximum Continuous Operating Voltage
2. The front of wave (FOW) protective level is the maximum discharge for a 5kA impulse current wave producing a voltage wave cresting in 0.5 microseconds

200 AMP LOADBREAK INTERFACE

Selection chart - Loadbreak

Description	Voltage class	Elastimold Part No.	MCOV kV rms
BSA Bushing Surge Arrestor (Includes assembly tool)	15kV	167BSA-3	2.55
	15kV	167BSA-6	5.10
	15kV	167BSA-10	8.40
	15kV	167BSA-12	10.20
	15kV	167BSA-15	12.70
	15kV	167BSA-18	15.30
See Notes N1, 2, 3, 4	25kV	273BSA-10	8.40
	25kV	273BSA-12	10.20
	25kV	273BSA-15	12.70
	25kV	273BSA-18	15.30
	25kV	273BSA-21	17.00
	35kV	375BSA-24	19.50
	35kV	375BSA-27	22.00
	35kV	375BSA-30	24.40
ESA Elbow Surge Arrestor	15kV	167ESA-3	2.55
	15kV	167ESA-6	5.10
	15kV	167ESA-10	8.40
	15kV	167ESA-12	10.20
	15kV	167ESA-15	12.70
	15kV	167ESA-18	15.30
See Notes N2, 3, 5	25kV	273ESA-10	8.40
	25kV	273ESA-12	10.20
	25kV	273ESA-15	12.70
	25kV	273ESA-18	15.30
	25kV	273ESA-21	17.00
	35kV	375ESA-24	19.50
	35kV	375ESA-27	22.00
	35kV	375ESA-30	24.40
PSA Parking Stand Arrestor	15kV	167PSA-3	2.55
	15kV	167PSA-6	5.10
	15kV	167PSA-10	8.40
	15kV	167PSA-12	10.20
	15kV	167PSA-15	12.70
	15kV	167PSA-18	15.30
See Notes N1, 2, 3	25kV	273PSA-10	8.40
	25kV	273PSA-12	10.20
	25kV	273PSA-15	12.70
	25kV	273PSA-18	15.30
	25kV	273PSA-21	17.00
	35kV	375PSA-24	19.50
	35kV	375PSA-27	22.00
	35kV	375PSA-30	24.40

N1 Elastimold PSA and BSA arresters are equipped with fully rated 200A switching and fault close loadbreak bushing.

N2 Elastimold arresters use high strength silver epoxy bonded MOV blocks and shunted spring connections for the best circuit connection.

N3 A 36inch #4 AWG ground lead provided with each unit.

N4 BSA installed by turning internal hex bolt (accessed through the 200 AMP bushing interface) with 5/16" hex wrench supplied with each unit.

Arrester application table

	System Line-to-Line Voltage kV		MCOV (Max. Continuous Operating Voltage) kV rms	
	Nominal	Max.	Solidly Grounded Neutral Circuits	3-Wire Ungrounded Circuits
15kV Class	2.40	2.54	2.55	2.55
	4.16	4.40	2.55	5.10
	4.80	5.08	5.10	5.10
	6.90	7.26	5.10	8.40
	8.32	8.80	5.10	8.40
	12.47	13.20	8.40	15.30
	13.20	13.97	8.40	15.30
	13.80	14.50	8.40*	15.30
	13.80	14.50	10.20	15.30
25kV Class	6.90	7.26	5.10	8.40
	8.32	8.80	5.10	8.40
	12.47	13.20	8.40	15.30
	13.20	13.97	8.40	15.30
	13.80	14.50	8.40*	15.30
	13.80	14.50	10.20	15.30
	20.78	22.00	12.70	-
	20.78	22.00	15.30*	-
	23.00	24.34	15.30	-
	24.94	26.40	15.30	-
	24.94	26.40	17.00*	-
	28.00	29.80	17.00	-
35kV Class	23.00	24.34	-	22.00
	34.50	36.51	22.00*	-
	34.50	36.51	24.40	-

* Preferred arrester MCOV for this system voltage

Selection Chart - Deadbreak

Description	Voltage Class	Elastimold Part No.	MCOV kV rms
ESA Elbow Surge Arrestor	15kV	156ESA-3	2.55
	15kV	156ESA-6	5.10
	15kV	156ESA-10	8.40
	15kV	156ESA-12	10.20
	15kV	156ESA-15	12.70
	15kV	156ESA-18	15.30
See Notes N2, 3	25kV	156ESA-10	8.40
	25kV	156ESA-12	10.20
	25kV	156ESA-15	12.70
	25kV	156ESA-18	15.30
	25kV	156ESA-21	17.00

SURGE ARRESTERS

200 SERIES DEADBREAK

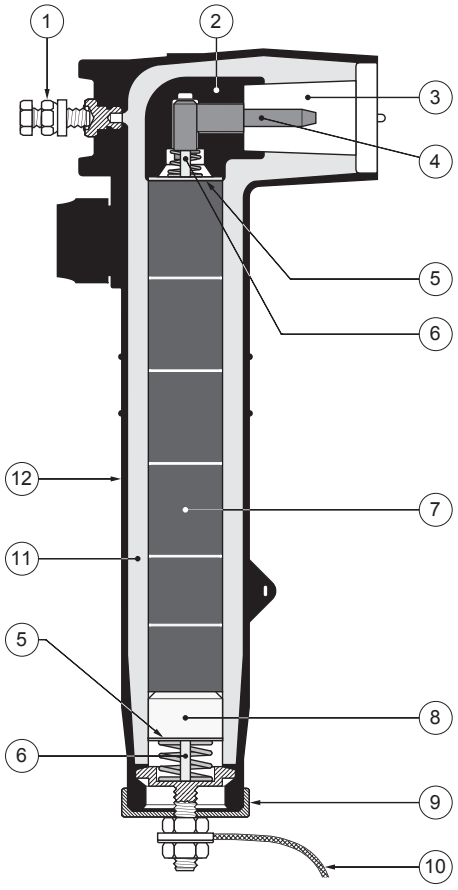
156SA
Up to 24kV-5kA

Technical characteristics

- This surge arester is a metal oxide varistor surge arrester in an elbow configuration.
- Each arrester is tested for AC withstand and partial discharge prior to leaving the factory.

Application

Surge arrester designed to protect 12 and 24kV class components, including transformers, equipment, cable and accessories from high voltage surges resulting from lightning or switching.



Design

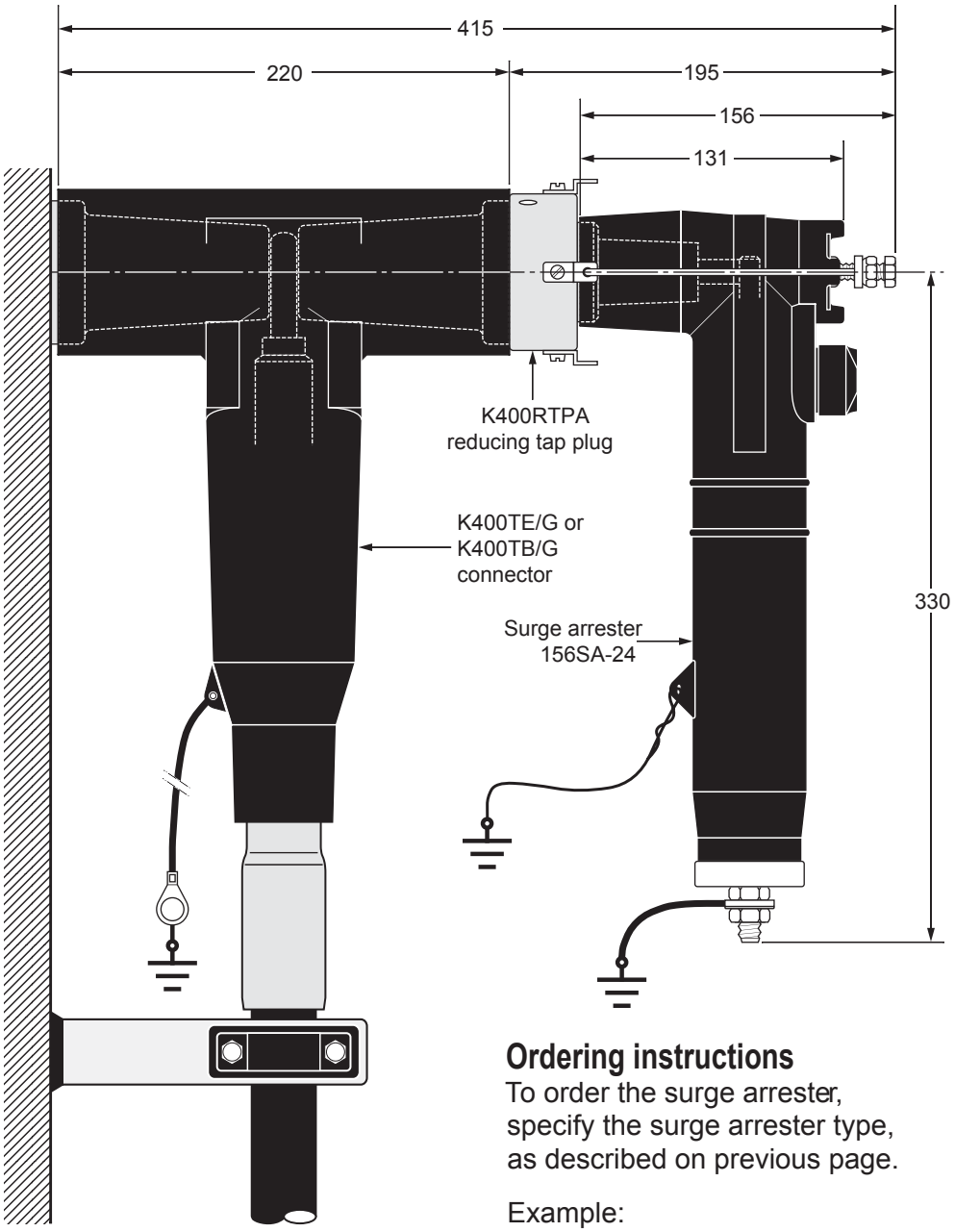
Surge arrester comprising :

1. Bail restraint.
2. Conductive EPDM insert.
3. Type A - 250 A interface as described by CENELEC EN 50180 and 50181.
4. Pin contact.
5. Contact disc.
6. Copper shunt.
7. Metal oxide valve elements.
8. Aluminium spacer.
9. Steel cap.
10. Earth connection.
11. Insulating EPDM layer moulded between the insert and the jacket.
12. Conductive EPDM jacket.

Surge arrester type	Nominal discharge current In (kA)	Rated voltage Ur (kV)	Max. continuous operating voltage Uc (kV)	Steep current residual voltage @ 5 kA [1/20 µs] (kV)	Lightning current residual voltage @ 5 kA [8/20 µs] (kV)	High current impulse withstand (kA)
156SA-12	5	15	12.5	62.5	54.5	40
156SA-15	5	19	15.5	77.0	69.0	40
156SA-18	5	22	18.0	87.0	79.0	40
156SA-21	5	26	21.0	101.5	93.5	40
156SA-24	5	30	24.5	116.5	108.5	40

156SA
Up to 24kV-5kA

Typical application and dimensions



Ordering instructions

To order the surge arrester, specify the surge arrester type, as described on previous page.

Example:
For a maximum continuous operating voltage (rms) of 21 kV, order a 156SA-21 surge arrester.

SURGE ARRESTERS

400 SERIES DIN BOLTED

300SA
Up to 24kV-10kA
Mates with 430TB
Class 1

Technical characteristics

- This surge arrester is a metal oxide varistor surge arrester in an elbow configuration.
- Each arrester is tested for AC withstand, partial discharge and critical voltage prior to leaving the factory.

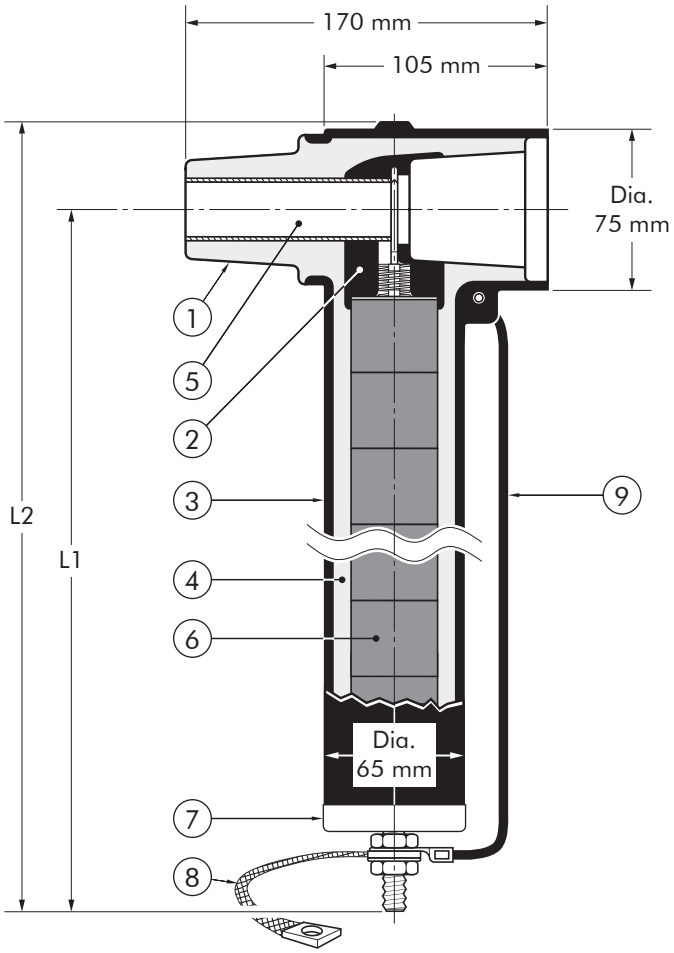
Application

Surge arrester designed to protect 12 and 24kV class components, including transformers, equipment, cable and accessories from high voltage surges resulting from lightning or switching.
Designed to be used with the separable tee connector 430TB-630A.

Design

Surge arrester comprising :

1. Interface designed to fit the tee connector 430TB-630A.
2. Conducting EPDM insert.
3. Conducting EPDM jacket.
4. Insulating EPDM layer moulded between the insert and the jacket.
5. Receptacle for contact rod.
6. Metal oxide valve elements.
7. Steel cap.
8. Earth connection.
9. Earth lead.



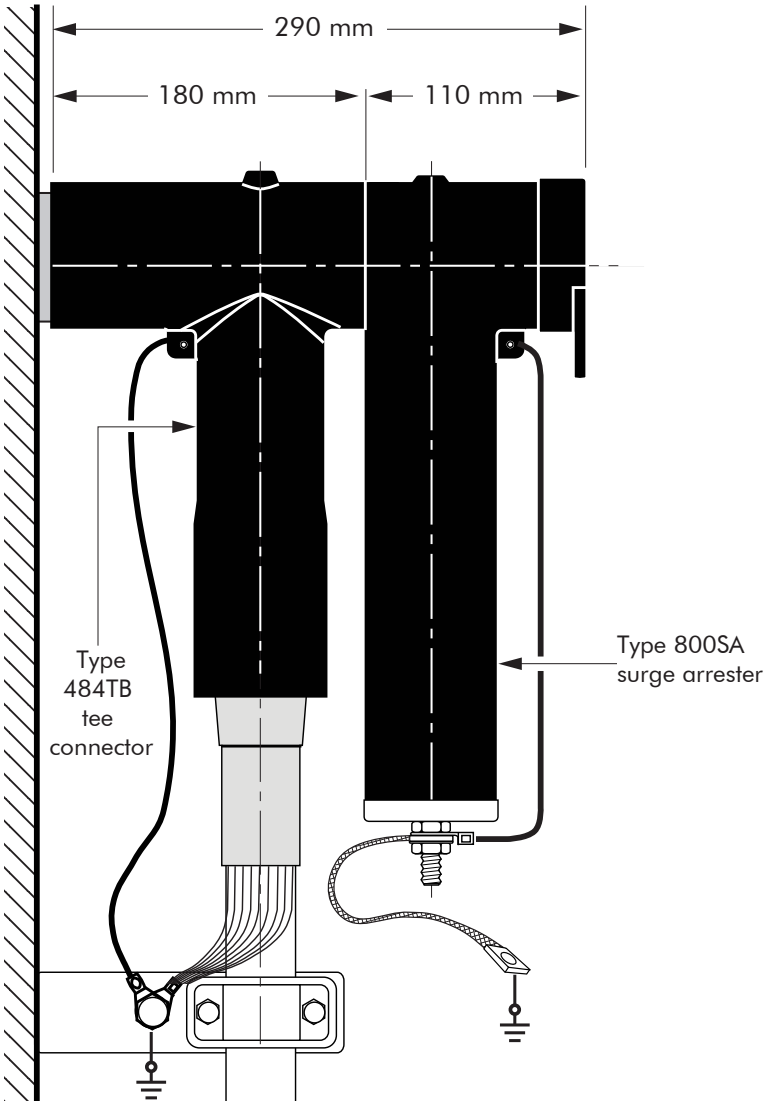
Technical data

Surge arrester type	Steep current residual voltage @ 10 kA [1/20 µs] (kV)	Lightning current residual voltage [8/20 µs] (kV)			Switching impulse residual voltage [36/90 µs] (kV)		High current impulse withstand (kA)
		@ 5 kA	@ 10 kA	@ 20 kA	@ 125 A	@ 500 A	
300SA-10-15N	49.6	40.8	44.5	49.8	32.4	34.2	100
300SA-10-18N	59.6	49.0	53.4	59.8	38.8	41.0	100
300SA-10-22N	69.5	57.1	62.3	69.7	45.3	47.9	100
300SA-10-24N	79.4	65.3	71.2	79.7	51.8	54.7	100
300SA-10-30N	99.3	81.6	89.0	99.6	64.7	68.4	100

Surge arrester type	Nominal discharge current In (kA)	Rated voltage Ur (kV)	Max. continuous operating voltage Uc (kV)	Dimensions (mm)	
				L1	L2
300SA-10-15N	10	15	12.0	260	300
300SA-10-18N	10	18	14.4	260	300
300SA-10-22N	10	22	17.6	350	390
300SA-10-24N	10	24	19.2	350	390
300SA-10-30N	10	30	24.0	350	390

800SA
Up to 41.5kV - 20kA
Mates with 484TB/G

Typical application and dimensions



Ordering instructions

To order the surge arrester, specify the surge arrester type, as described in table below.

Example:
For a maximum continuous operating voltage (r.m.s.) of 24 kV and a nominal discharge current of 10 kA.
Order a 800SA-10-30N surge arrester.

Technical data

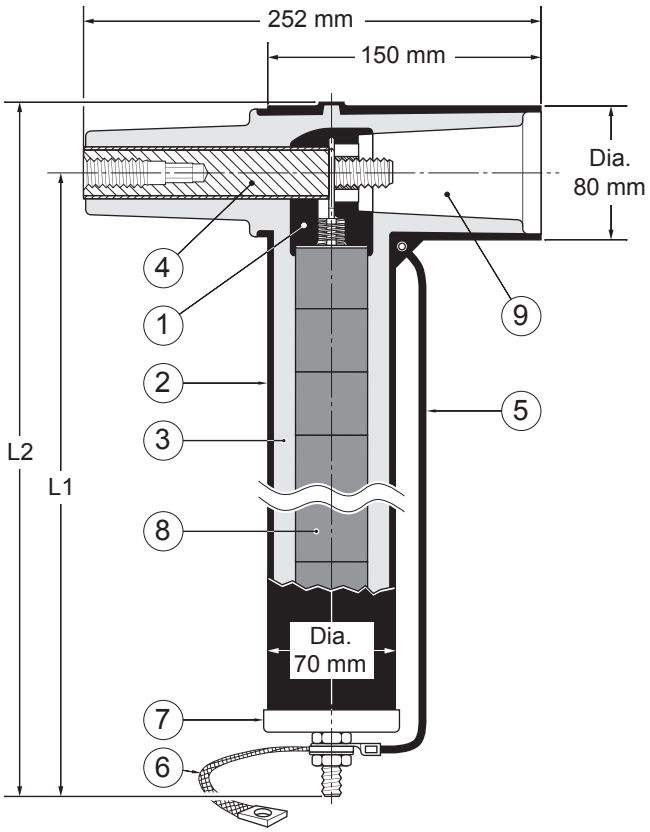
Surge arrester type	Steep current residual voltage @ 10 kA [1/20 μs] (kV)	Lightning current residual voltage [8/20 μs] (kV)			Switching impulse residual voltage [36/90 μs] (kV)		High current impulse withstand (kA)
		@ 5 kA	@ 10 kA	@ 20 kA	@ 125 A	@ 500 A	
800SA-10-15N	48.1	39.7	43.2	48.4	30.5	32.5	100
800SA-10-18N	58.1	48.0	52.2	58.5	36.8	39.2	100
800SA-10-22N	70.1	57.9	63.0	70.6	44.4	47.3	100
800SA-10-24N	77.0	63.6	69.2	77.6	48.8	52.0	100
800SA-10-30N	97.0	80.1	87.2	97.7	61.5	65.5	100
800SA-10-36N	115.9	95.7	104.2	116.8	73.5	78.3	100
800SA-10-45N	144.1	119.0	129.5	145.1	91.3	97.3	100

SURGE ARRESTERS

400 SERIES DIN BOLTED

400PB-5SA
Up to 24kV-5kA
Class 2

400PB-10SA
Up to 36kV-10kA



Technical characteristics

- This surge arrester is a metal oxide varistor surge arrester in an elbow configuration.
- Each arrester is tested for AC withstand and partial discharge prior to leaving the factory.

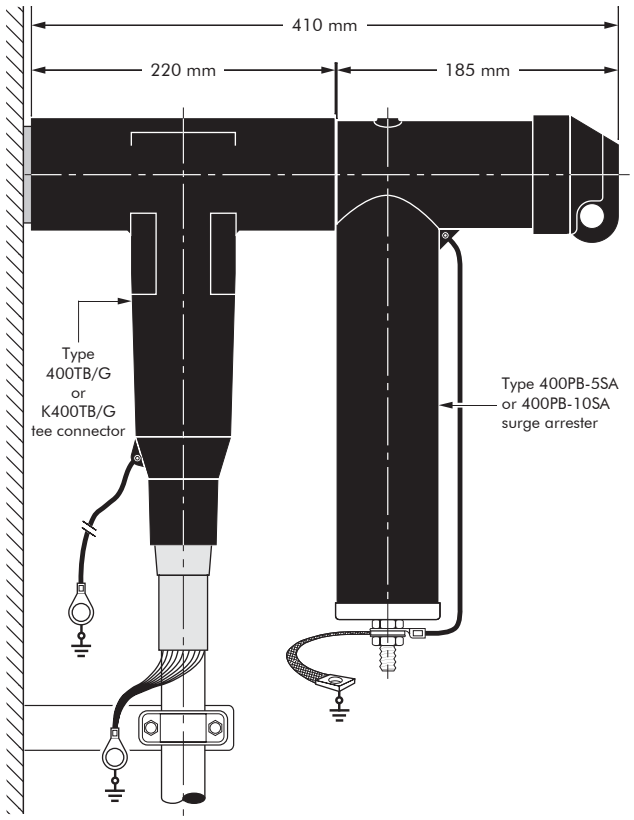
Application

Surge arrester designed to protect medium voltage components, including transformers, equipment, cable and accessories from high voltage surges resulting from lightning or switching.

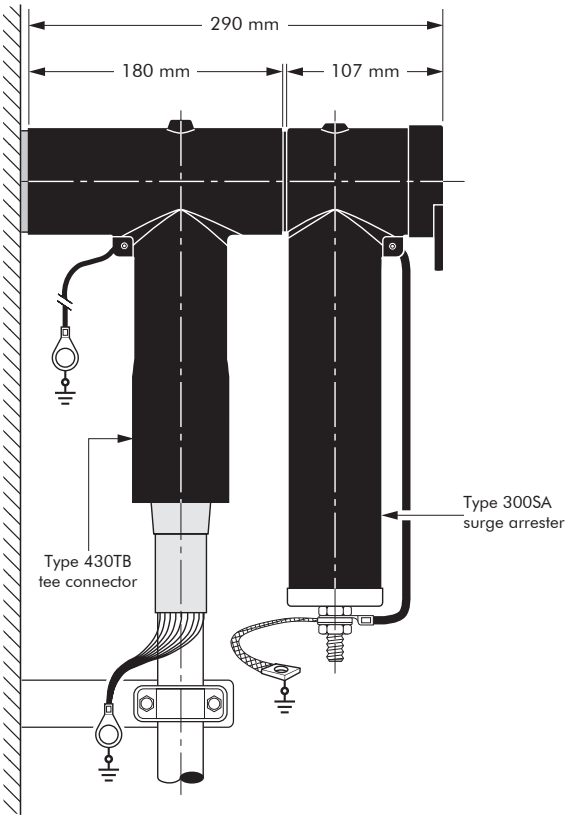
Surge arrester type	Nominal discharge current In (kA)	Rated voltage Ur (kV)	Max. continuous operating voltage Uc (kV)	Steep current residual voltage @ 5 kA [1/20 µs] (kV)	Lightning current residual voltage @ 5 kA [8/20 µs] (kV)	High current impulse withstand (kA)	Dimensions (mm)	
							L1	L2
400PB-5SA-15L	5	15	12.0	42.4	40.0	65	250	290
400PB-5SA-18L	5	18	14.4	52.7	48.0	65	250	290
400PB-5SA-22L	5	22	17.6	65.7	59.0	65	350	390
400PB-5SA-24L	5	24	19.2	70.0	64.0	65	350	390
400PB-5SA-30L	5	30	24.0	87.3	80.0	65	350	390
400PB-10SA-15N	10	15	12.0	46.2	40.2	100	250	290
400PB-10SA-18N	10	18	14.0	56.0	48.6	100	250	290
400PB-10SA-22N	10	22	17.6	68.9	59.8	100	350	390
400PB-10SA-24N	10	24	19.2	74.4	64.5	100	350	390
400PB-10SA-30N	10	30	24.0	92.7	80.4	100	350	390
400PB-10SA-36N	10	36	28.8	111.1	96.4	100	350	390
400PB-10SA-45N	10	45	36.0	138.2	120.0	100	450	490

400 SERIES DIN BOLTED

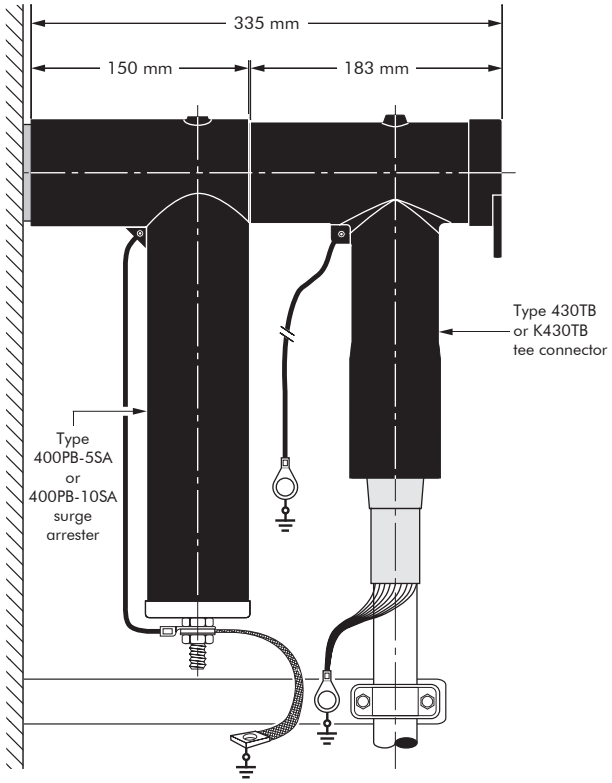
400TB/G+400PB-5SA



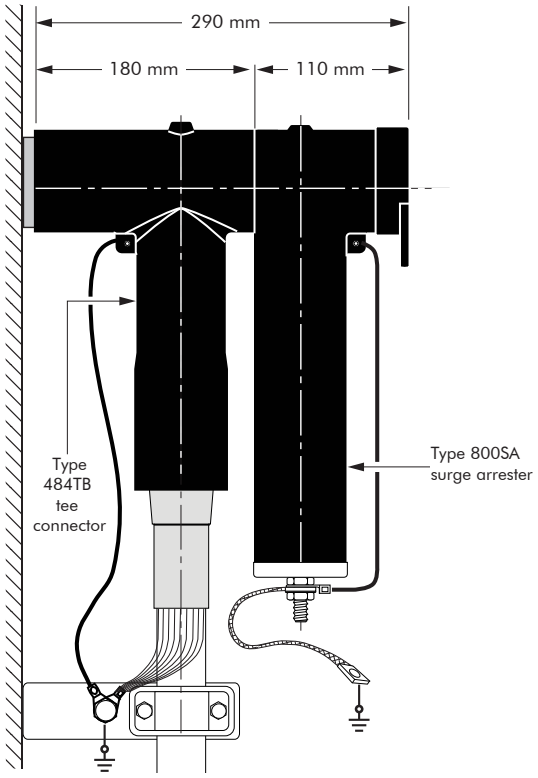
430TB/G+300SA



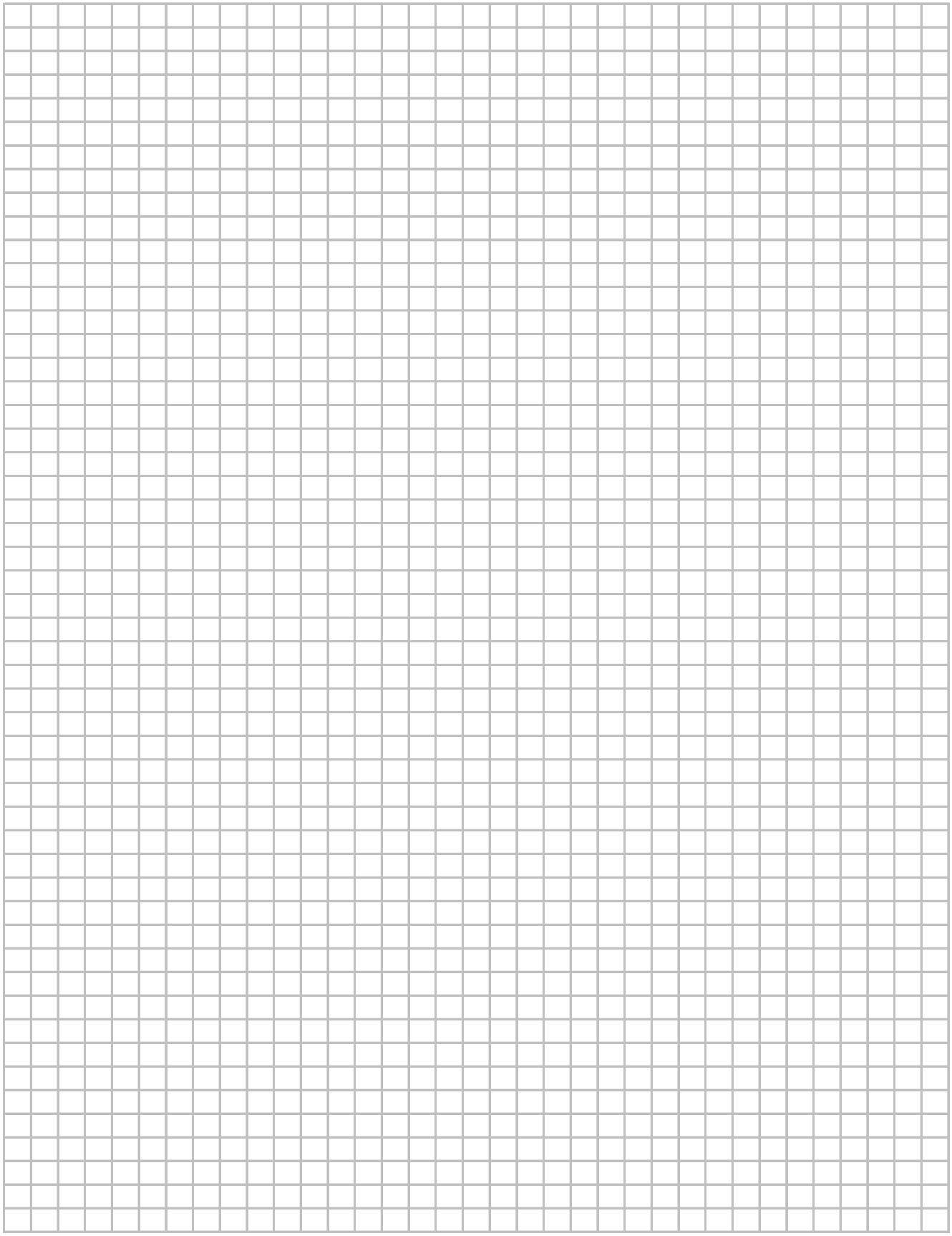
430TB/G+400PB-5SA



484TB/G+800SA



Notes / Comments :



MONOi

HEAT-SHRINKABLE MV INDOOR TERMINATIONS FOR SINGLE CORE POLYMERIC CABLES WITH Cu WIRE OR TAPE SCREEN
Up to 19/33 (36) kV

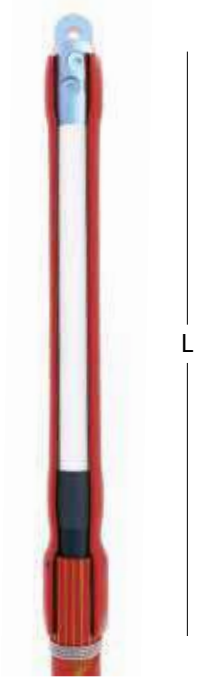
Application
The ''MONOi'' terminations are a single component solution, for single core polymeric cables.

Technical description
The ''MONOi'' indoor terminations are designed for max system voltages of 36 kV, for compact switchgears as well as for installations where space is limited.
Easy, quick to install, reducing installation time and errors.
The kit consists of a stress control mastic strip, a co extruded dual wall tube and red anti-tracking sealing mastic.
Add on kit for armored cables are available separately.

Type tested acc.:
Cenelec HD 629.1 S2
IEC 60502-4

The MONOi is also available as a 3 core kit

voltage Um kV	type	application range (mm^2)	L (mm)
12	3x12MONOi 1.95	25÷95	260
12	3x12MONOi 1.240	70÷240	260
12	3x12MONOi 1.400	185÷400	280
12	3x12MONOi 1.630	400÷630	310
24	3x24MONOi 1.95	25÷95	320
24	3x24MONOi 1.240	70÷240	320
24	3x24MONOi 1.400	185÷400	340
24	3x24MONOi 1.630	400÷630	370
36	3x36MONOi 1.95	25÷95	420
36	3x36MONOi 1.240	70÷240	420
36	3x36MONOi 1.400	185÷400	440
36	3x36MONOi 1.630	400÷630	460



MONOe

HEAT-SHRINKABLE MV OUTDOOR TERMINATIONS FOR SINGLE CORE POLYMERIC CABLES WITH Cu WIRE OR TAPE SCREEN
Up to 19/33 (36) kV

Application

The ''MONOe'' terminations are a single component solution, for single core polymeric cables.

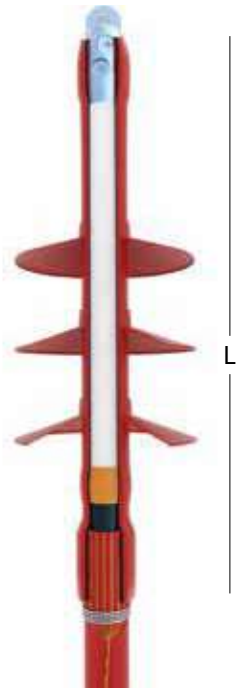
Technical description

The ''MONOe'' outdoor terminations are designed for max system voltages of 36 kV.
Easy, quick to install, reducing installation time and errors.
The kit consists of a stress control mastic strip, a co extruded dual wall tube, red anti-tracking sealing mastic and anti-tracking rain sheds.
Add on kit for armored cables are available separately.

Type tested acc.:
Cenelec HD 629.1 S2
IEC 60502-4

The MONOe is also available as a 3 core kit

voltage Um kV	type	application range (mm^2)	L (mm)
12	3x12MONOe 1.95	25÷95	390
12	3x12MONOe 1.240	70÷240	390
12	3x12MONOe 1.400	185÷400	410
12	3x12MONOe 1.630	400÷630	440
24	3x24MONOe 1.95	25÷95	410
24	3x24MONOe 1.240	70÷240	410
24	3x24MONOe 1.400	185÷400	440
24	3x24MONOe 1.630	400÷630	490
36	3x36MONOe 1.95	25÷95	470
36	3x36MONOe 1.240	70÷240	470
36	3x36MONOe 1.400	185÷400	500
36	3x36MONOe 1.630	400÷630	520



TTGI1

HEAT-SHRINKABLE SINGLE CORE XLPE INDOOR TERMINATION

Up to 36 kV

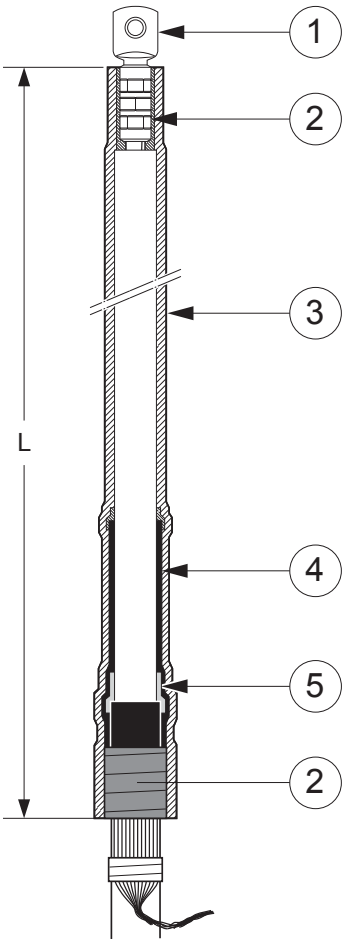
Application

Heat-shrinkable terminations for polymeric cables, widely used by power utilities and in industrial applications.
For use indoor in controlled environmental conditions.

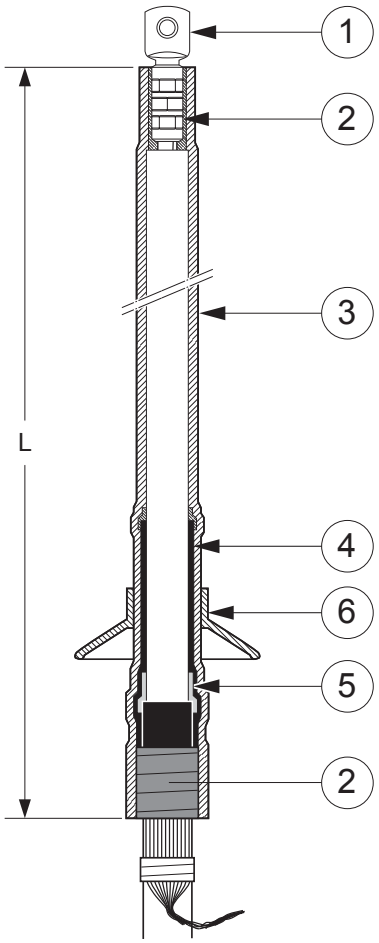
Design

1. Cable lug (supplied on request).
2. Water sealing mastic.
3. Anti-tracking heat-shrinkable tube.
4. Stress control heat-shrinkable tube.
5. Stress control mastic.
6. Anti-tracking shed (only for 36TTGI1)

17TTGI1 & 24TTGI1



36TTGI1



Specifications and standards

Meets the requirements of
CENELEC HD 6291
IEC 60502-

Termination type	Voltage Um (kV)	Length "L" (mm)	Conductor sizes (mm^2)	
			min.	max.
17TTGI1	12	480	25	630
24TTGI1	24	520	25	630
36TTGI1	36	620	35	630

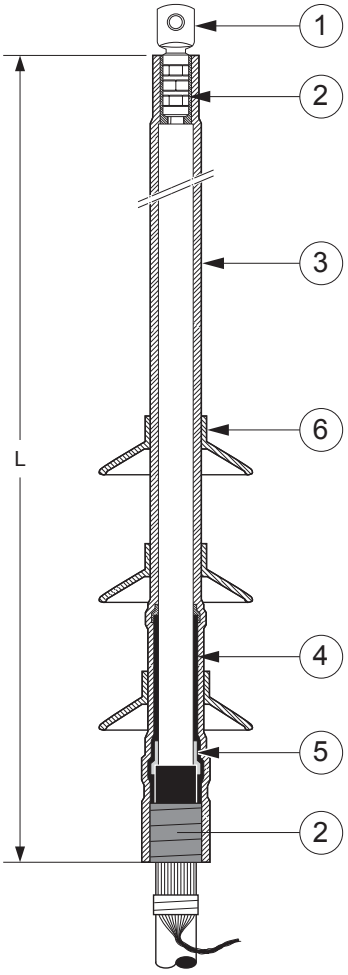
TTGE1

HEAT-SHRINKABLE SINGLE CORE XLPE OUTDOOR TERMINATION

Up to 36 kV

Application

Heat-shrinkable terminations for polymeric cables, widely used by power utilities and in industrial applications.
For use outdoors and exposed to prolonged sunshine and other weather conditions.



Design

1. Cable lug (supplied on request).
2. Water sealing mastic.
3. Anti-tracking heat-shrinkable tube.
4. Stress control heat-shrinkable tube.
5. Stress control mastic.
6. Anti-tracking sheds.

Specifications and standards

Meets the requirements of CENELEC HD 6291 and IEC 60502-4

Termination type	Voltage Um (kV)	Length "L" (mm)	Conductor sizes (mm^2)		Number of sheds	Creepage length (mm)
			min.	max.		
17TTGE1	12	480	25	630	2	600
24TTGE1	24	520	25	630	3	700
36TTGE1	36	620	35	630	3	800

TTGI3

HEAT-SHRINKABLE THREE CORE XLPE INDOOR TERMINATION

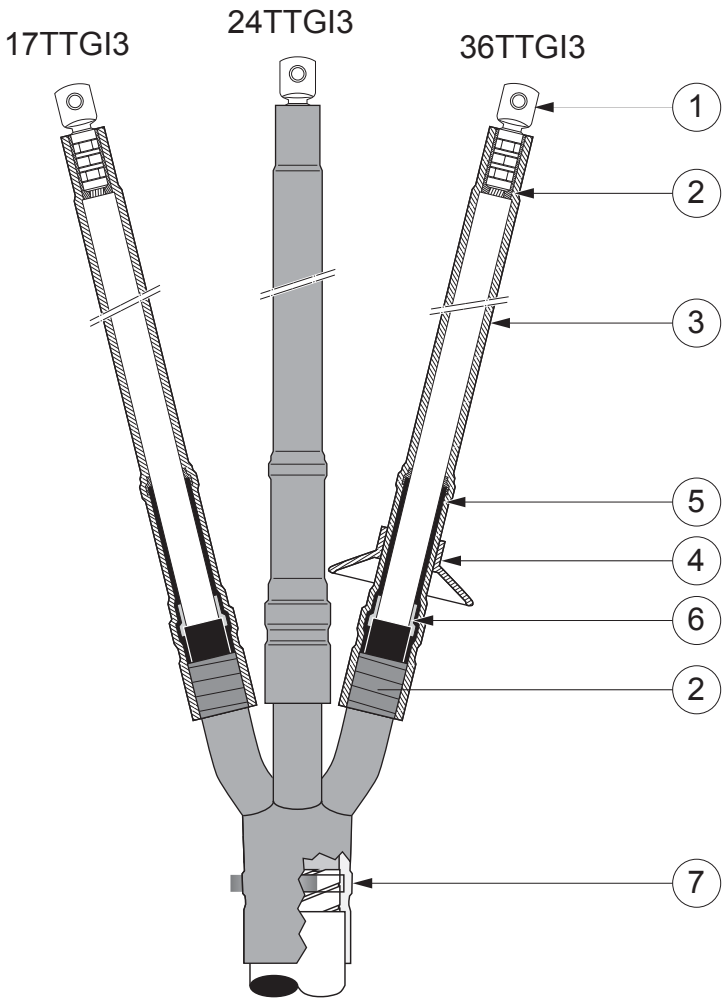
Up to 36 kV

Application

Heat-shrinkable terminations for polymeric cables, widely used by power utilities and in industrial applications.
For use indoor in controlled environmental conditions.

Design

1. Cable lug (supplied on request).
2. Water sealing mastic.
3. Anti-tracking heat-shrinkable tube.
4. Anti-tracking sheds (only for 36TTGI3).
5. Stress control heat-shrinkable tube.
6. Stress control mastic.
7. Break-out.



Specifications and standards

Meets the requirements of CENELEC HD 629.
IEC 60502-4

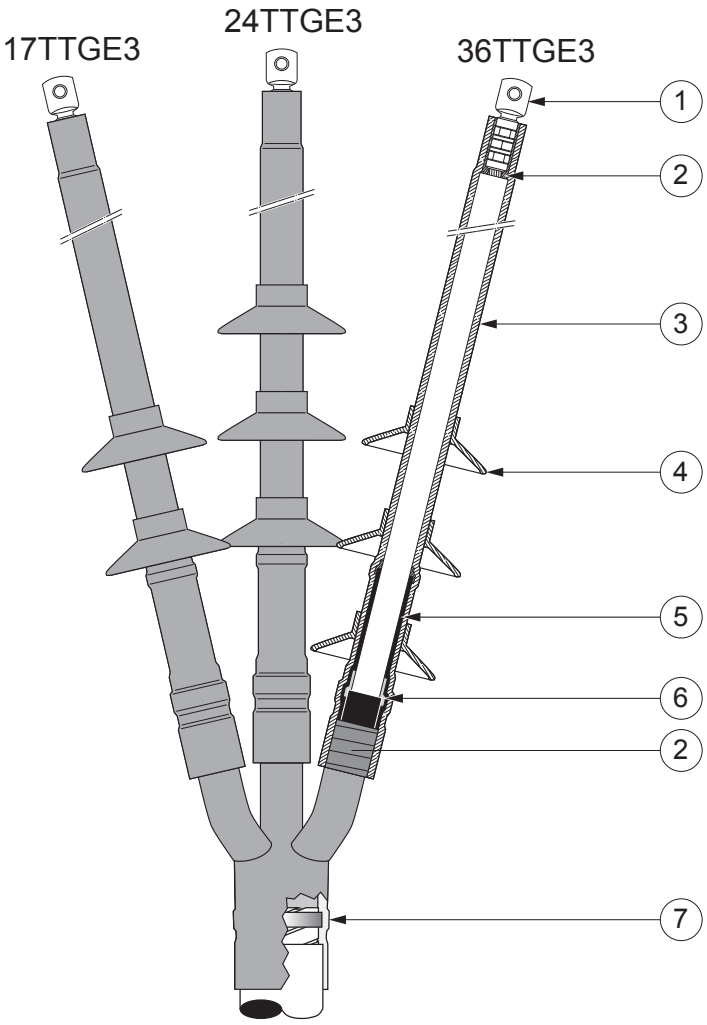
Termination type	Voltage Um (kV)	Conductor sizes (mm^2)	
		min.	max.
17TTGI3	12	25	630
24TTGI3	24	25	630
36TTGI3	36	35	400

TTGE3
HEAT-SHRINKABLE SINGLE CORE XLPE OUTDOOR TERMINATION

Up to 36 kV

Application

Heat-shrinkable terminations for polymeric cables, widely used by power utilities and in industrial applications.
For use outdoors and exposed to prolonged sunshine and other weather conditions.



Design

1. Cable lug (supplied on request).
2. Water sealing mastic.
3. Anti-tracking heat-shrinkable tube.
4. Anti-tracking sheds.
5. Stress control heat-shrinkable tube.
6. Stress control mastic.
7. Break-out.

Specifications and standards

Meets the requirements of CENELEC HD 6291 and IEC 60502-4

Termination type	Voltage Um (kV)	Conductor sizes (mm^2)		Number of sheds	Creepage length (mm)
		min.	max.		
17TTGE3	12	25	630	2	700
24TTGE3	24	25	630	3	860
36TTGE3	36	35	400	3	1380

ITK & OTK

11kV, 22kV

ITK - INDOOR termination rated to 22kV
OTK - OUTDOOR termination rated to 22kV

For XLPE cables only

Application:

- (ITK) A Class 1 termination i.e. located indoors in controlled environmental conditions and subject to light condensation.
- OTK) A Class III termination i.e. for use outdoor exposed to prolonged sunshine and other weather conditions.

Termination comprising:

- All kits supplied as a set of three terminations
- A bolted cable lug
- Sealing mastic
- Sheds which can be installed upwards or downwards
- A silicone tube with sheds
- A silicone tube
- Stress relief material
- A conductive EPDM ring
- Instructions

Part Number	Type	Voltage	Cable range
3xITK124-C25-95	Indoor	11kV	25-95mm2
3xITK124-C95-240	Indoor	11kV	95-240mm2
3xITK324-C300	Indoor	11kV	300mm2
3xITK324-C400-630	Indoor	11kV	400-630mm2
3xITK124-C35-95	Indoor	22kV	35-95mm2
3xITK124-C95-240	Indoor	22kV	95-240mm2
3xITK324-C240-400	Indoor	22kV	240-400mm2
3xITK324-C400-630	Indoor	22kV	400-630mm2
3xOTK212-C25-95	Outdoor	11kV	25-95mm2
3xOTK212-C95-240	Outdoor	11kV	95-240mm2
3xOTK324-C300	Outdoor	11kV	300mm2
3xOTK324-C400-630	Outdoor	11kV	400-630mm2
3xOTK224-C35-95	Outdoor	22kV	35-95mm2
3xOTK224-C95-240	Outdoor	22kV	95-240mm2
3xOTK324-C240-400	Outdoor	22kV	240-400mm2
3xOTK324-C400-630	Outdoor	22kV	400-630mm2

AIN or AFN

11kV, 22kV, 33kV, 42kV

AIN - INDOOR termination rated to 42kV
AFN - OUTDOOR termination rated to 42kV

For XLPE cables only

Advantages :

- Low shore A-hardness
- High resistance against Ozone, UV radiation, corona discharges.
- Flame & mineral oil resistant
- Halogen free
- Good resistance to water
- High flexibility

Termination comprising:

- All kits supplied as a set of three terminations
- A bolted cablelug
- Field control mastic, single piece termination, adhesive tape, special lubricant, wiper and Instruction

Part Number	Type	Voltage	Cable range
3xAIN10-1-C25-95	Indoor	11kV	25-95mm2, 11kV, XLPE
3xAIN10-2-C120-240	Indoor	11kV	120-240mm2, 11kV, XLPE
3xAIN10-3-C300-500	Indoor	11kV	300-500mm2, 11kV, XLPE
3xAIN20-1-C35-70	Indoor	22kV	35-70mm2, 22kV, XLPE
3xAIN20-2-C95-240	Indoor	22kV	95-240mm2, 22kV, XLPE
3xAIN20-3-C300-500	Indoor	22kV	300-500mm2, 22kV, XLPE
3xAIN20-4 (No lug)	Indoor	22kV	630-1000mm2, 22kV, XLPE
3xAIN30-1-C50-70	Indoor	33kV	50-70mm2, 33kV, XLPE
3xAIN30-2-C95-240	Indoor	33kV	95-240mm2, 33kV, XLPE
3xAIN30-3-C185-400	Indoor	33kV	185-400mm2, 33kV, XLPE
3xAIN30-4-C400-630	Indoor	33kV	400-630mm2, 33kV, XLPE
3xAFN10-1-C25-95	Outdoor	11kV	25-95mm2, 11kV, XLPE
3xAFN10-2-C120-240	Outdoor	11kV	120-240mm2, 11kV, XLPE
3xAFN10-3-C300-500	Outdoor	11kV	300-500mm2, 11kV, XLPE
3xAFN20-1-C35-70	Outdoor	22kV	35-70mm2, 22kV, XLPE
3xAFN20-2-C95-240	Outdoor	22kV	95-240mm2, 22kV, XLPE
3xAFN20-3-C300-500	Outdoor	22kV	300-500mm2, 22kV, XLPE
3xAFN20-4 (No lug)	Outdoor	22kV	630-1000mm2, 22kV, XLPE
3xAFN30-1-C50-70	Outdoor	33kV	50-70mm2, 33kV, XLPE
3xAFN30-2-C95-240	Outdoor	33kV	95-240mm2, 33kV, XLPE
3xAFN30-3-C185-400	Outdoor	33kV	185-400mm2, 33kV, XLPE

UNSCREENED, BOLTED CONNECTION

Unscreened - 22kV

UC424L-W-X

Primary Use : Separable connector designed to connect cable to equipment (transformers, switchgear, motors.)

- Mates with bushing: 400AR - 3/J, 400A-24B
- Accepts cable to 300mm2

Cable size sensitive - refer to chart on page 46 - 47 for complete part number.

Kit complete with :


Elbow

+


BIP

+


Clamp Screw

+


Adaptor

+


Lug

+

Grease & Instructions

Unscreened - 11kV

15TSNSS-W-X

Primary Use : Separable connector designed to connect cable to equipment (transformers, switchgear, motors.)

- Mates with bushing: 400AR - 3/J, 400A-24B
- Accepts cable to 300mm2
- Also allows straight connection

Non size sensitive housing - refer to chart on page 46 - 47 for complete part number.

Kit complete with :


Shroud

+


Clamp Screw

+


Lug

+

Grease & Instructions

EXTRA HIGH VOLTAGE - 132kV

With energy as the basis of its development, Nexans, the worldwide leader in the cable industry, offers an extensive range of cables and cabling systems. The Group is a global player in the infrastructure, industry and building markets. Nexans addresses a series of market segments from energy, transport and telecom networks, to shipbuilding, oil and gas, nuclear, automotive, electronics, aeronautics, and automation. With an industrial presence in more than 30 countries and commercial activities worldwide, Nexans employs 28,000 people and had sales in 2006 of 7.5 billion euros. Nexans is listed on the Paris stock exchange, compartment A of the Eurolist of Euronext.

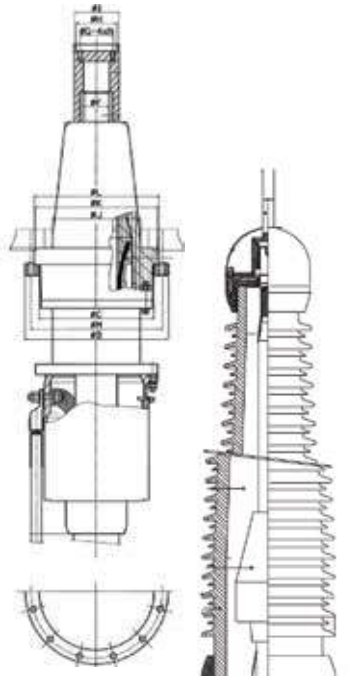
In the past, traditional oil-filled and GIS cable terminations have been used for voltages up to 420 kV.

A new generation of dry type GIS cable termination has recently been developed by Nexans Switzerland and is now available up to 170kV.

The new plug-in design is very compact, as well as fluid-free and makes the termination maintenance free and environmental friendly.

The advantages of the new dry design, compared to traditional oil-filled GIS sealing ends are:

- No internal filling with oil or gas needed; very compact
- Maintenance and supervision free
- Plug-in/plug-out possibilities
- Environmentally friendly
- High reliability thanks to prefabricated active parts
- Easy handling and possibility of installation of epoxy bushing, prior to testing of GIS



DTF 1

Assembly procedure: The cable preparation, the removal of the different cable layers, the processing of the semi-conductive layer and cable insulation is very similar to the method used during the installation of any other cable termination. This dry-type GIS termination (which corresponds to IEC recommendation 60859) has passed the type test according to IEC 60840 for the 170kV level. Users now have a design which gives them maximum installation comfort and security, for the connection of solid type HV cables to GIS. The fact that the new design is very compact, maintenance and supervision free and allows the connection of cables with conductor cross sections 2500 mm2, makes the new concept attractive compared to traditional oil-filled sealing-end types.

SOA 1

GTS1

HEAT-SHRINKABLE SINGLE CORE XLPE STRAIGHT JOINT

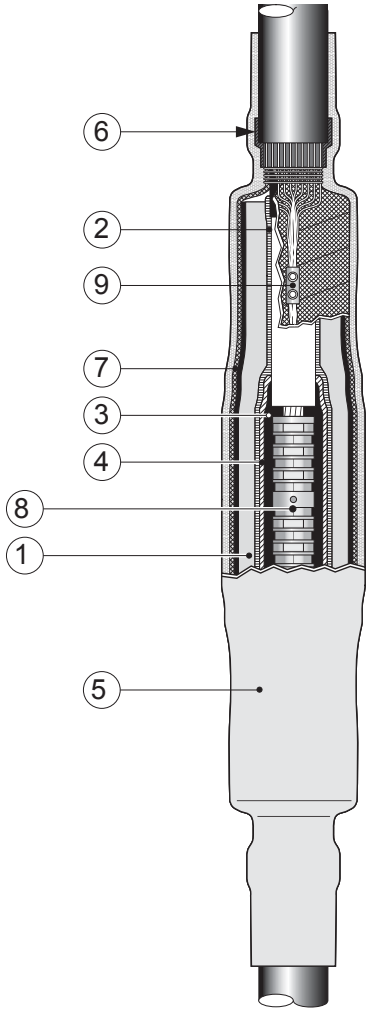
Up to 36 kV

Application

For jointing polymeric cable to be laid in air or direct buried. The product is fully screened and fully submersible.

Design

1. Dual wall tube type GT25.
2. Stress control tube GT1
3. Stress control mastic MN AC.
4. Non-tracking tube GT2 (only for 36 GTS1)
5. Overall protection tube GT4
6. Sealing mastic NGA F.
7. Screen continuity (copper mesh).
8. Conductor connector (supplied on request).
9. Ferrule for screen wires.



Specifications and Standards

Meets the requirements of CENELEC HD 629.1 and IEC 60502-4

Straight Joint type	Voltage Um (kV)	Length "L"	Conductor sizes (mm^2)	
			min.	max.
17GTS1	12	750	25	630
24GTS1	24	750	25	630
36GTS1	36	750 - 1000	35	630

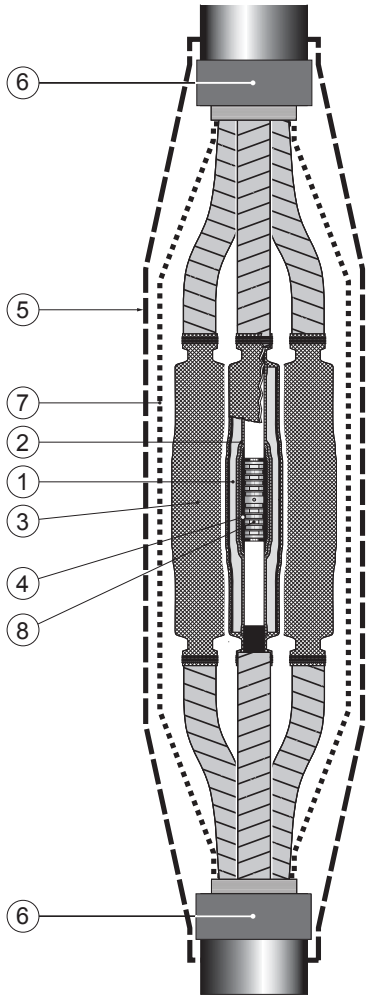
GTS3

HEAT-SHRINKABLE THREE CORE XLPE STRAIGHT JOINT

Up to 36 kV

Application

For jointing three core polymeric cable to be directly buried. The product is fully screened and fully submersible.



Design

1. Dual wall tube type GT25.
2. Stress control tube GT1
3. Screen continuity (copper mesh).
4. Stress control mastic MNAC.
5. Overall protection tubes.
6. Sealing mastic NGAF.
7. Canister.
8. Conductor connector (supplied on request).

Specifications and Standards

Meets the requirements of CENELEC HD 629.1 and IEC 60502-4.

Straight Joint type	Voltage Um (kV)	Length "L" (mm)	Conductor sizes (mm^2)	
			min.	max.
17GTS3	12	1200	25	400
24GTS3	24	1200	25	400
36GTS3	36	1400 - 2300	35	400

17CSJ-S
SINGLE CORE STRAIGHT JOINT WITH CONNECTOR

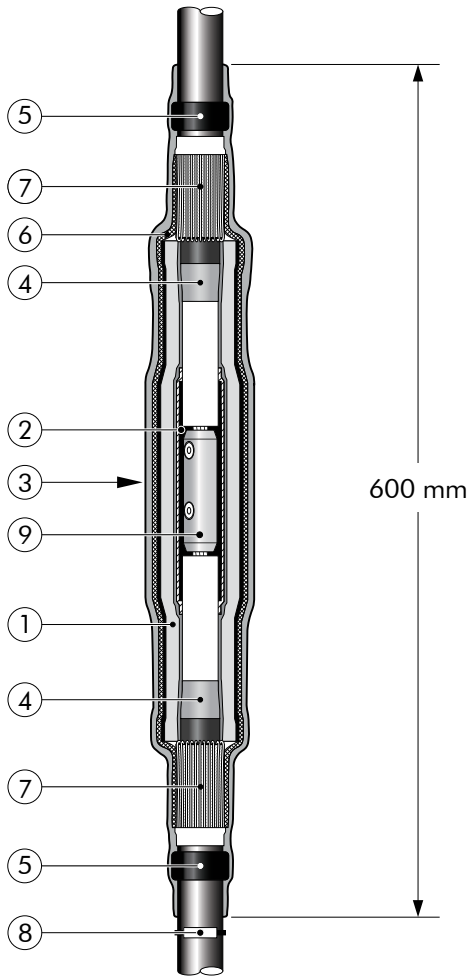
Up to 17.5 kV

6/10 (12) kV
6.35/11 (12) kV
8.7/15 (17.5) kV

Application
For jointing copper wire screened polymeric cable to be laid in air or directly buried. The product is fully screened and fully submersible.
This product can be installed where installation space is limited (minimum 1 meter).

Technical characteristics
All joint bodies are tested for AC withstand prior to leaving the factory.

Design
Cold-shrinkable joint comprising:
1. Extruded triple layer EPDM rubber body.
2. Two layer plate with a semi-conductive and a field control mastic layer.
3. Overall protective EPDM cover.
4. Field control mastic.
5. Water sealing mastic.
6. Copper stocking.
7. Self-adhesive copper tape.
8. Traceability tag.
9. Mechanical conductor connector.
10. Insulating mastic.



Specifications and standards
The cold-shrinkable 17CSJ-S joint meets the requirements of CENELEC HD 629.1.

Cold-shrinkable straight joint type	Voltage Um (kV)	Diameter over outer sheath (mm)	Diameter over core insulation (mm)	Conductor sizes (mm^2)	
		max	min	min	max
17CSJ-S/M50.240	17.5	48	18	50	240
17CSJ-S/M95.240	17.5	48	18	95	240
17CSJ-S/M120.300	17.5	48	18	120	300

24CSJ-S
SINGLE CORE STRAIGHT JOINT WITH CONNECTOR

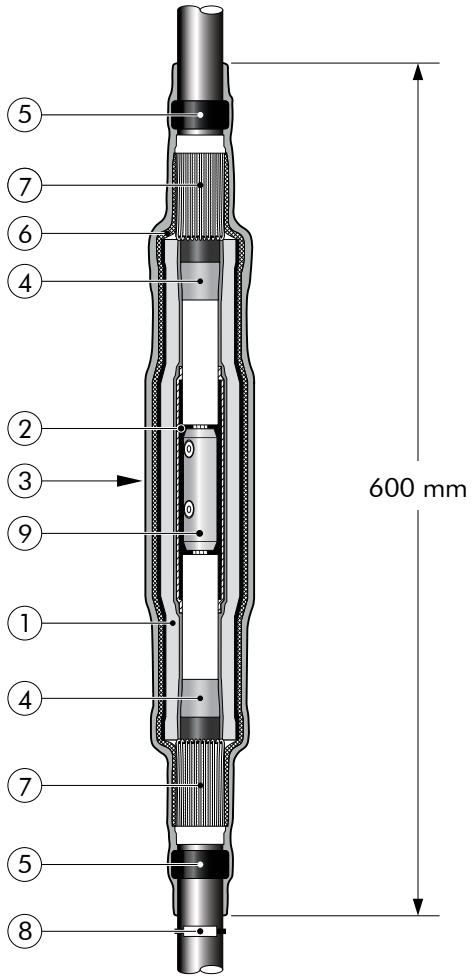
Up to 24 kV

12/20 (24) kV
12.7/22 (24) kV

Application
For jointing copper wire screened polymeric cable to be laid in air or directly buried. The product is fully screened and fully submersible.
This product can be installed where installation space is limited (minimum 1 meter).

Technical characteristics
All joint bodies are tested for AC withstand prior to leaving the factory.

Design
Cold-shrinkable joint comprising:
1. Extruded triple layer EPDM rubber body.
2. Two layer plate with a semi-conductive and a field control mastic layer.
3. Overall protective EPDM cover.
4. Field control mastic.
5. Water sealing mastic.
6. Copper stocking.
7. Self-adhesive copper tape.
8. Traceability tag.
9. Mechanical conductor connector.



Specifications and standards
The cold-shrinkable 24CSJ-S joint meets the requirements of CENELEC HD 629.1.

Cold-shrinkable straight joint type	Voltage Um (kV)	Diameter over outer sheath (mm)	Diameter over core insulation (mm)	Conductor sizes (mm^2)	
		max	min	min	max
24CSJ-S/M50.240	24	48	18	50	240
24CSJ-S/M95.240	24	48	23	95	240

36CSJ
SINGLE CORE STRAIGHT JOINT WITH CONNECTOR

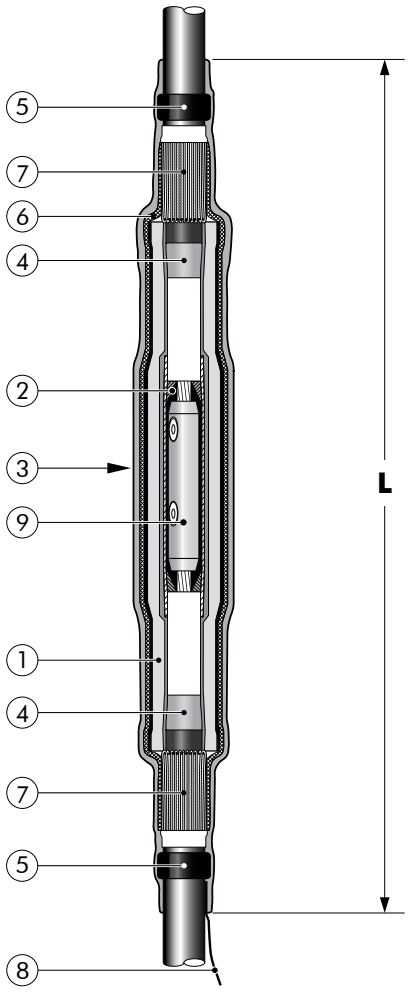
Up to 36 kV

18/30 (36) kV
19/33 (36) kV

Application
For jointing copper wire screened polymeric cable to be laid in air or directly buried. The product is fully screened and fully submersible.

Technical characteristics
All joint bodies are tested for AC withstand prior to leaving the factory.

Design
Cold-shrinkable joint comprising:
1. Extruded triple layer EPDM rubber body.
2. Semi-conductive tape embedded in field control mastic.
3. Overall protective EPDM cover.
4. Field control mastic.
5. Water sealing mastic.
6. Copper stocking.
7. Self-adhesive copper tape.
8. Traceability tag.
9. Conductor connector.



Specifications and standards
The cold-shrinkable 36CSJ joint meets the requirements of CENELEC HD 629.1.

Cold-shrinkable straight joint type	L (mm)	Voltage Um (kV)	Diameter over outer sheath (mm)	Diameter over core insulation (mm)	Conductor sizes for 36 kV (mm^2) (for information only)	
			max	min	min	max
36CSJ-2	750	36	48	23	35	240
36CSJ-3	850	36	57	30	185	630

11kV, 22kV (K) — 151SR + 151SP

Primary Use: The 151SR+ 151SP combination splice provides a permanent, fully shielded, fully submersible, straight splice.

- Can be direct buried.
- Accepts cable to 120 mm2

Requires bailing assembly.

Cable size sensitive

Housing

Kit complete with :

2x Contacts

Grease & Instructions

11kV, 22kV (K) — 151LS

Primary Use: The locking splice provides a permanent, fully shielded, fully submersible, straight splice.

- Will withstand pulls of up to 500 LBS
- Can be direct buried.
- Accepts cable to 120 mm2

Housing

Kit complete with :

2xContacts

Grease & Instructions

11kV, 22kV (K) — (K) 656CY-W-X

Primary Use: The 656CY joint is used to join cables in a disconnectable 3 way installation

- Suitable for small vaults and manholes, due to its size
- Fully shielded, fully submersible
- Includes integral capacitive test point

Cable size sensitive- refer to chart on page 59 for complete part number.

Kit complete with :

BUS

3X Housing

3X Adapter

3X Lug

3X Retaining Ring

3X Aluminium Bolt

Grease & Instructions

EXTRA HIGH VOLTAGE

Premolded HV cable joints for polymeric (XLPE) insulated cables with Heavy Duty Outer Protection (HOP) and factory made earth and cross- bonding connections.

Description

Various types of cable joints are available for the required applications according to the design of the cable system and the method of connection of the metallic cable sheath.

- Straight joints
- Straight joints with earth bonding
- Cross-bonding joints

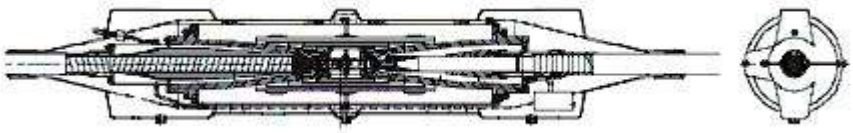
Nexans high voltage joints are available for polymeric insulated (XLPE) cables with aluminium or copper conductors up to 2000 sqmm, they are composed of a premolded slip-on elastomer joint body and an outer casing.

The outer casing, consisting of a thick copper tube and a strong high density polyethylene covering, is one of the highlights of the Nexans HV joint concept . The heavy duty Protection (HOP) offers excellent mechanical protection and reliable Electrical performance. The longitudinal insulation and the connection of the coaxial, concentric or single core cable are factory made and facilitate the assembly of the joint, the cross bonding and earth connections on site.

Advantages

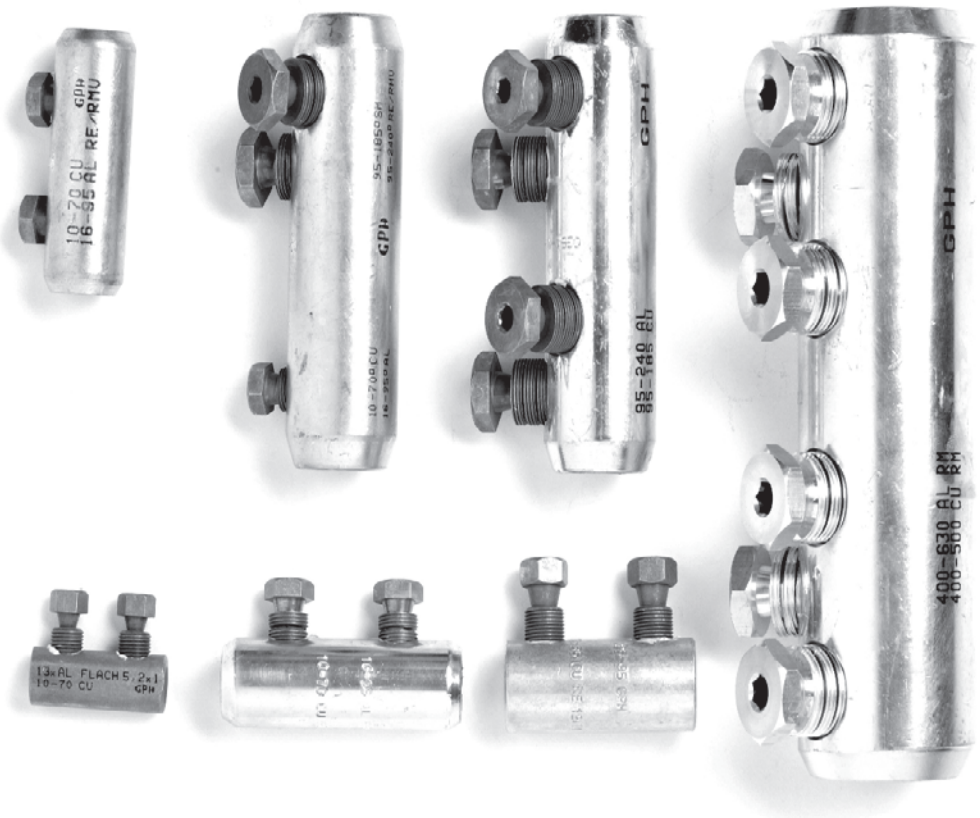
- Reduced dimensions and weight
- High mechanical resistance
- High reliability due to prefabricated and factory tested active parts

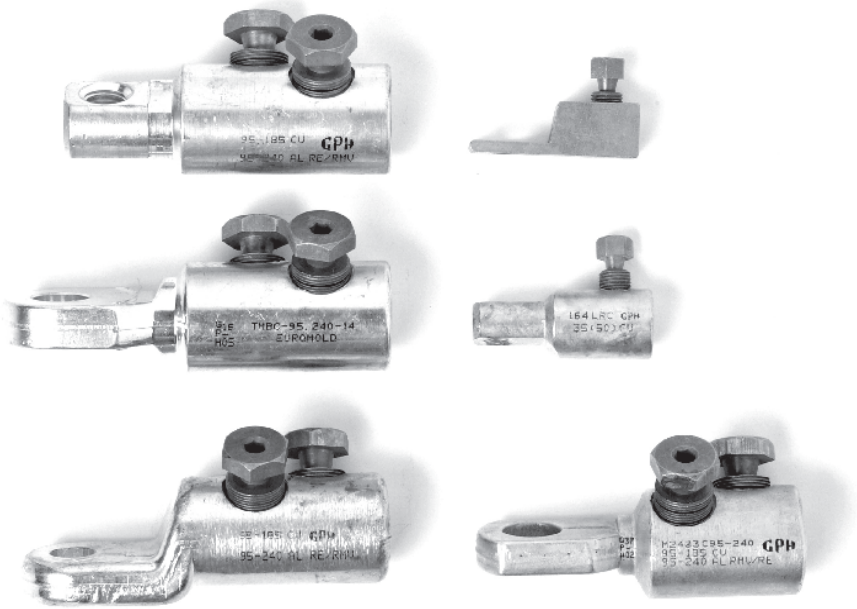
MP 1



OTS 1

SMP 1


GPH
10-70 CU
16-95 AL RE/RMU
95-185 CU
95-240 AL RE/RMU
GPH
95-240 AL
95-185 AL
GPH
400-630 AL RM
400-500 CU RM
GPH
13xAL FLACH 5,2x1
10-70 CU
GPH


95-185 CU
GPH
THBC-95, 240-14
EUROMOLD
164LRC GPH
35(50)CU
95-185 CU
95-240 AL RE/RMU
GPH
M2433C95-240
95-185 CU
35-240 AL RMU/RE
GPH

MECHANICAL CONNECTORS

SHEAR LUGS

‘C’ series

up to 36kV

Connector Body:
- high-strength aluminium alloy
- rolled thread
- tin plated

Screws/Bolts:
- brass, electro tin-plated
- lubricated with special grease

Centre rings:
- centre rings are enclosed for centric conductor positioning (in most sizes).

Advantages of shear-off-head bolts:
- easy to assemble
- the head will always shear-off at the required torque moment
- no torque wrench required
- easy release by hexagon socket

Economy :
- low stock required because two connector types cover the most common cross sections
- no crimping tools required

GPH mechanical connectors are available in numerous configurations for differing types of cable. For more options visit www.australmold.com.au

Part No.	AL Conductor Range	CU Conductor Range	Hole Size mm	O.D. mm	Centre Ring	No of Screws
C16-95 x 10	16-95	10-70	13.1	23.7	yes	1
C50-150 X12	50-150	35-120	12.9	30.1	yes	1
C95-240 x 12	95-240	95-180	13	32.4	yes	2
C120-300 x12	120-300	120-300	13.1	37.8	yes	2
C185-400 x12	185-400	185-300	13.1	42.1	no	3
C400-630 x12	400-630	400-500	13	52.2	yes	3

Also suited to sector stranded, round standard and round solid.
(above Ranges based upon Round Standard Conductor)
Please consult with web site or Australmold for connector ranges.

‘M’ series

up to 36kV - with barrier

Connector Body:
- high- strength aluminium alloy
- rolled thread
- tin plated

Screws/Bolts:
- brass, electro tin-plated
- lubricated with special grease

Centre rings:
- centre rings are enclosed for centric conductor positoning (in most sizes).

Advantages of shear-off-head bolts:
- easy to assemble
- the head will always shear - off at the required torque moment
- no torque wrench required
- easy release by hexagon socket

Economy :
- low stock required because two connector types cover the most common cross sections
- no crimping tools required

GPH mechanical connectors are available in numerous configurations for differing types of cable.
For more options visit www.australmold.com.au

Part No.	AL Conductor Range	CU Conductor Range	Length mm	O.D. mm	Centre Ring	Number of Screws
M16-95	16-95	10-70	70.6	24	yes	2
M50-150	50-150	35-120	85	30	yes	2
M50-150 / 16-95	50-150 / 16-95	50-120 / 10-70	85	29.9	yes	2
M95-240	95-240	95-185	120	32.9	yes	4
M95-240 / 16-95	95-240 / 16-95	95-185 / 10-70	120	32.9	yes	3
M120-300	120-300	120-300	141.9	38	yes	4
M185-400	185-400	185-300	170	41.9	yes	6
M400-630	400-630	400-500	200	52.1	yes	6
SE150300T-V-K	150-300	95-300	120.1	38.3	no	4

Also suited to sector stranded, round standard and round solid.
(above Ranges based upon Round Standard Conductor)
Please consult with web site or Australmold for connector ranges.

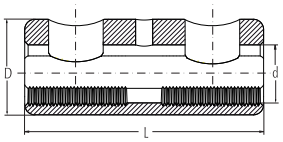
LOW VOLTAGE SHEAR TECHNOLOGY

Mechanical Connector 0.6/1 kV with sector channel, hexagon socket bolts or shear-off-head bolts

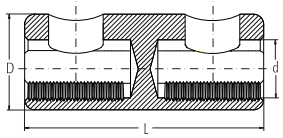
D25-185 SV-T-V-K

D1,5-16 SV-S-V-K

D...-S



D...-T



Connector Body

Material: high strength aluminum alloy

Type:

D...**-S**: with inspection hole

D...**-T**: with oil stop

Surface:

D...**-V**: tin-plated

Bolts

Material: high strength aluminum alloy

Surface: uncoated

Type:

D...: with hexagon socket bolts

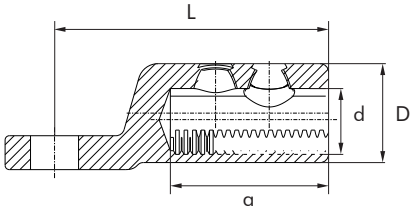
D...**-K**: with shear-off-head bolts

Catergory No.	AL in mm² acc. to VDE0295 Table 5-9				CU in mm² acc. to VDE0295 Table 5-9			Number of bolts	Dimensions mm			Torque moment (Nm)	Tool/outer and Inner Hexagon	
	round strand.	*sector strand.*	*round solid*	*sector solid*	*round strand.*	*sector strand.*	*round solid*		*L*	*D*	*d*		*shear-off-head bolt*	*hexagon socket bolt*
D1,5-16 SV(-T/-S)-V-K [1),3)]	10-16		10-16		1,5-16		1,5-16	2	30	12	6,1	4	SW8	
D1,5-16 SV(-T/-S)-V [1),3)]					1,5-16		1,5-16	2	30	12	6,1	4		SW3[4)]
D1,5-35 SV(-T/-S)-V-K [3)]	10-35	35	10-35	35	1,5-35	35	1,5-35	2	36	16	9,0		SW5[2)]	
D10-35 SV(-T/-S)-V(-K) [3)]	10-35	35	10-35	35	10-35	35	10-35	2	36	16	9,0	10	SW10	SW5
D25-50 SV(-T/-S)-V(-K)	25-50	35-50	25-50	35-50	25-50	35-50	25-35	2	36	18	10,0	12	SW10	SW5
D4-50 SV(-T/-S)-V-K	10-50	35-50	10-50	35-50	4-50	35-50	4-35	2	36	18	10,0		SW5[2)]	
D16-95 SV(-T/-S)-V(-K)	16-95	35-95	16-95	35-95	16-95	35-95	16-35	2	55	25	14,0	22	SW10	SW6
D25-150 SV(-T/-S)-V-K	25-150	35-150	25-150	35-150	25-150	35-150	16-35	2	70	28	17,0		SW6[2) 5)]	
D35-150 SV(-T/-S)-V(-K)	35-150	35-150	50-150	50-150	35-150	35-150	35	2	70	28	17,0	30	SW13[5)]	SW6[5)]
D25-185 SV(-T/-S)-V-K	25-185	35-185	25-185	35-185	25-185	35-185	25-35	4	80	32	19,0		SW6[2)]	
D70-185 SV(-T/-S)-V(-K)	70-185	70-185	70-185	70-185	70-185	70-185		4	80	32	19,0	30	SW13	SW6
D50-240 SV(-T/-S)-V-K	50-240	50-240	50-240	50-240	50-240	50-240		4	120	35	22,0		SW8[2)]	
D120-240 SV(-T/-S)-V(-K)	120-240	120-240	120-240	120-240	120-240	120-240		4	120	35	22,0	38	SW17	SW6

[1)] Connector Body: brass
[2)] Double-shear-off-head bolt
[3)] without sector channel
[4)] Hexagon socket bolt, steel
[5)] Bolt, brass (tin-plated)

Mechanical Cable lug 0.6/1 kV with sector channel and shear-off-head bolts

D50-240 x 16 SK-V-K



Connector Body

Material: high strength aluminum alloy

Surface:

D...**-V**: tin-plated

Bolts

Material: high strength aluminum alloy

Surface: uncoated

Type:

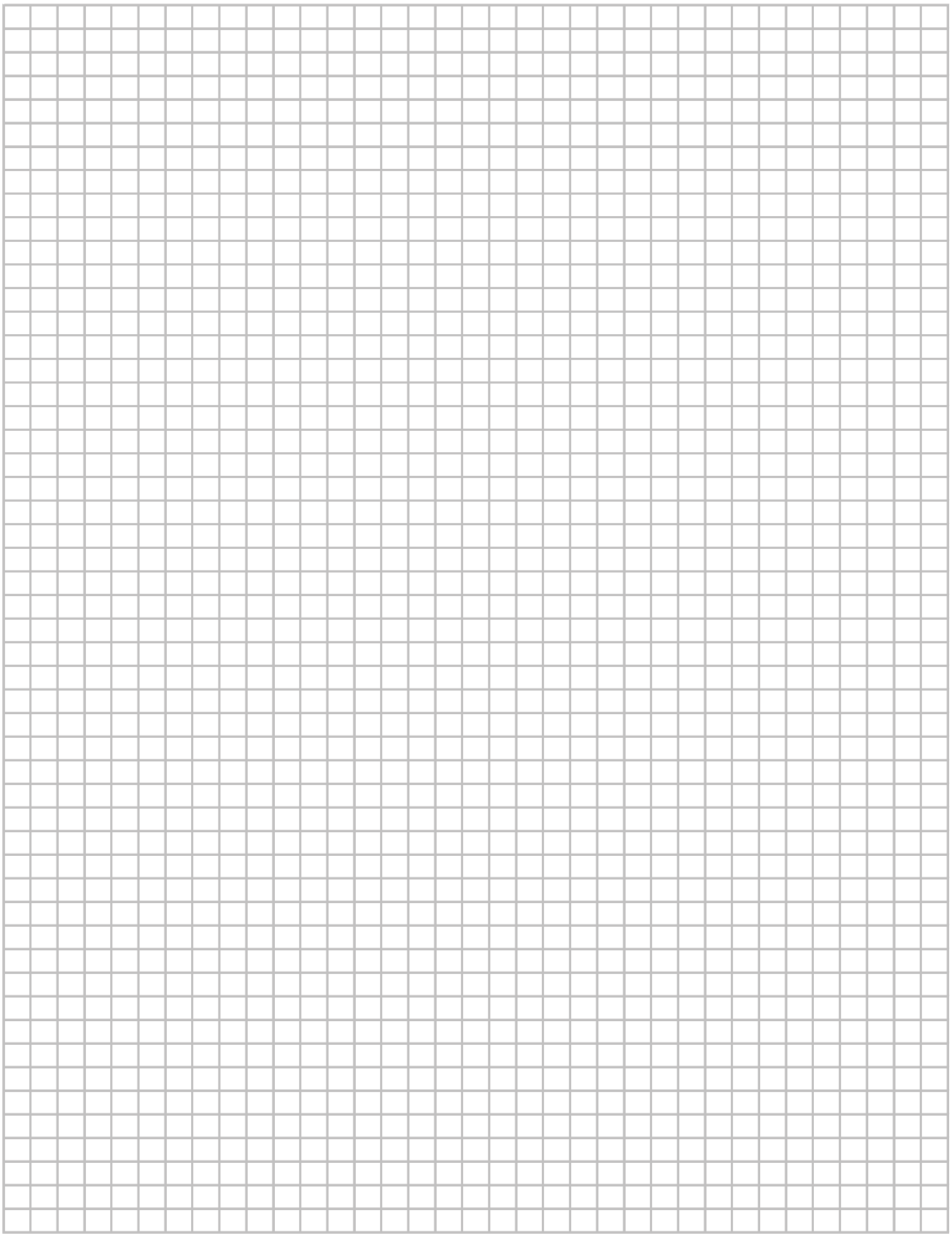
D...**-K**: with shear-off-head bolts

Catergory No.	AL in mm² acc. to VDE 0295 Table 5-9				CU in mm² acc. to VDE 0295 Table 5-9			Number of bolts	Dimensions in mm				Flat hole diameter ∅ (mm)	Tool/outer & Inner hexagon
	round strand.	*sector strand.*	*round solid*	*sector solid*	*round strand.*	*sector strand.*	*round solid*		*L*	*D*	*d*	*a*		
D1,5-35 x 8 SK-V-K[2]	10-35	35	10-35	35	1,5-35	35	1,5-35	1	40	16	9,0	16	8,5	SW5[1]
D1,5-35 x 10 SK-V-K[2]													10,5	
D10-35 x 8 SK-V-K[2]	10-35	35	10-35	35	10-35	35	10-35	1	40	16	9,0	16	8,5	SW10
D10-35 x 10 SK-V-K[2]													10,5	
D25-50 x 10 SK-V-K	25-50	35-50	25-50	35-50	25-50	35-50	25-35	1	40	18	10,0	16	10,5	SW10
D25-50 x 12 SK-V-K													13	
D4-50 x 10 SK-V-K	10-50	35-50	10-50	35-50	4-50	35-50	4-35	1	40	18	10,0	16	10,5	SW5[1]
D4-50 x 12 SK-V-K													13	
D16-95 x 10 SK-V-K	16-95	35-95	16-95	35-95	16-95	35-95	16-35	1	52	25	14,0	24	10,5	SW10
D16-95 x 12 SK-V-K													13	
D25-150 x 12 SK-V-K	25-150	35-150	25-150	35-150	25-150	35-150	16-35	1	60	28	17,0	31	13	SW6[1] [3]
D25-150 x 16 SK-V-K													17	
D35-150 x 12 SK-V-K	35-150	35-150	50-150	50-150	35-150	35-150	35	1	60	28	17,0	31	13	SW13[3]
D35-150 x 16 SK-V-K													17	
D50-240 x 12 SK-V-K	50-240	50-240	50-240	50-240	50-240	50-240		2	97	35	22,0	56	13	SW8[1]
D50-240 x 16 SK-V-K													17	
D120-240 x 12 SK-V-K	120-240	120-240	120-240	120-240	120-240	120-240		2	97	35	22,0	56	13	SW17
D120-240 x 16 SK-V-K													17	

[1] Double-shear-off-head bolt [2] without sector channel
[3] Bolt, brass (tin-plated)

Other palm holes on request.

Notes / Comments :

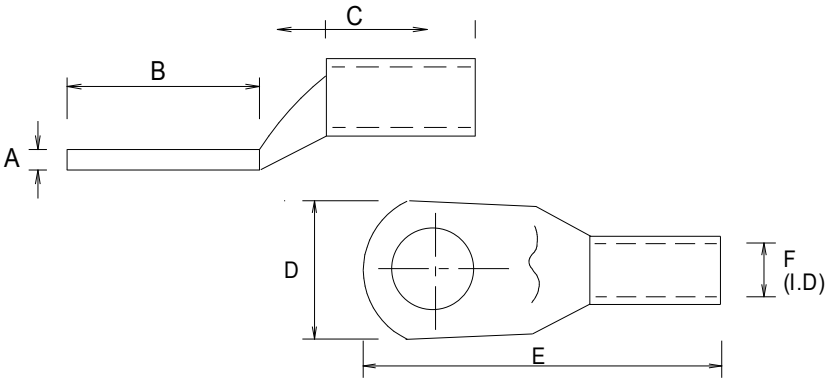


GPH AUS95-10 DIE 38-173
GPH AUS800-160 DIE 40-432

240-12

CRIMP LUGS AND LINKS

COPPER LUGS



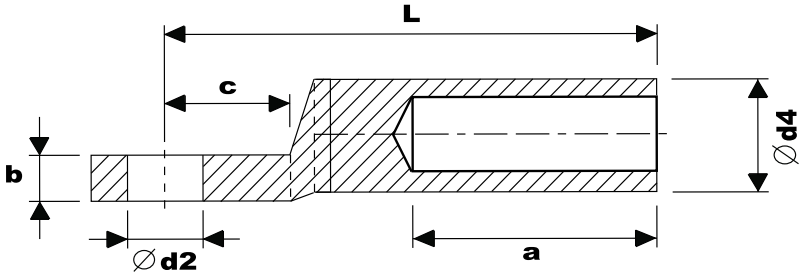
Item No.	Marks / Stampings	Conductor Area mm2	Stud size	Dimensions mm					
				A	B	C	D	E	F
CLU2.5-10	2.5-10	2.5	10	0.8	15.1	5.6	15	24.8	2.3
CLU4-6	4-6	4	6	1	17.5	10.6	9.8	28.4	3.4
CLU4-10	4-10	4	10	0.8	17.8	10.8	13.7	29.9	3.4
CLU6-6	6-6	6	6	1.2	15.1	8.5	9.8	27.6	4.0
CLU6-10	6-10	6	10	1	19.3	6.2	15.3	27.2	3.5
CLU6-12	6-12	6	12	1	24.2	6.8	11.2	23.8	4
CLU10-6	10-6	10	6	2.2	15.9	11.4	12.2	30.4	4.7
CLU10-10	10-10	10	10	1.8	18.3	9.5	14.3	31.4	4.7
CLU16-10	16-10	16	10	1.8	18.8	21.0	13.6	42.0	5.5
CLU25/8	25-8	25	8	2.6	16.3	22.2	14	42.1	7.3
CLU25-10	25-10	25	10	2	18.0	22.0	14.8	44.4	7.1
CLU25-12	25-12	25	12	1.8	26.1	21.9	16.9	51.3	7.2
CLU35-8	35-8	35	8	2.6	17.4	22.2	18	43.6	8.5
CLU35-10	35-10	35	10	2.7	17.6	22.6	17.9	43.8	8.5
CLU35-12	35-12	35	12	2.3	24.9	21.5	20.0	51.7	8.3
CLU50-10	50-10	50	10	2.6	25.8	21.6	20.5	52.0	9.5
CLU50-12	50-12	50	12	2.5	25.3	22.0	20.6	51.5	9.4
CLU70-8	70-8	70	8	3.3	27.1	21.6	20.4	54.3	11.1
CLU70-10	70-10	70	10	3.2	25.7	23.4	20.5	54.3	10.7
CLU70-12	70-12	70	12	3.2	25.8	22.6	20.6	54.2	11.2
CLU70-16	70-16	70	16	2.1	25.7	22.1	27.4	55.7	10.9
CLU95-10	95-10	95	10	3.7	25.3	27.0	24.9	58.1	13.5
CLU95-12	95-12	95	12	3.9	24.9	26.6	25.1	57.4	13.5
CLU95-16	95-16	95	16	3.3	43.9	24.5	27.1	75.7	13.6
CLU120-12	120-12	120	12	5	31.2	31.0	29.9	68.2	15.6
CLU150-12	150-12	150	12	5.2	40.8	26.8	33.4	75.2	16.3
CLU185-12	185-12	185	12	5.6	40.7	30.6	36.2	79.5	18.3
CLU185-16	185-16	185	16	5.5	41.4	31.6	36.7	79.4	18.3
CLU240-12	240-12	240	12	7.3	41.5	37.4	40.5	100.3	20.9
CLU240-12 LB	240-12	240	12	7.5	57.0	93.0	40.1	162.0	20.7

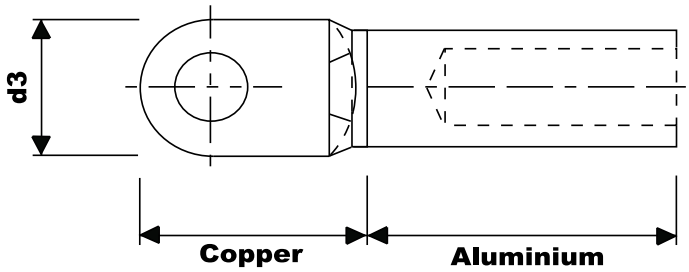
FULLY SEALED AND LONG BARREL OPTIONS ALSO AVAILABLE

Item No.	Marks / Stampings	Conductor Area mm2	Dimensions mm	
			A	I.D.
CLINK 6	6	6	22.0	3.9
CLINK 16	16	16	20	5.4
CLINK 35	35	35	20.3	8.6
CLINK 50	50	50	48.3	9.7
CLINK 70	70	70	51.0	11.0
CLINK 95	95	95	54.0	13.7
CLINK 240	240	240	97	21.2

CRIMP LUGS AND LINKS

BI-METALIC LUGS





Cat. No.	Nominal Conductor	AL	a	b	c	d2	d3	d4	L	I.D.
AUS16-8	16	41	33	3.5	16.5	8.6	25.2	12	64.5	5.6
AUS25-10	25	41	33	3.5	16.5	10.8	25.2	12	64	7
AUS35-10	35	41	33	3.5	16.5	10.8	25.2	12	64	8.6
AUS35-12	35	41	33	3.5	16.5	13.3	25.2	12	64	8.6
AUS50-10	50	41	33	5.5	16.5	10.7	24	16	66.5	9.6
AUS50-12	50	41	33	5.5	16.5	13.2	24	16	66.5	9.6
AUS70-10	70	41	33	5.5	16.5	10.7	24	16	66.5	11.3
AUS70-12	70	41	33	5.5	16.5	13.2	24	16	66.5	11.3
AUS95-10	95	65	60	6.2	16.5	10.7	25	21.7	95	13.2
AUS95-12	95	65	60	6.7	16.5	13.2	25	21.7	95	13.2
AUS120-12	120	65	60	6.0	15.5	13.2	24.4	21.7	93	15
AUS120-16	120	65	60	6.4	16.5	17.0	25.3	21.7	94	15
AUS150-12	150	73	63	8.2	19.0	13.2	29	27.2	104	16.7
AUS150-16	150	43	63	8.0	21.5	17.2	29	27.2	107.5	16.7
AUS185-12	185	73	62	8.7	18.5	13.2	29	27.2	103.5	18.6
AUS185-16	185	73	62	8.2	22.0	17.2	29	27.3	106	18.8
AUS240-12	240	74	60	9.4	24.0	13.2	38.5	35.4	114	21.2
AUS240-16	240	74	62	8.5	25.5	17.2	37	35.2	113	21.2
AUS300-12	300	74	60	9.3	25.0	13.2	37.5	35.2	112	23.8
AUS400-16	400	86	72	15.7	24.0	17.2	51.5	47.2	136.5	26.6
AUS500-16	500	86	72.5	16.0	24.5	17.2	51.5	47.5	138	29.8
AUS630-16	630	120	72	17.0	24.5	17.2	58	54.2	147.5	33.4
AUS800-16	800	125	116	16.0	24.5	17.2	58	54.2	162.2	39.8

180AR-1 /-2 /-3 and 180AR-1-G /-3-G

Up to 24 kV - 250 A

Application

For use in equipment insulated with oil fluid, typically for transformers, switch gear capacitors...

Specifications and standards

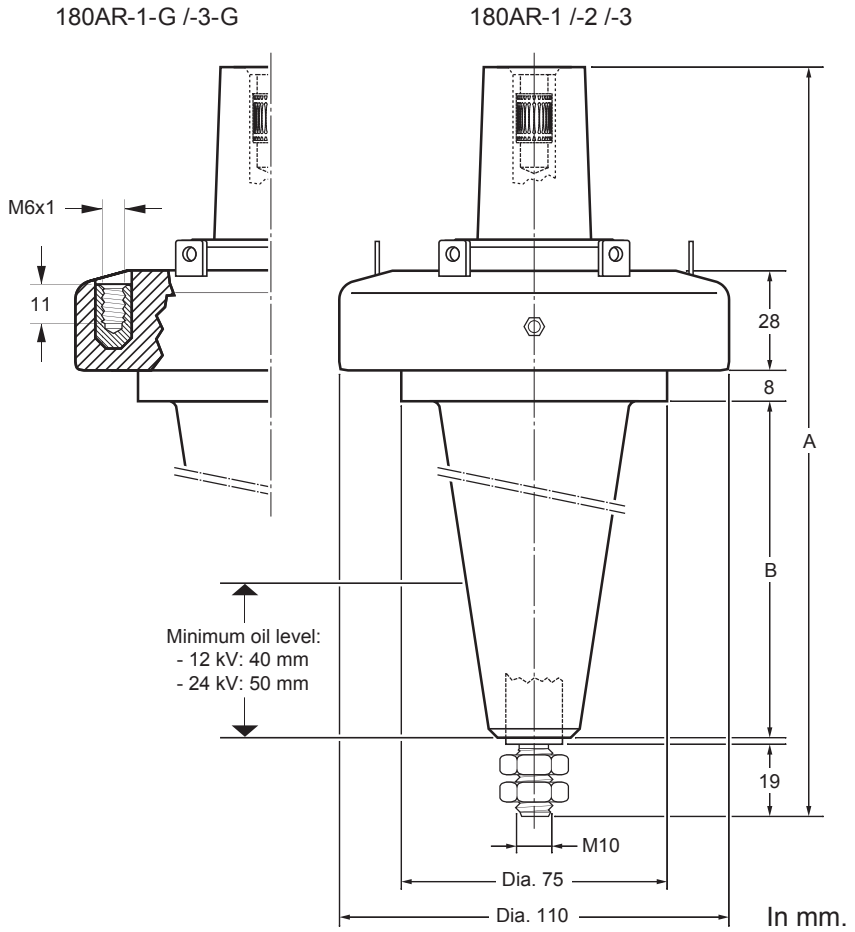
The plug - in type equipment bushings 180AR- X meet the requirements of CENELEC EN 50180 and IEC 60137.

Technical characteristics

Each bushing is tested for AC withstand and partial discharge prior to leaving the factory.

Design

- The equipment bushing is a moulded epoxy insulated part in accordance with CENELEC EN 50180.
  The 180AR-2 bushing has a length B outside this standard.
- The standard bushings, (K)180AR -1 /-2 /-3, are equipped with 6 tabs for the bail restraint.
- The (K)180AR-1-G and (K)180AR-3-G are equipped with 4 tabs and 2 threaded inserts M6x 1 (-G version).



Equipment bushing type	Voltage Ur (kV)	Current Ir (A)	Dimensions (mm)	
			A	B
180AR-1(-G)	12	250	222	106
K180AR-1(-G)	24	250	222	106
180AR-2	12	250	284	168
K180AR-2	24	250	284	168
180AR-3(-G)	12	250	171	55
K180AR-3(-G)	24	250	171	55

INTERFACE A - 200AMP DEADBREAK & WELLS

180A-24P-O

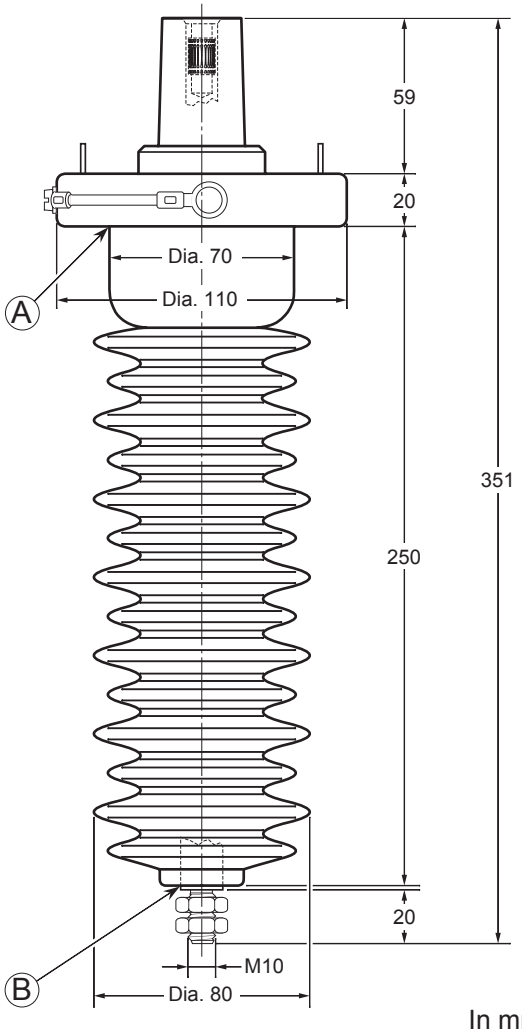
Up to 24kV - 250A

Design

The equipment bushing is a moulded epoxy insulated part in accordance with CENELEC EN 50181.

Application

For use in equipment insulated with air, typically for transformers, motors, switch gear, capacitors...



In mm.

Technical characteristics

Each bushing is tested for AC withstand and partial discharge prior to leaving the factory.

Specifications and standards

The plug-in type equipment bushings 180A-24P-O meet the requirements of CENELEC EN 50181 and IEC 60137.

Equipment bushing type	Voltage Ur (kV)	Current Ir (A)	Creepage distance A-B (mm)
180A-24P-O	12	250	630
180A-24P-O	24	250	630

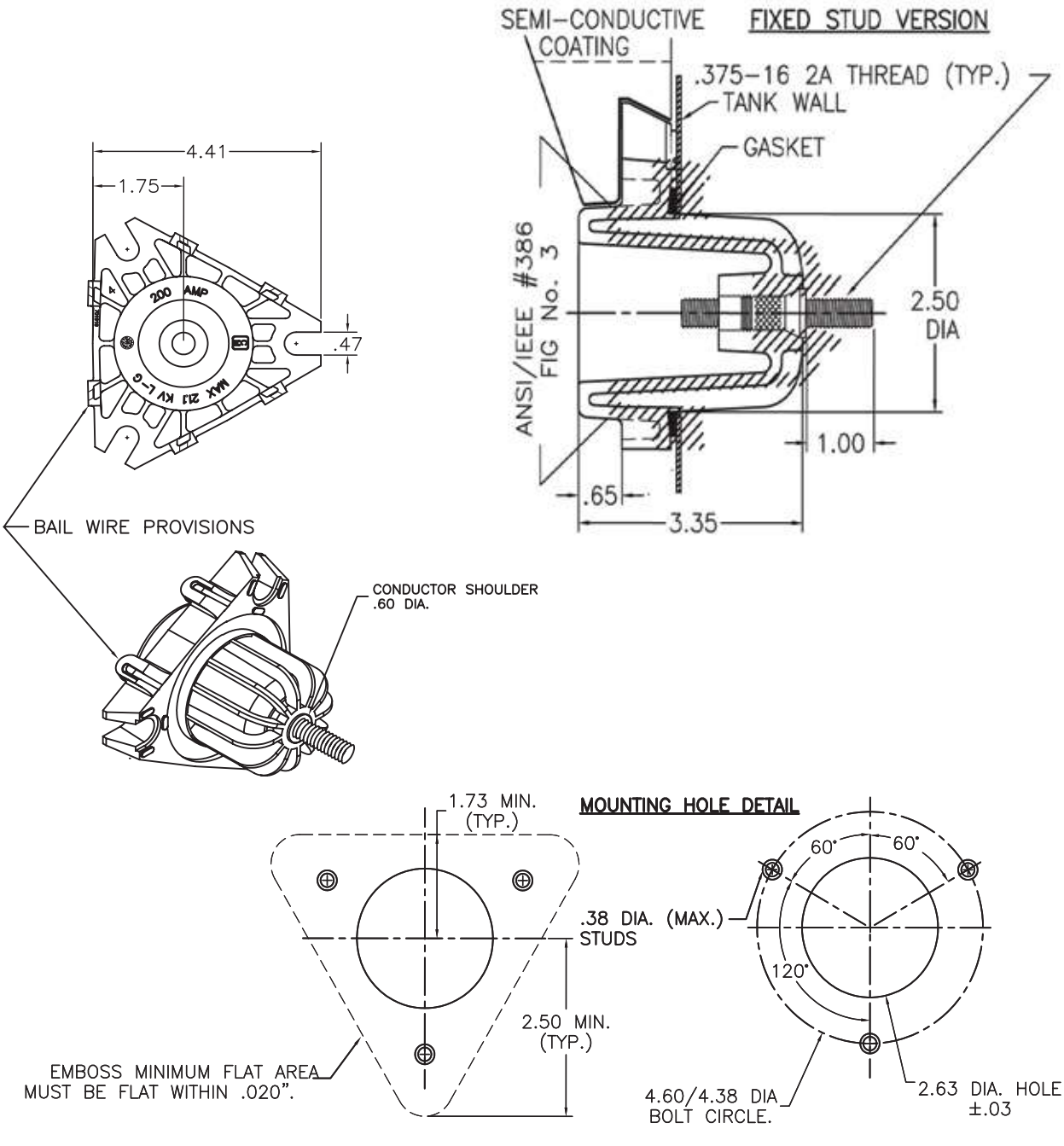
INTERFACE A - 200AMP DEADBREAK AND WELLS

CM70191952

11kV, 22kV, 33kV

200 Amp Rated

- The first bolted design bushing well capable of being mounted directly to the transformer without the need of a metal clamp ring.
- Molded with strong, high temperature, hydrolytically stabilized, engineered thermoplastic.
- Mates with insert, K1501-A1, 1601-A4, 1602-A3R, 2701-A4, 2702-A1, 3701-A3, 3702-A1.



INTERFACE A - 200 AMP DEADBREAK AND WELLS

180(X)4

22kV

Primary Use : Transformer and motor connections

- Provides a 200amp deadbreak interface for termination.
- Mates with Elbow 156LR, K151SR, K158LR
- Requires welding or clamping - See below for part number and mounting detail of clamp
- Shank Lengths Available: 69.85mm (S) 186.5mm (T) 235mm (C)

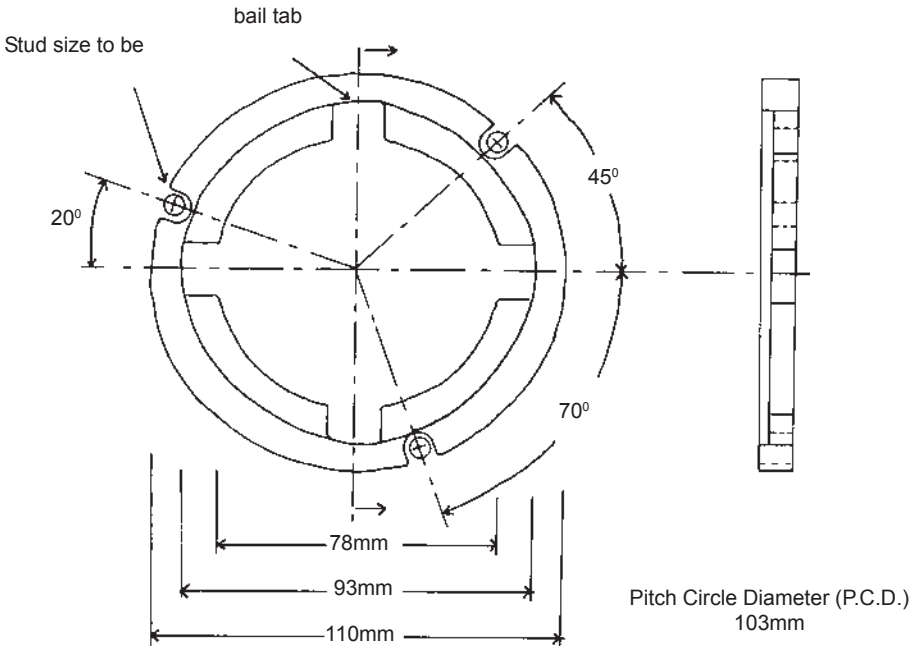
CM70221251

33kV

Primary use: The weld well is designed to be welded or clamped into apparatus. See below for part number and mounting detail of clamp

- The bushing is manufactured from cycloaliphatic epoxy
- Well comes complete with bail tabs
- Other shank lengths available 127mm, 235mm, 381mm
- Mates with insert, K1501-A1, 1601-A4, 1602-A3R, 2701-A4, 2702-A1, 3701-A3, 3702-A1.

1601-F



INTERFACE A - 200 AMP DEADBREAK & WELLS

CM7023(XX)-55

33kV

Primary Use : In air connection to ANSI 200amp deadbreak connection.

- Mates with: K1501-A1, 1601-A4, 1602-A3R, 2701-A4, 2702-A1, 3701-A3, 3702-A1.
- Shank lengths available,

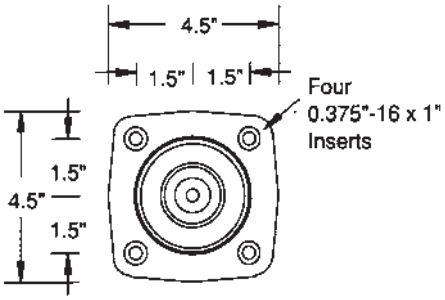
178mm	(11)
216mm	(22)
254mm	(33)

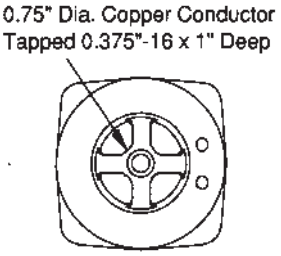
1101-225B

22kV

Primary Use : In air connection to ANSI 200amp deadbreak connection.

- Mates with K1501-A1, 1601-A4, 1602-A3R, 2701-A4, 2702-A1





INTERFACE B - 400 AMP PIN TYPE

400T1 /400AR-1 /400AR-2

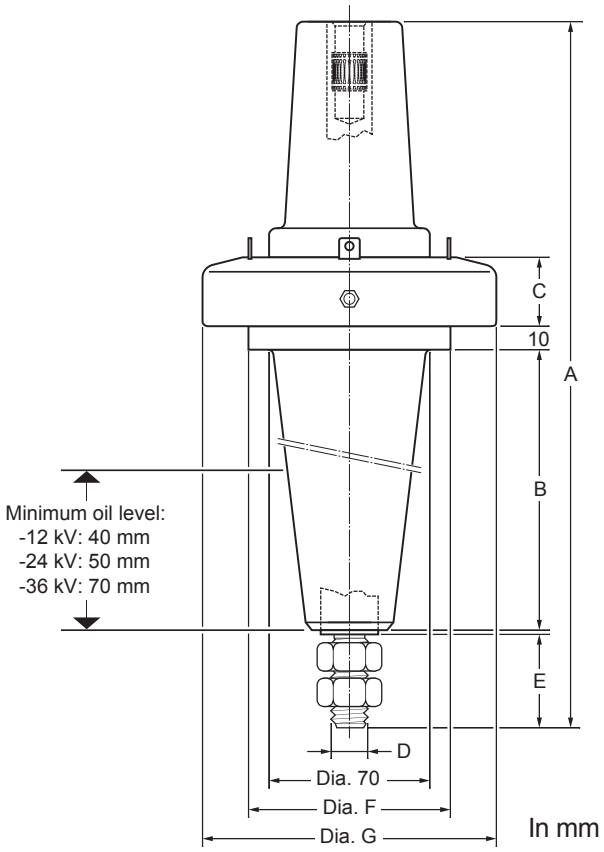
Up to 36kV - 400A

Application
For use in equipment insulated with oil fluid, typically for transformers, switch gear, capacitors...

Specifications and standards
The plug-in type equipment bushings meet the requirements of IEC 60137. The (K)(M)400T1 also meets CENELEC EN 50180 .

Technical characteristics
Each bushing is tested for AC withstand and partial discharge prior to leaving the factory.

Design
The equipment bushings are moulded epoxy insulated parts in accordance with CENELEC EN 50180.



Equipment bushing type	Voltage Ur (kV)	Current Ir (A)	Dimensions (mm)						
			A	B	C	D	E	Dia. F	Dia. G
400T1	12	400	310	144	30	M12	22	88	128
K400T1	24	400	310	144	30	M12	22	88	128
M400T1	36	400	310	144	30	M12	22	88	128
400AR-1	12	400	380	213	30	M12	22	74	128
K400AR-1	24	400	380	213	30	M12	22	74	128
M400AR-1	36	400	380	213	30	M12	22	74	128
400AR-2	12	400	329	138	36	M16	40	100	150
K400AR-2	24	400	329	138	36	M16	40	100	150
M400AR-2	36	400	329	138	36	M16	40	100	150

INTERFACE C - 630 AMP BOLTED TYPE

400AR-3

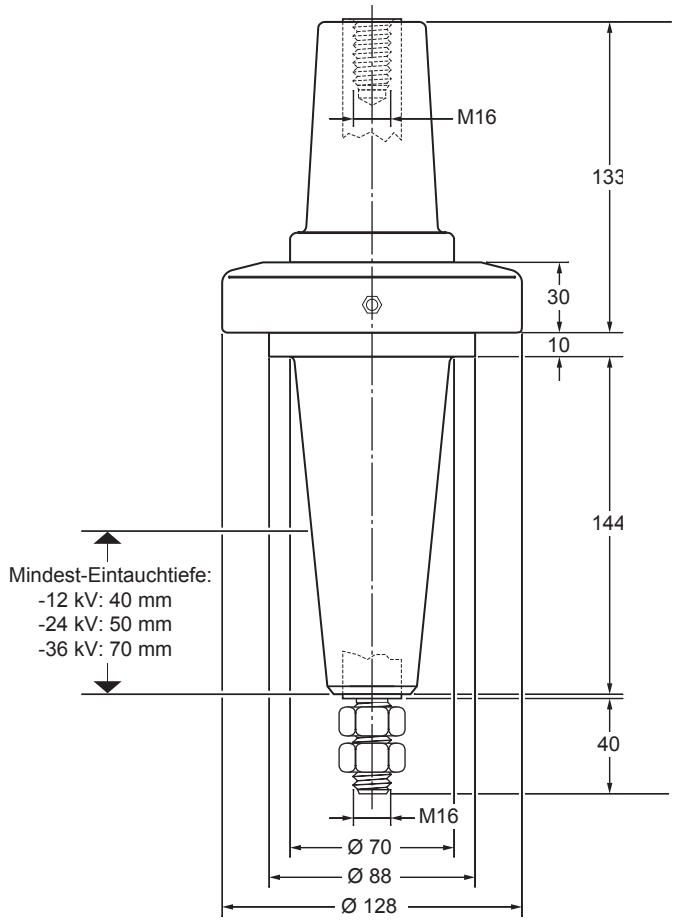
Up to 36kV - 630A

Specifications and standards

The bolted type equipment bushings 400AR-3 meet the requirements of CENELEC EN 50180 and IEC 60137.

Application

For use in equipment insulated with oil fluid, typically for transformers, switch gear, capacitors...



Technical characteristics

Each bushing is tested for AC withstand and partial discharge prior to leaving the factory.

Design

The equipment bushing is a moulded epoxy insulated part in accordance with CENELEC EN 50180.

In mm.

Equipment bushing type	Voltage Ur (kV)	Current Ir (A)
400AR-3	12	630
K400AR-3	24	630
M400AR-3	36	630

INTERFACE C - 630 AMP BOLTED TYPE

400A-24B

Up to 24kV - 630A

Application

For use in equipment insulated with air, typically for transformers, switch gear, capacitors...

Specifications and standards

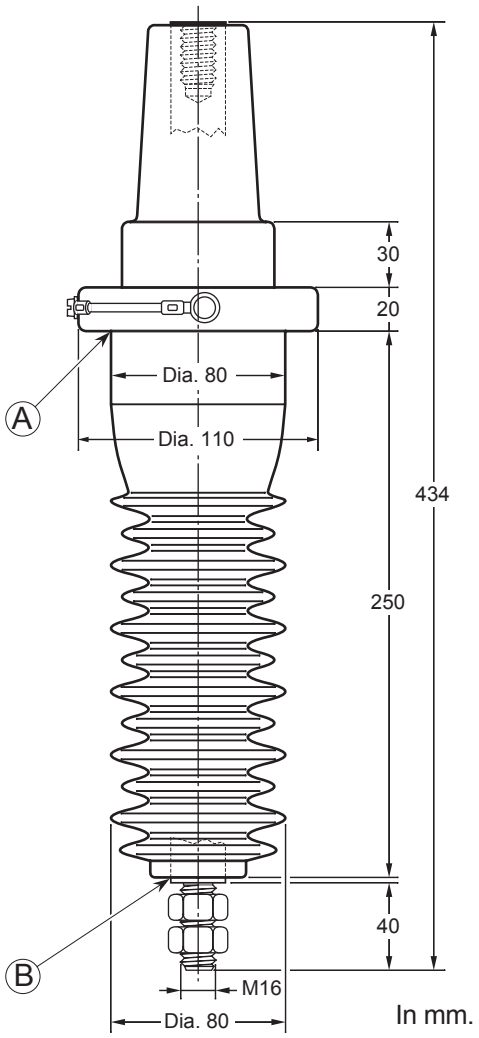
The bolted type equipment bushings 400A-24B meet the requirements of CENELEC EN 50180 and IEC 60137.

Technical characteristics

Each bushing is tested for AC withstand and partial discharge prior to leaving the factory.

Design

The equipment bushing is a moulded epoxy insulated part in accordance with CENELEC EN 50181.



Equipment bushing type	Voltage Ur (kV)	Current Ir (A)	Creepage distance A-B (mm)
400A-24B	12	630	500
400A-24B	24	630	500

INTERFACE F - 2500 AMP BOLTED TYPE

900AR-1 / 900AR-2
900AR-3 / 900AR-4

Application
For use in equipment, typically for transformers, switchgear, capacitors...

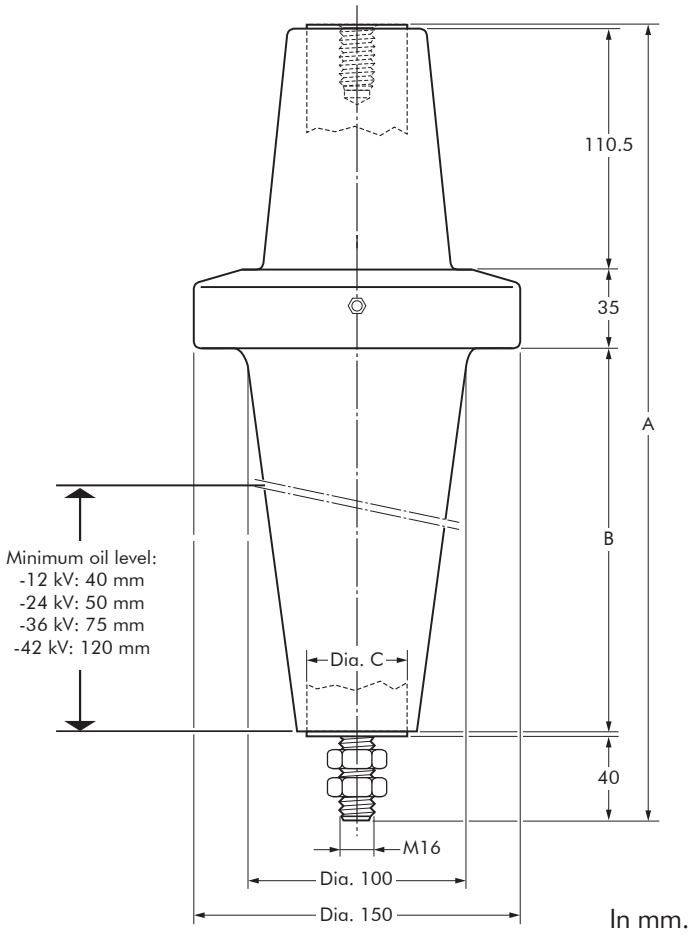
Technical characteristics
Each bushing is tested for AC withstand and partial discharge prior to leaving the factory.

Up to 42 kV
Up to 2500 A

6/10 (12) kV
6.35/11 (12) kV
8.7/15 (17.5) kV
12/20 (24) kV
12.7/22 (24) kV
18/30 (36) kV
19/33 (36) kV
20.8/36 (42) kV

Specifications and standards
The bolted type equipment bushings 900AR-X are moulded epoxy insulated parts and meet the requirements of CENELEC EN 50180 and IEC 60137.

Ordering instructions
To order the equipment bushing, specify the type.
Add a 'K' for use up to 24 kV, add an 'M' for use up to 36 kV, add a 'P' for use up to 42 kV.
The bushings can be supplied with an earth jumper (/J) or an earth plate (/GS). This earth connection must be specified when ordering.
E.g. 900AR-4/GS.



In mm.

Equipment bushing type	Interface type	Voltage Um (kV)	Current Ir (A)	Dimensions (mm)		
				A	B	Dia. C
900AR-1	F3	52	1250	364	175	32
900AR-2	F2	52	630	364	175	25
900AR-3	F1	36	2500	364	175	50
900AR-4	F1	36	2500	259	70	50

22kV ANSI Profile - 600 Series

600-(X)1

11kV, 22kV (K)

Primary use: The bushings are designed to be directly mounted in electrical apparatus on 600 amp, 15kV and 25kV systems.

Shank lengths: (S) 74.6 mm
(T) 217.88 mm

- Can be welded or clamped
- Accepts 655LR, and its accessories

600TBC

22kV (K)

Primary Use : Designed to be mounted directly in electrical apparatus on 600 amp 15kV and 25kV systems.

- Designed for in air applications.
- The required creep distance is provided by non tracking boots and collars.
- Can be welded or clamped.
- Mates with 655LR and its accessories.

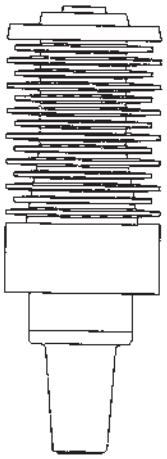
Combine a K650-T1 and 600BC to create 600TBC

1201-625B2

22kV (K)

Primary Use : Designed to be mounted directly in electrical apparatus on 600 amp 15kV and 25kV systems.

- Designed for in air applications
- Mates with 655LR and it's accessories
- Shank Length : 216mm



33kV ANSI Profile - 700 Series

750-S1

33kV

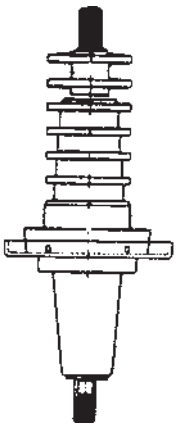
Primary use: The bushings are designed to be directly mounted in electrical apparatus on 600 amp, 35kV systems.

- Designed for side mount installation.

  Shank Length : 74.6mm

- Can be welded or clamped.
- Accepts 755LR and it's accessories.
- Epoxy moulded part.

CM702533-52

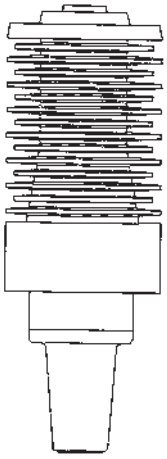


33kV

Primary Use: Designed to be directly mounted in electrical apparatus on 600 amp 33kV systems.

- Designed for in air applications
- Requires clamping
- Mates with 755LR and it's accessories.
- Shank Length : 254mm

1202-635B2



33kV

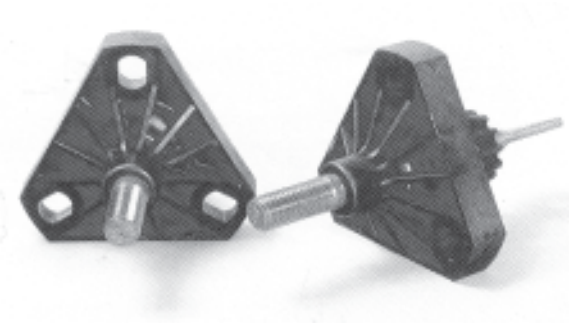
Primary Use: Designed to be directly mounted in electrical apparatus on 600 amp 33kV systems.

- Designed for in air applications
- Requires clamping
- Mates with 755LR and it's accessories.
- Shank Length : 254mm

TUF EX MOUNT

The TUF-EX Mount bushing is a low voltage bushing manufactured from Polyethylene Terephthalate. This material offers the optimum in strength and flexibility.

This bushing can withstand up to 4 times the irregularity of the sealing surface compared to standard thermoset bushings.



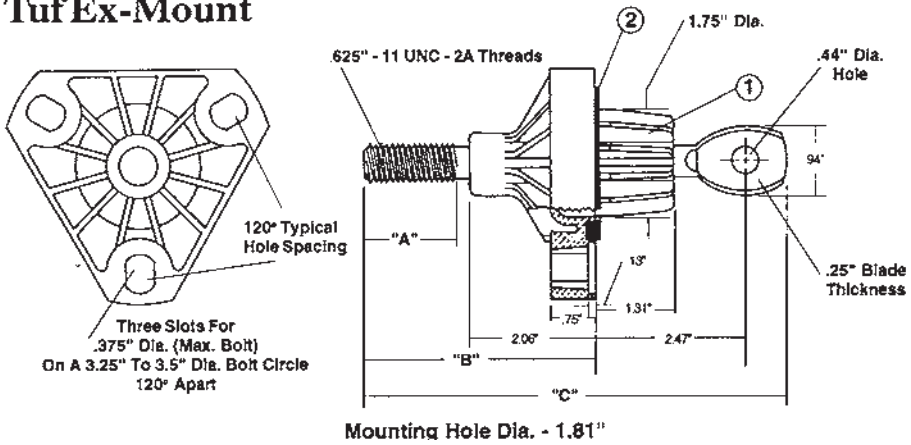
The advantages :

- Fully captive and retained gasket.
- Superior cantilever strength
- Extended stud availability
- Tolerance to surface irregularities.

Part No.	Thread dia.	Amp Rating	"A" Dim.	"B" Dim.	"C" Dim.
CM70131551	5/8"	600	35mm	94mm	175mm
CM70131561	5/8"	600	54mm	111mm	192mm
CM70133452	1"	1500	45mm	102mm	181mm
CM70133457	1"	1500	76mm	134mm	214mm

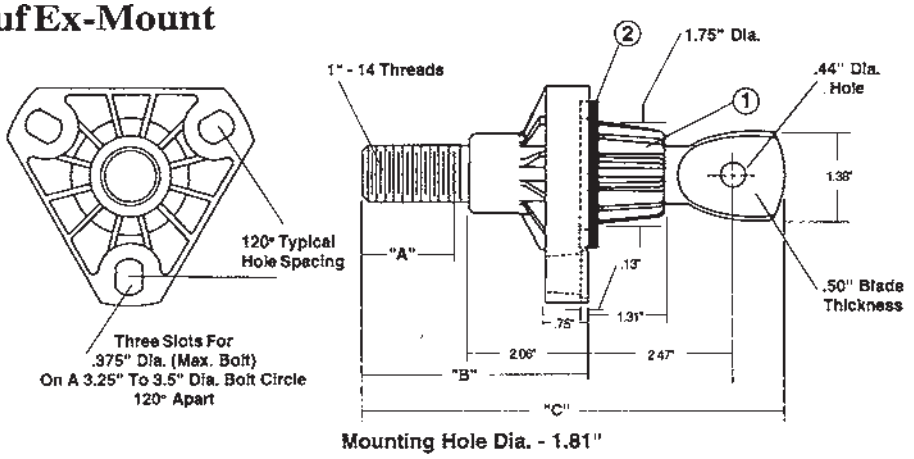
Now Available With Longer External Studs For Use With Multi - Cable Connectors

5/8" Tuf Ex-Mount



Mounting Hole Dia. - 1.81"

1" Tuf Ex-Mount



Mounting Hole Dia. - 1.81"

SPEEDMOUNT BUSHING

Material

Speedmount bushings are moulded from state of the art, field proven, ultraviolet inhibited glass filled engineered thermoplastic. For over ten years, high quality transformer components have been manufactured of this material. In addition to low voltage bushings, components such as tap changers, dual voltage switches, bushing wells, fuse holders, terminal blocks, etc. have utilized the excellent mechanical, dielectric, and weathering properties of this engineered thermoplastic.

Seal Integrity

Captive, recessed gaskets provide optimum compression on both the conductor and flange seal, independent of the tightening torque. Due to being captive, the gaskets are completely shielded from the weather and damaging ultraviolet radiation. Seal integrity for the life of the transformer prevents "breathing bushings", which allow moisture ingress and eventual transformer failure.

Cantilever Strength

The bushing flange is in full contact with the tank wall, providing unsurpassed cantilever strength, without loss of seal for withstanding the heaviest of cable loading. Fragile porcelain bushings must be cushioned from the tank wall with a gasket to prevent breakage. The toughness of the Speedmount bushings allows them to be tightened directly against the tank wall, providing effective cantilever strength many times that of porcelain bushings. See chart for strength comparison.

Impact Resistance

Made from injection moulded, glass filled thermoplastic, Speedmount bushings provide superior impact strength compared to porcelain. These bushings hold up to the abuse which can occur in shipping and handling, preventing costly repairs.

Ratings : 1.2kV, 10kV AC, 30kV BIL

Speedmount 1	Conductor 9.5mm, Conductor 16mm,	300 Amp Rated 530 Amp Rated
Intermediate	Conductor 16mm, Conductor 19mm,	830 Amp Rated 1040 Amp Rated
Speedmount II	Conductor 19mm, Conductor 25.4mm, Conductor 31.75mm,	1040 Amp Rated 1200 Amp Rated 1400 Amp Rated

Notes / Comments :

LV HEATSHRINK

NON MASTIC HEATSHRINK TUBE

Application :

Medium wall, heat-shrinkable tubes operate as mechanical protection for components. Tubes coated with thermoplastic adhesive can be used for all kinds of cable repair and sealings.

Product features:

- weather resistant
- good mechanical properties and stability
- easy and fast installation, also at low temperatures
- unlimited shelf life

Material:	Crosslinked modified polyolefin
Colour:	Black

Application temperature:	-40 to +85^{0}c
Shrinking temperature:	125^{0}c
Tensile strength:	23 N/mm2
Elongation at break:	600%
Thermal ageing:	(168h/150^{0}c)
Tensile stregth:	21 N/mm2
Elongation at break:	500 %
Brittleness temperature:	-40^{0}C
Water absorbtion:	<0.2 %
Fungus and decay resistance:	pass rate 1
Carbon Black content (UV stab.)	>2.5%

Chemical resistance (treatment with 0,1NNA SO, H SO, NaOH, NaCl)

Tensile strength:	21 N/mm2
Elongation at break:	500%

Breakdown voltage:	40 kV/mm
Volume resistivty	10^{13} Ohm cm

HEAT SHRINKABLE TUBING

	MSREU 19.8	MSREU 34/12	MSREU 40/12	MSREU 50/18
3.3kV	16, 25, 35mm²	50, 70, 95, 120, 150, 185mm²	240, 300mm²	400, 500, 630mm²
6.6kV	16, 25mm²	35, 50, 70, 95mm²	120, 150, 185mm²	240, 300, 400, 500mm²
11kV		16, 25, 50, 70mm²	95, 120, 150, 185mm²	240, 300, 400, 500mm²
22kV		35, 50mm²	70, 95, 120, 150mm²	185, 240, 300, 400mm²
33kV				50, 70, 95, 120, 150, 185, 240mm²

Sizes do overlap - Substitutions are possible

TRIFURCATION GLOVES

Application: Heat-shrinkable, hot-melt coated cable breakouts are designed to supply moisture proof sealing of power cables. They are applicable in indoor and outdoor installations on polymer and paper-insulated cables.

Product features:
- resistant against aggressive chemicals, weather and UV.
- high mechanical strength
- easy and fast installation
- unlimited shelf life

Material: Crosslinked modified polyolefin

Colour: Black

Application temperature:	-55 to +120^{0}c
Shrinking temperature:	120^{0}c
Tensile strength:	10 N/mm2
Elongation at break:	300%
Thermal ageing:	(168h/150^{0}c)
Tensile stregth:	9 N/mm2
Elongation at break	250 %
Water absorbtion:	<0.5 %
Breakdown voltage	>kV/mm
Dielectric constant	5

TRIFURCATING GLOVES				
	GLOVE 3F 60-26	GLOVE 3F 80-36	GLOVE 3F 110-48	GLOVE 3F 125-55
	Finger 26mm - 8mm	Finger 36mm - 16mm	Finger 48mm - 20mm	Finger 55mm - 20mm
	Base 60mm - 22mm	Base 80mm - 33mm	Base 110mm - 47mm	Base 125mm - 47mm
3.3kV	16, 25, 35, 50, 70, 95mm²	120, 150, 185, 240mm²	300, 400, 500mm²	
6.6kV	16, 25, 35, 50, 70, 95mm²	120, 150, 185mm²	240, 300, 400, 500mm²	
11kV	16, 25, 35, 50, 70mm²	95, 120, 150, 185mm²	240, 300, 400, 500mm²	
22kV		35, 50, 70, 120mm²	150, 185, 240, 300, 400mm²	
33kV		50, 70, 95mm²	120, 150, 185, 240mm²	300, 400mm²

Sizes do overlap - Substitutions are possible

LV HEATSHRINK

END CAPS

TYPICAL APPLICATIONS

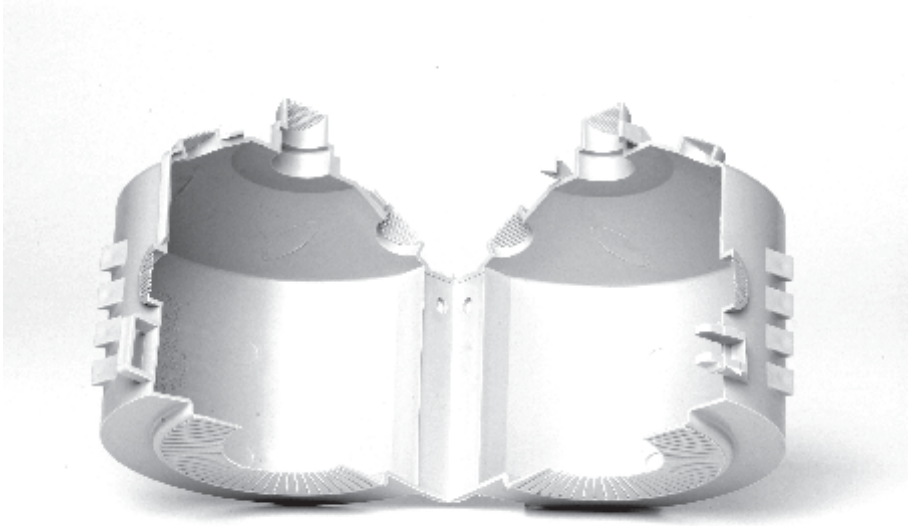
End caps are used for protecting the unused cable end from the environmental effects. They also offer insulation on the unused end of electrical cable connected to supply.

Australmold end caps, with film form coating, are suitable for pressurized and with spiral form coating for unpressurized telecommunications cables and the full range of electrical cables of PVC, XLPE, PILC or rubber type jackets.

The application table gives the end cap dimensions and cable diameter range of usage for each model.

For pressurized telecom cables, the end caps are fitted with a non-return air valve.

Australmold MODEL	Cable Dia. (mm)		Expanded Length (mm)	Recovered Wall Thickness
	Min.	Max.		
IXL 100S	4.00	9.00	35 MM	2.30
IXL 100	5.00	12.00	45 MM	2.30
IXL 105	7.00	17.00	58 MM	3.10
IXL 110	10.00	22.00	70 MM	3.00
IXL 120	17.00	34.00	95 MM	3.20
IXL 130	28.00	55.00	110 MM	3.70
IXL 130	28.00	55.00	110 MM	3.70
IXL 135	37.00	70.00	133 MM	4.30
IXL 145	50.00	100.00	164 MM	4.50
IXL 160	70.00	110.00	155 MM	4.00



m

WILDLIFE PROTECTION

APPARATUS BUSHING COVERS

Improved Protection
Against Wildlife Outages

Central Moloney Components Operation manufactures several variations of wildlife guards for protection against short circuit outages caused by wildlife coming in contact with live parts. These “Universal” guards fit most transformer, capacitor and recloser high voltage bushings.

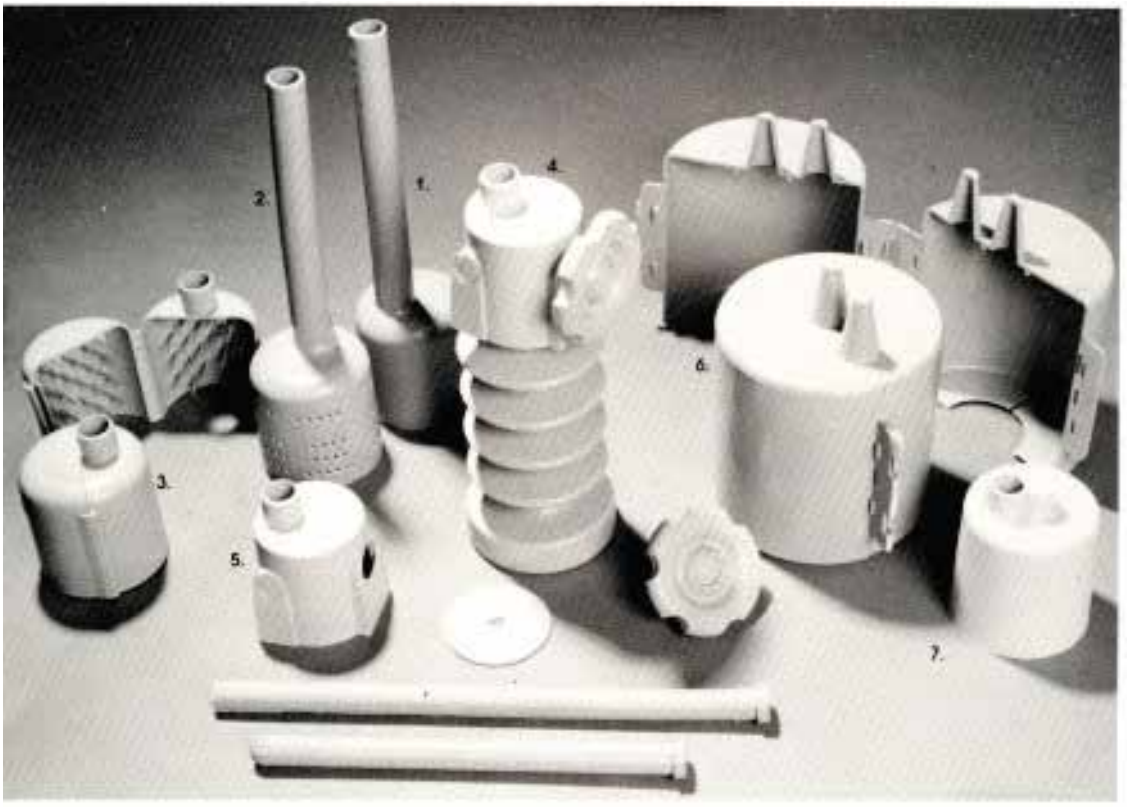
Variations...

Variations include Hand Wheel, Boot Type, Retrofitable and Universal. All show excellent resistance to salt fog, moisture, and exposure. High dielectric strength materials include Vinyl, Polypropylene and Glass-Filled Polyester.

All are furnished in standard grey and provide provisions for lightning arresters. Many variations of those shown here are available upon request.

Wildlife Guard
Advantages

- Unique/Innovative designs
- Retrofit models available
- Wide range of material options
- Reduces customer outages
- Secure self-locking models
- No special personnel required



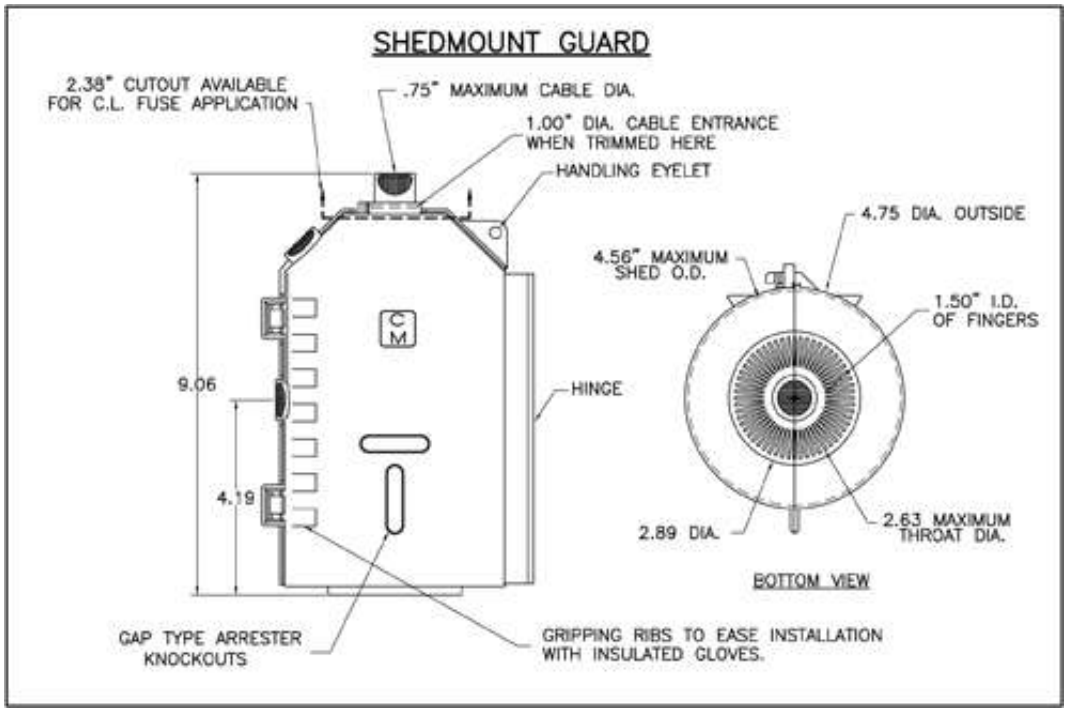
Central Moloney manufacture a wide variety of Wildlife protection guards.
Contact Australmold for guards to suit your individual requirements

SHEDMOUNT GUARD

Application : The 'Shedmount' guard easily mounts on common distribution transformer high voltage bushings. The one piece hinged design, with flexible fingers on the bottom surface, mounts securely between the first and second shed of the primary bushing.

Features :

- Solid latches which are reversible
- Convenient handling eyelet
- Thick wall construction for rigidity
- U.V. and track resistant polypropylene copolymer material
- Large cable ports for insulated cable



SHEDMOUNT TI GUARD

The Revolutionary CMI 'Shedmount TI'

Designed particularly for, but not limited to, distribution transformer primary bushings, the Shedmount TI offers the ultimate in safety and installation ease for field application on live equipment. The patented design of the Shedmount TI allows the guard to be cocked open before installation. Thisfeature coupled with the unique external closure spring and generous cable opening, allows the guard to be installed very easily with either a shotgun stick or hotstick.

Design

The key element incorporated in the design of this guard is the use of a stainless steel spring to allow the guard to be opened and closed without the use of latches. Latches work well on hand installed guards, but are very difficult to utilize on remote installed guards. The spring provides a permanent means of holding the guard closed and in the proper position.

One of the obstacles in the application of retrofit guards has been the random orientation of high voltage line leads and arrester leads on direct connected units. The CMI Shedmount TI features an extensive length of meshed cable entrance to close snugly around the entrance cables, regardless of location.

The Shedmount TI incorporates a universal handle for suitable attachment to the clasp of a shotgun stick. Notches allow the shotgun stick to be installed at a range of angles. The handle also accommodates a slip fit adapter for use with a standard hotstickfitting.

Material

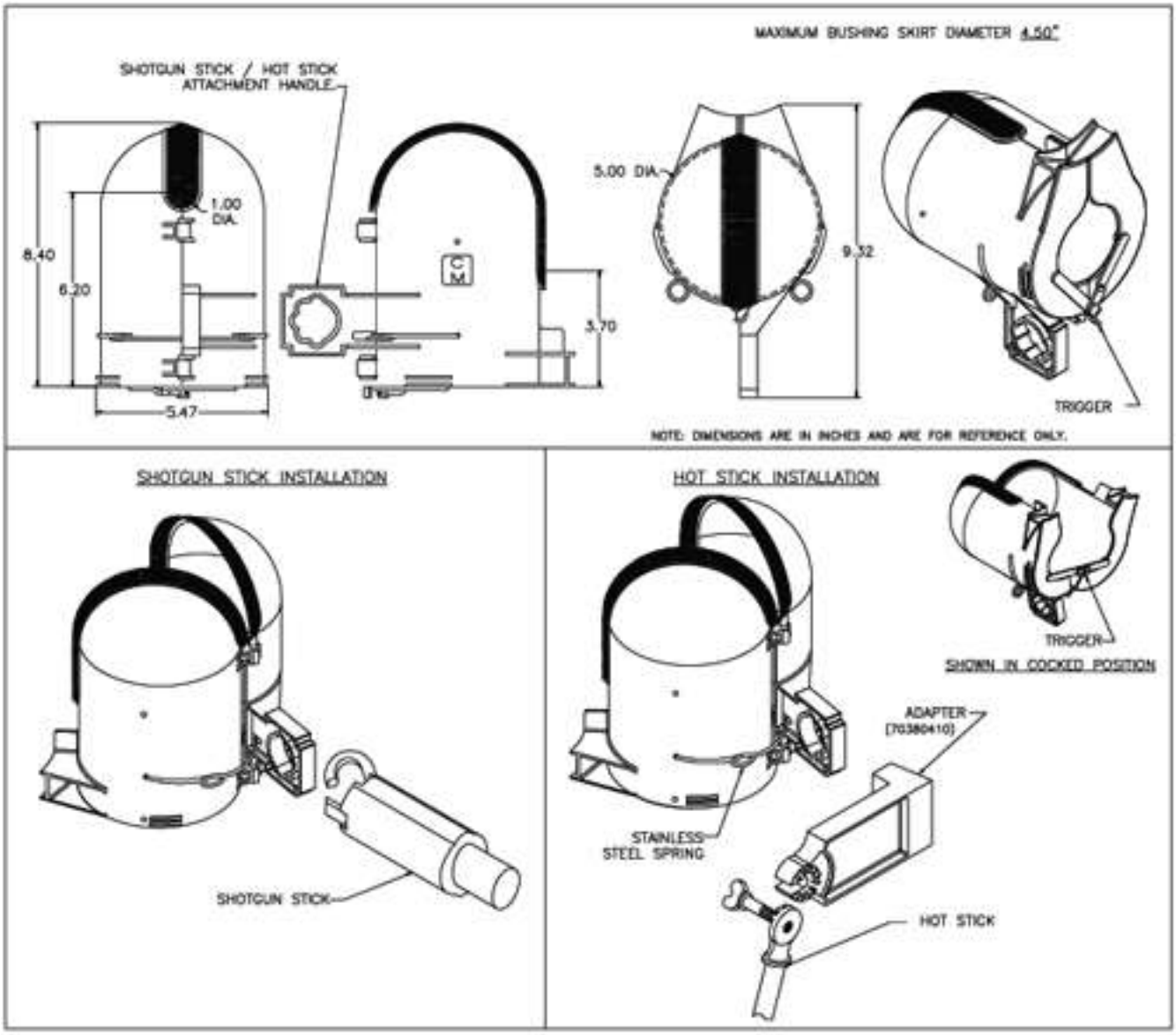
The Shedmount TI is molded from premium grade, weather resistant, UV stabilized polypropylene copolymer. CMI has over 20 years of excellent experience with this material in numerous wildlife guard designs. Accelerated UV testing in Arizona, utilizing concentrated natural sunlight and simulated moisture cycles, has proven this material will hold up in the toughest of conditions for decades.

Application

The CMI Shedmount TI guard is designed for application on all common distribution class transformer bushings and arresters. It can also be used on other style bushings of similar size. This guard is designed to be installed only over the top shed of the bushing or arrester. This configuration holds the guard firmly in place and limits the electrical stress on the guard itself.

Installation over more than one shed is not recommended.

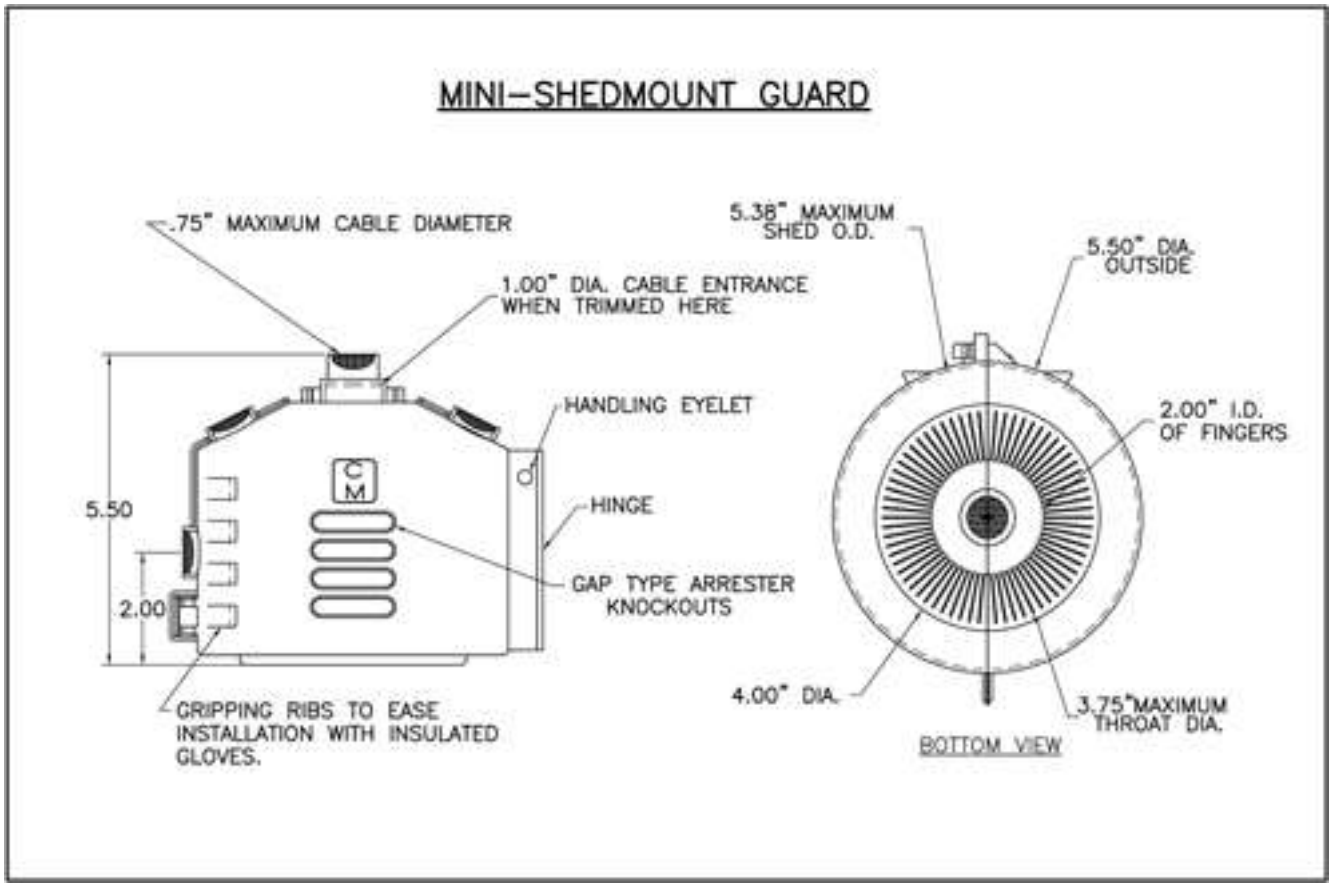
SHEDMOUNT TI GUARD



Patent 6,995,313 and 6,008,196

MINI SHEDMOUNT GUARD

A hinged guard for use on distribution transformer bushings or other similar sized bushings. Four generous sized, meshed cable ports provide plenty of cable orientation options. The larger diameter of this guard makes it ideal for use on distribution polymer arresters. Positive latches provide permanent closure, but can be unlatched for guard removal. The shorter height of this guard, compared to the standard Shedmount guard, shortens the build height on top of the transformer. Due to the reduced height of this guard, it is recommended for use only with insulated lead wire. Ribs on the sides of the guard enhance the ability to install live with insulated lineman gloves. Extensively tested, UV stabilized, high dielectric polypropylene copolymer provides superior durability and weather resistance.



BAYONET FUSE HOLDER

LOADBREAK FUSE HOLDER

The ABB “DO-III” fuse holder is a draw-out, load break, expulsion fuse holder, designed for use with pad-mounted transformers filled with transformer oil or other approved applications. It is designed to protect the distribution system in the event of an internal transformer fault, secondary fault, or severe overload when used with properly coordinated series fuses. Following industry safety practices, the “DO-III” fuse holder can be used to break load.

Features & Advantages

Ratings		
BIL	150 kV	
60 Hz, 1 Minute Withstand	50 kV	
Interupting Rating		
kV L-G	Available Current Symmetrical rms (Amperes)	
2.4	4,500	
8.3	3,500	
15.5	2,500	
23	1,000	
Load Make/Break Ratings at 80% Power Factor		
kV L-G	kV L-L	Current (Amperes)
5.8	10	160
8.9	15.5	150
15.4	26.7	80
19.9	34.5	50
Maximum Transformer Wall Thickness		
0.25 inches (6.4mm)		

Part numbers for ordering

Complete Fuse Holder Assembly with Mounting Hardware

1C10775G01	Vent hole only	1C10775G02	Check Valve only	1C10775G03	Vent Hole & Check Valve

Options with Silver Plated Contacts for High Current Applications

1C10775G04	Vent hole only - Cartridge not included	1C10775G06	Vent hole only	1C10775G07	Check Valve only
1C10775G08	Check Valve only - Cartridge not included				

Spare Parts

1C10775G05	Mounting Nut & Gasket	3A33981H01	End Plug Only
1C10765G01	Puller Assembly, Fuse Cartridge & End Plug	1C10765G03	Puller Assembly, Silver Plated Fuse Cartridge & End Plug Only
1C10765G02	Puller Assembly Only	1B1112G02	End Plug & Silver Plated Cartridge
1B11120G01	Fuse Cartridge & End Plug		

DRIP TRAY AND MOUNTING BLOCK

CM70382457

Since bayonet fuses are typically located directly over the primary elbows, it is extremely important that oil be prevented from dripping on the primary connections. Oil can damage the rubber material of the elbows. Also, there is growing environmental concern about oil spillage.

"Tuf-Cup" Drip Shield Advantages

Strong tethered latch

Strength...Will withstand over 25lbs of weight

Optional removable absorbant pad to soak up spills

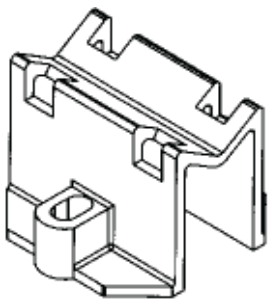
Ease of Installation . . .

Will adapt to all brands of bayonet Fuse Holders

Long lasting engineered polypropylene copolymer

CURRENT LIMITING MOUNTING BLOCK

CM7030169



Current limited fuse mounting block rated for clearances of 200kV BIL.

The current limiting fuse mounting block provides the simplest available method of mounting an oil submersible fuse.

Manufactured from fiberglass filled thermoplastic polyester resin, the mounting block provides the strength required for secure installation.

DRY WELL FUSE HOLDER

Housing
The dry-well housing consists of filament-wound glass tubing with a resin-rich outer surface. This outer surface serves as the barrier against oil permeation through the tubing wall.

Dry-well fuse holder location
In padmounted transformer applications, the dry-well fuse holder is mounted on the transformer front plate, below the oil level. Because the current-limiting fuses that these fuse holders are designed to accept will not function properly if exposed to transformer oil, the interior of the fuse holder must remain oil tight.

Non-loadbreak fuse holders
Non-loadbreak fuseholders for padmounted transformer applications are available at 8.3, 15.2 and 21.1 kV (125kV BIL), both standard and submersible construction. The 21.1 kV (150kV BIL) rating is available in standard construction only.

For those applications where an interlocked loadbreak switch is not used in conjunction with the non-loadbreak fuseholder, an important feature of the non-loadbreak fuseholder is an integral warning plate to warn against operation while energized, and safety baffle that must be moved to gain access to the fuse.

Loadbreak fuseholders

The ERMCO Components loadbreak current-limiting fuse holder functions both as a dry-well holder and as a loadbreak switch. The rod and bore principle, upon which loadbreak termination operations is based, is the means by which switching is accomplished within the fuse holder. Fuse removal is accomplished by a hot-stick.

The material that provides the arc-quenching action is a formulation developed for use in ECI Sure Make terminations. It has superior properties that maximize the number of switching operations while providing excellent thermal stability. Testing resulted in the fuseholder loadbreak ratings listed in Table II.

ECI also has an 8.3kV three-phase rated loadbreak fuse tube.

A summary of the ECI ratings follows:

Table I Non-Loadbreak - Standard and Submersible

Line to Ground	8.3 kV	15.2 kV	21.1 kV	21.1 kV**
Impulse Withstand	95 kV BIL	125 kV BIL	125 kV BIL	150 kV BIL
Corona Extinction	11 kV	19 kV	26 kV	26 kV
Momentary Current (without fuse)	10,000 Amps*	10,000 Amps*	10,000 Amps*	10,000 Amps*
Continuous Current (without fuse)	160 Amps*	160 Amps*	160 Amps*	160 Amps*
Max Fault Current Interrupting Ability	EQUAL TO FUSE RATING			

*rms Symmetrical **Not available in submersible design

Table II Loadbreak

Line to Ground	8.3 kV (1Ø)	8.3/14.4 kV (3Ø)	15.2 kV (1Ø)
Impulse Withstand	95 kV BIL	95 kV BIL	125 kV BIL
Corona Extinction	11 kV	11 kV	19 kV
Momentary Current (without fuse)	10,000 Amps*	10,000 Amps*	10,000 Amps*
Continuous Current (without fuse)	160 Amps*	160 Amps*	160 Amps*
Max Fault Current Interrupting Ability	EQUAL TO FUSE RATING		
Load Make Operations at 200A, 75% Power Factor	20	20	10
Load Break Operations at 200 A, 75% Power Factor	20	20	10
Loadbreak Current	200	150	200

*rms Symmetrical

TRANS-GUARD FX FUSES

The Trans-Guard™ F X full-range current-limiting fuse provides both overload and fault current protection for distribution equipment in a single fuse body. As a full-range fuse, it is capable of interrupting any continuous current between the minimum current that can cause melting of its elements and its rated maximum interrupting current (50,000 amps). The fuses are capable of interrupting in elevated ambient temperatures up to their rated maximum application temperature (RMAT). The Trans-Guard™ FX fuse is hermetically sealed and thus discharges no gasses during fuse operation. An additional design distinction is it's Patented Damage Sensor whichsignificantly reduces the potential for fuse failure in the event of element damaging current surges.

Applications:

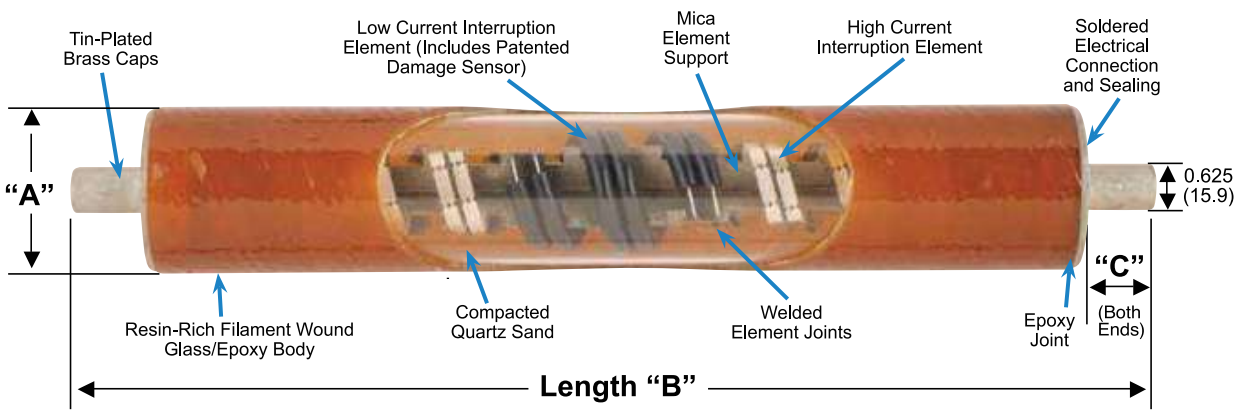
Trans-Guard™ FX fuses are available in a broad range of ratings. For ease of application, all designs are compatible with the industry-recognized standard mounting codes. Common applications include the Trans-Guard™ FX:

- Installed in drywell canisters for distribution transformer protection
- Clip mounted in live-front switchgear
- Externally mounted on overhead distribution systems (several outdoor versions available – contact factory for more information)

FEATURE	BENEFIT/DESCRIPTION
Patented Damage Sensor	Designed to significantly reduce the risk of fuse failure should the fuse be subjected to an element damaging current surge
Hermetically sealed construction	Ensures that no gasses escape from the fuse during current interruption. All Trans-Guard™ FX fuses are helium mass spectrometer leak tested to ensure sealing system integrity
Rugged machined brass end caps	Used for greater ferrule strength resulting in less distortion and more secure fuse attachment in dry-well canisters
Tested in accordance with the most recent ANSI/IEEE standards	Includes requirements for short circuit testing at the manufacturer's specified rated maximum application temperature (RMAT)
Optional blown fuse indicator (See Figure 3)	Reliable indication of fuse operation with a unique design that does not affect the fuse's arcing performance

TRANS-GUARD FX FUSES

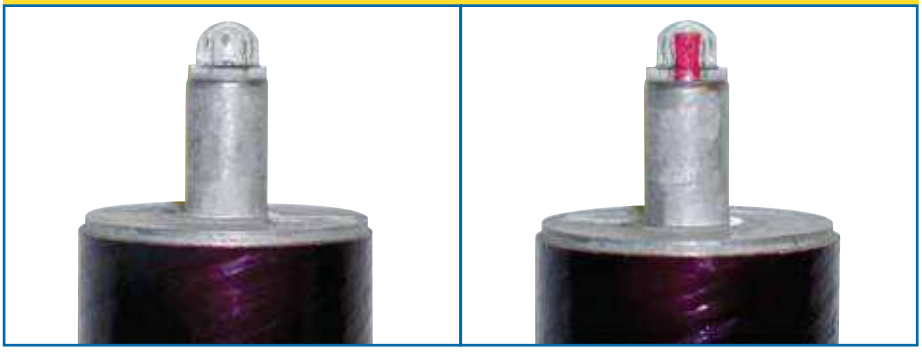
CONSTRUCTION



DIMENSIONAL INFORMATION FOR TRANS-GUARD™ FX FUSES

Nominal Fuse Voltage Rating (kV)	Current Rating (Amps)	Dimensions inches (mm)			Standard Mounting Code
		A	B	C	
5.5	80-200	3.32-3.25" (84.4-82.5mm)	17.51-17.35" (444.8-440.7mm)	1.21-1.17" (30.7-29.7mm)	6
8.3	3-50	2.25-2.18" (57.0-55.3mm)	10.00-9.90" (254.0-251.5mm)	1.02-1.00" (25.9-25.4mm)	4
	65-80	2.25-2.18" (57.0-55.3mm)	14.31-14.21" (363.5-360.9mm)	1.02-1.00" (25.9-25.4mm)	5
	65-125	3.32-3.25" (84.4-82.5mm)	14.70-14.54" (373.4-369.3mm)	1.21-1.17" (30.7-29.7mm)	5
15.5	3-50	2.25-2.18" (57.0-55.3mm)	14.31-14.21" (363.5-360.9mm)	1.02-1.00" (25.9-25.4mm)	5
	65-100	3.32-3.25" (84.4-82.5mm)	17.51-17.35" (444.8-440.7mm)	1.21-1.17" (30.7-29.7mm)	6
23.0	6-50	2.25-2.18" (57.0-55.3mm)	17.12-17.02" (434.8-432.3mm)	1.02-1.00" (25.9-25.4mm)	6

BLOWN FUSE INDICATOR



Before Operation | After Operation

TRANS-GUARD FX FUSES

ELECTRICAL CHARACTERISTICS OF TRANS-GUARD™ FX FUSES (SINGLE FUSES)

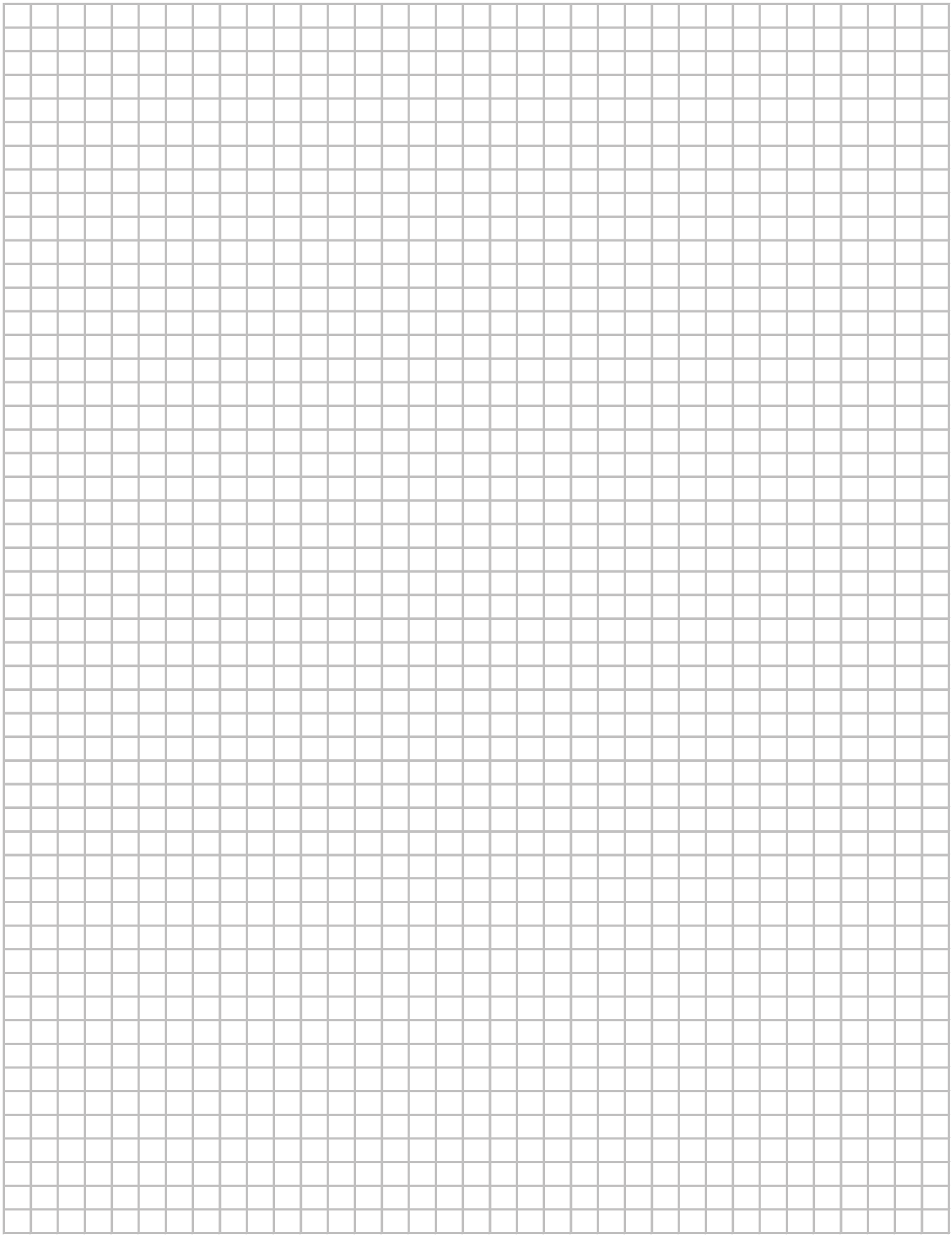
Nominal Fuse Voltage Rating (kV)	Fuse Diameter (in)	Current Rating (Amps)	Fuse Catalog Number	Rated Maximum Voltage (kV)	Maximum Continuous Current (In Air) (6)			Peak Arc Voltage (5) (kV)	Minimum Melt I^2t (AMP^2SEC)	Maximum Melt I^2t (3) (4) (AMP^2SEC)	RMAT (8) (°C)
					25°C	40°C	55°C				
5.5	3.3	80	HTFX320080	5.5	99	96	94	15.0	22,100	110,000	71
		100	HTFX320100		126	122	118	15.0	56,700	280,000	
		125	HTFX320125		142	138	134	15.0	78,300	380,000	
		150	HTFX320150		184	178	173	15.0	176,000	860,000	
		200	HTFX320200		208	202	196	15.0	259,000	1,270,000	
8.3	2.2	3	HTFX230003	10.0	5.0	4.9	4.7	30	100	350	140
		6	HTFX230006		11.0	10.5	10.0	32	620	2,700	
		8	HTFX230008		13.5	13.0	12.5	28	800	4,000	
		10	HTFX230010		16.0	15.5	15.0	28	800	4,000	
		12	HTFX230012		20.5	19.5	19.0	26	920	8,000	
		18	HTFX230018		23.5	22.5	22.0	26	1,310	9,500	
		20	HTFX230020		27.5	26.5	25.5	26	1,620	11,000	
		25	HTFX230025		37.0	35.5	34.5	26	3,660	22,000	
		30	HTFX230030		41.0	39.5	38.5	26	5,250	30,000	
		40	HTFX230040		50.0	48.5	47.0	26	8,700	50,000	
		50	HTFX230050		57.0	55.0	53.5	26	12,800	70,000	
		65	HTFX230065	8.8	87.0	84.0	81.5	23	34,000	200,000	
		80	HTFX230080		100.0	98.0	95.0	22	51,200	280,000	71
	3.3	65	HTFX330065	8.3	81.0	79.0	77.0	25	25,200	100,000	
		80	HTFX330080		95.0	92.0	89.0	25	47,200	185,000	
		100	HTFX330100		120.0	117.0	113.0	25	78,300	330,000	
		125	HTFX330125		135.0	131.0	127.0	25	115,150	480,000	
15.5	2.2	3	HTFX240003	17.2	5.0	4.9	4.7	51	100	510	140
		6	HTFX240006		11.0	10.5	10.0	54	620	2,600	
		8	HTFX240008		13.5	13.0	12.5	46	800	3,700	
		10	HTFX240010		16.0	15.5	15.0	46	800	3,700	
		12	HTFX240012		20.5	19.5	19.0	43	920	6,500	
		18	HTFX240018		23.5	22.5	22.0	45	1,310	8,000	
		20	HTFX240020		27.5	26.5	25.5	45	1,620	10,000	
		25	HTFX240025		37.0	35.5	34.5	45	3,660	22,000	
		30	HTFX240030		41.0	39.5	38.5	45	5,250	30,000	
		40	HTFX240040		50.0	48.5	47.0	45	8,700	50,000	
		50	HTFX240050		53.0	51.5	50.0	45	12,800	70,000	
	3.3	65	HTFX340065	15.5	78.0	75.0	73.0	40	25,200	110,000	
		80	HTFX340080		88.0	85.0	82.0	40	39,400	185,000	71
		100	HTFX340100		114.0	110.0	107.0	40	80,000	380,000	
23.0	2.2	6	HTFX250006	23.0	11.0	10.5	10.0	67	620	3,100	140
		8	HTFX250008		13.5	13.0	12.5	61	800	4,800	
		10	HTFX250010		16.0	15.5	15.0	61	800	4,800	
		12	HTFX250012		20.5	19.5	19.0	60	920	8,300	
		18	HTFX250018		23.5	22.5	22.0	60	1,310	11,200	
		20	HTFX250020		27.5	26.5	25.5	60	1,620	13,000	
		25	HTFX250025		37.0	35.5	34.5	60	3,660	28,000	
		30	HTFX250030		41.0	39.5	38.5	60	5,250	38,000	
		40	HTFX250040		48.0	46.5	45.0	60	8,700	61,000	
		50	HTFX250050		55.0	53.0	51.5	60	12,800	82,000	

TABLE A – ELECTRICAL CHARACTERISTICS OF TRANS-GUARD™ FX FUSES (PARALLEL FUSES)

Nominal Fuse Voltage Rating (kV)	Fuse Diameter (in)	Current Rating (Amps)	Fuse Catalog Number	Rated Maximum Voltage (kV)	Maximum Continuous Current (In Air) (6)			Peak Arc Voltage (5) (kV)	Minimum Melt I^2t (AMP^2SEC)	Maximum Melt I^2t (3) (4) (AMP^2SEC)	RMAT (8) (°C)
					25°C	40°C	55°C				
8.3	2.2	60	HTFX230030	10.0	80.0	77.0	75.0	26	21,000	120,000	140
		80	HTFX230040		98.0	95.0	92.0	26	34,000	180,000	
		100	HTFX230050	8.3	111.0	108.0	105.0	24	51,200	250,000	
		130	HTFX230065	8.8	170.0	165.0	160.0	22	136,000	670,000	
		160	HTFX230080		198.0	191.0	186.0	21	204,800	890,000	40
	3.3	130	HTFX330065	8.3	158.0	154.0	151.0	24	100,800	400,000	71
		160	HTFX330080		186.0	180.0	175.0	24	189,000	740,000	
		200	HTFX330100		235.0	229.0	221.0	24	313,000	1,300,000	
		250	HTFX330125		265.0	256.0	249.0	24	460,500	1,800,000	
15.5	2.2	60	HTFX240030	17.2	80.0	77.0	75.0	45	21,000	110,000	140
		80	HTFX240040		98.0	95.0	92.0	45	34,800	170,000	
		100	HTFX240050		104.0	101.0	98.0	45	51,200	310,000	
	3.3	130	HTFX340065	15.5	152.0	147.0	143.0	39	100,800	440,000	71
		160	HTFX340080		172.0	167.0	160.0	39	157,500	740,000	
		200	HTFX340100		222.0	214.0	208.0	39	320,000	1,520,000	

1. Designs have a 50,000 Amps rms. Symmetrical Rating (except 3A 17.2 kV which was tested at 44kA maximum).
2. Current ratings shown in Table A are achieved by using a parallel combination of two fuses (order two fuses). To facilitate equal sharing of the interrupting duty, the two fuses should be resistance matched (± 2%) and be mounted such that the current paths to and from each fuse are symmetrical.
3. Tabulated Maximum Total I^2t values are for currents of 50,000 amperes at the nominal voltage of the fuse (except for fuses having a rated maximum voltage of 8.8kV, in which case the maximum total I^2t values are at 8.8kV). Fuses that have a rated maximum voltage higher than their nominal voltage rating will have a higher I^2t let-through when applied at voltages up to these higher values. For example, maximum total I^2t values are increased by approximately 30% when 8.3 kV fuses are applied at 10 kV and approximately 25% when 15.5 kV fuses are used at 17.2 kV.
4. Maximum total I^2t values are reduced for currents below 50,000 A. For example, at 10,000 A, maximum total I^2t values are approximately 15% less than the published values.
5. Peak arc voltages quoted are for 50,000 A currents at the rated maximum voltage listed. Reduced currents and voltages will reduce the peak arc voltage. Consult the factory for further information.
6. Maximum continuous currents at higher ambient temperatures, and in confining enclosures:
   - These may be determined by derating the fuses by 0.2% per degree C over 25°C (for example at 85°C the derating would be 60 x .2 = 12%, making the maximum continuous current of a 30 A fuse 41 x .88 = 36.1 A).
   - When fuses are applied in a confining enclosure, such as a drywell canister, additional derating of a fuse's maximum continuous current is necessary. Specifically, the maximum continuous current for fuses used in a dry-well canister, with the canister completely submerged in oil, will be reduced by an additional 2% (3% for fuses having a rated maximum voltage of 8.8kV). When calculating the derating for temperature, as described above, the temperature of the oil surrounding the canister should be used. For other types of enclosures, please consult the factory.
7. Reduction in the long time melting current of the fuses (approximately one hour and longer) due to higher ambient temperatures and use in enclosures is the same as described above for "maximum continuous currents". See time-current characteristics for melting characteristics in this time region.
8. The 2.2" dia. 80A and 160A (paralleled 80A) fuses have an RMAT of 140°C at a reduced rated maximum voltage of 5.5kV.

Notes / Comments :



TAP CHANGERS & DUAL VOLTAGE SWITCHES

This series of tap changers and dual voltage switches are de-energized, rotary-type switches, suitable for use in distribution transformers, both pole and pad mounted. The switches are mounted through the tank wall and are operable from outside the transformer.

They are available in single and multi-deck configurations with various types of coil lead connector styles so that they can be used in a wide variety of transformer applications. Ratings and performance features meet and often exceed the requirements of most transformer users.

Features and Advantages

Multi-deck versatility : The switches are available in various deck configurations for maximum versality. Single and three phase applications are accommodated through the use of multiple interconnected decks. High BIL designs are available.

Contact System : The moving contact system for the DT-100 consists of a spring loaded, copper wiping contact, while the remaining switch configurations consist of a spring loaded, copper rolling contact. The rotor snaps into position between the adjacent stationary contacts as the external handle is turned. This contact/snap action is resistant to being placed in an open circuit position by providing a very positive feel to the operator when the switch is in position. The type DT-100 and DV-100 switches are rated for 100 A and the type DT-150 and DV-150 are rated for 150 A.

Ampere	Terminal Type & Connection Size	Terminal Angle	Terminal Style #	1 Deck TC 150kV BIL	2 Deck TC 150kV BIL	3 Deck TC 150kV BIL	1 Dec DV 125kV BIL	2 Deck DV 125kV BIL	3 Deck DV 125kV BIL
100	Crimp-# 12-10 AWG	0	9820A44H01	1C11075G02	609C227G09	609C178G12	609C176G05	609C177G09	609C181G12
100	Crimp-# 12-10 AWG	0	9820A44H02	1C11075G01	609C227G18	609C178G05	609C176G09	609C177G05	609C181G05
100	Crimp-# 12-10 AWG	45	9820A44H04	1C11075G03	609C227G15	609C178G15	609C176G15	609C177G15	609C181G15
100	Crimp-# 12-10 AWG	90	9820A44H03	1C11075G04	609C227G16	609C178G16	609C176G16	609C177G16	609C181G16
150	Hole-0.25 (6.3mm)	45	1B11081H04	609C175G12	609C227G12	609C178G09	609C176G12	609C177G12	609C181G08
150	Hole-0.25 (6.3mm)	90	1B11081H02	609C175G07	609C227G11	609C178G14	609C176G11	609C177G11	609C181G11
150	Stud-0.25-20 Thread	45	1B11082G04	609C175G13	609C227G13	609C178G13	609C176G13	609C177G13	609C181G13
150	Stud-0.25-20 Thread	90	1B11082G02	609C175G08	609C227G14	609C178G11	609C176G08	609C177G08	609C181G09

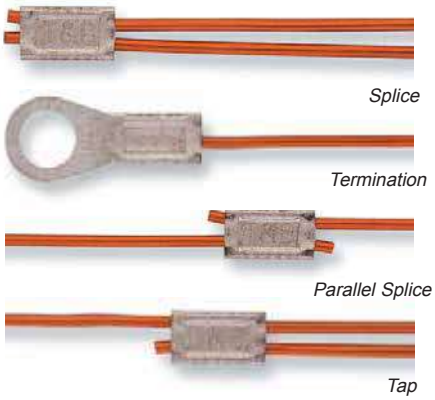
ENAMEL PIERCING CONNECTORS
DRAGONTOOTH

Splice, tap and terminate magnet wire quickly and easily!

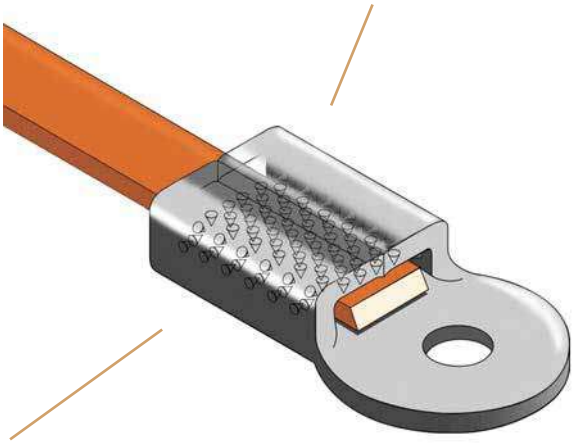
Thomas & Betts Dragon Tooth® connectors and installing tools are designed to splice, tap and terminate magnet wire from 32 AWG to 460,000 CMA copper and from 20 AWG to 460,000 CMA aluminum conductors in motor and transformer applications. Dragon Tooth® Magnet Wire Connectors penetrate the insulation and oxide layers to make electrical contact on magnet wiring. The result is permanent, low resistance electrical connections, capable of maintaining contact integrity throughout the life of the connection.

- Designed to penetrate magnet wire insulation during application, eliminating the need for stripping, brazing, welding or other methods of joining magnet wire.
- Can be installed in seconds.
- Requires minimal training for installation.
- Made of copper alloy, tin plated, with a number of teeth on the inner surface.
- Splices and taps have an open side permitting easy access to wire and makes internal coil tapping possible.
- For aluminum to copper, aluminum to aluminum, or copper to copper magnet wire connections.
- Supplied with bolt holes to accommodate No. 6 through 1/2" studs and includes male and female .250 x .032" disconnects.
- Splices and fork terminals accommodate wire sizes 24 AWG to 12 AWG in a variety of combinations, including combining magnet wire with stripped wire lead. For solid or stranded wire #20 to #4/0 AWG.
- Larger connectors accommodate circular mil range from 50,000 to 460,000 cm.
- Teeth on the transition washers penetrate aluminum and copper oxides, enabling copper to aluminum connections to be made in a bolted joint without the use of inhibiting compounds. Transition washers also accommodate the difference in thermal expansion between copper and aluminum, and enhance the efficiency of bolted grounding connections.
- Connector and matching tooling do the entire job.

Typical Applications



These connectors are made of copper alloy, tin plated, with a number of teeth on the inner surface. When the connector is compressed onto an insulated magnet wire, the sharp, hardened teeth penetrate the insulation and the oxide and bite into the conductor. An electrically sound, low-resistance connection is established as a result of the combination of high pressures at the tip and edges of the teeth, and the sliding action between the teeth and the conductor.



Dragon Tooth connectors transform the perpendicular compression force, which would normally contribute to conductor creep, into distributive forces that effectively resist cold flow.

READY TO INSTALL, PRE-ASSEMBLED CABLES

Interface A to F connectors and terminations

Application

Pre-assembled cables are polymeric insulated medium voltage cables, equipped with connectors and terminations. They can be used for connecting transformers and switchgears. We manufacture the pre-assembled cables specifically customized in terms of cable length and type of accessories. The cables and flexible cables, primarily checked by us, are assembled with different conductor cross-sections and accessories, depending on customer's application.

Up to 42 kV

U_0 / U (U_m)

6/10 (12) kV
6.35/11 (12) kV
8.7/15 (17.5) kV
12/20 (24) kV
12.7/22 (24) kV
18/30 (36) kV
19/33 (36) kV
20.8/36 (42) kV

Flexible cables

Pre-assembled flexible cables, such as NTMCGCWÖU, are used in stations with little space, where the bending radii cannot be met with XLPE-insulated cables.
Due to their design
- Fine-wire, tin-plated copper conductor
- Ethylene-propylene rubber (EPR) insulation
- Fine-wire shield
- Polychloroprene (flame-and oil-resistant) outer sheath,

these flexible cables can be laid with minimum bending radii of 5 times the outside diameter. In terms of their current-carrying capacity in service and in the event of short-circuit current, EPR-insulated cables are almost equivalent to XLPE-insulated cables.

Cables

Pre-assembled cables type N(A)2XS(2)Y are used where the space conditions inside equipment allow the minimum cable bending radius of 15 times its outside diameter.

Dimensioning basis

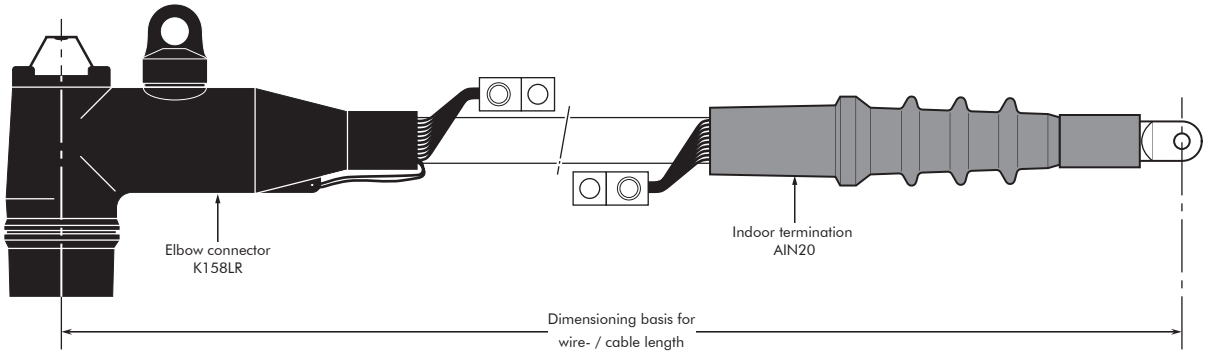
When dimensioning the preassembled cable length, we take the center points of both cable accessories as the basis. When indicating the length of the shield wire, please also specify whether the shield wire should be lead out on one or both sides.

Cable Glands & Grommets

Cable glands & grommets can be fitted on pre-assembled cable leads upon request.

Accessory A
See table for accessory selection.

Accessory B
See table for accessory selection.



READY TO INSTALL, PRE-ASSEMBLED CABLES

Example request:

Please fill in what is applicable.

	U_0/U (kV) 6/10			U_0/U (kV) 12/20			U_0/U (kV) 18/30			U_0/U (kV) 20.8/36			* Length of shield wire
	L 1	L 2	L 3	L 1	L 2	L 3	L 1	L 2	L 3	L 1	L 2	L 3	
Conductor/ cable type													
Conductor/ cable length													
Accessory A													
Accessory B													
Partial discharge sample test	yes / no			yes / no			yes / no			yes / no			
AC withstand test	yes / no			yes / no			yes / no			yes / no			

* If you do not indicate the length of the shield wire, we will assume a length of 500 mm for accessory "A" and "B".

Accessory selection:

We will also assemble accessories that are not listed here.

Type	Design	Interface	Material	Assembly technique
(K)158LR(/G)	Elbow connector	A	EPDM	Slip-on technology
(K)152SR(/G)	Straight connector	A	EPDM	Slip-on technology
(K)(M)400LR/G	Elbow connector	B	EPDM	Slip-on technology
(K)(M)430TB/G	Compact tee connector	C	EPDM	Slip-on technology
(K)(M)(P)484TB/G	Compact tee connector	C	EPDM	Slip-on technology
(K)(M)(P)804PB/G	Coupling connector	C	EPDM	Slip-on technology
(K)(M)(P)489TB/G	Compact tee connector	C	EPDM	Slip-on technology
(K)(M)(P)809PB/G	Coupling connector	C	EPDM	Slip-on technology
(K)676LRA/G	Separable tee connector	D	EPDM	Slip-on technology
775LR	Separable tee connector	E	EPDM	Slip-on technology
(K)(M)(P)944TB/G	Compact tee connector	F	EPDM	Slip-on technology
AIN 10	Indoor termination	-	EPDM	Slip-on technology
AIN 20	Indoor termination	-	Silicone	Slip-on technology
AIN 30	Indoor termination	-	Silicone	Slip-on technology
AIN 36	Indoor termination	-	Silicone	Slip-on technology
AFN 10	Outdoor termination	-	Silicone	Slip-on technology
AFN 20	Outdoor termination	-	Silicone	Slip-on technology
AFN 30	Outdoor termination	-	Silicone	Slip-on technology
AFN 36	Outdoor termination	-	Silicone	Slip-on technology

TEST LEADS

FOR SEPARABLE CONNECTORS AND BUSHINGS

Application

Test leads are prefabricated lengths of cable on which a separable connector and a termination is installed on each end.
They are typically used to perform tests on electrical installations, transformers, motors...

Up to 42kV

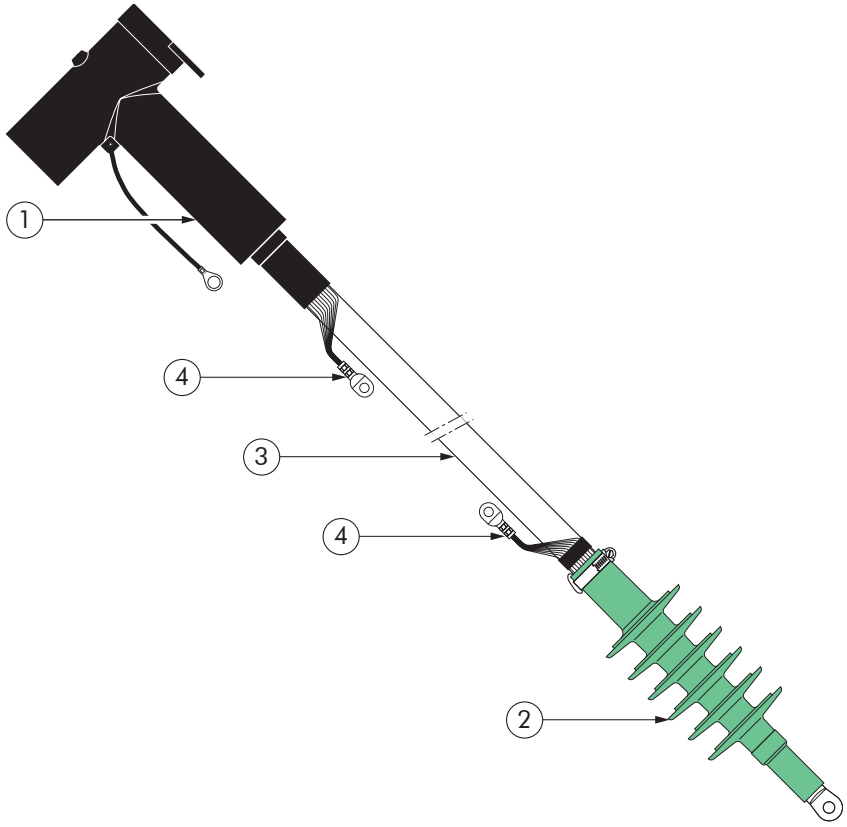
6/10 (12) kV
6.35/11 (12) kV
8.7/15 (17.5) kV
12/20 (24) kV
12.7/22 (24) kV
18/30 (36) kV
19/33 (36) kV
20,8/36 (42) kV

Design

Test lead comprising:

1. Connector adapted to the chosen interface type.
2. Termination adapted to the chosen voltage class.
3. Cable length.
4. A screen wire finishing with an earthing lug is standard. Other finishings are available upon request.

All test leads are standard tested for AC withstand and partial discharge before leaving the factory. Other tests can be done on request.



Cable

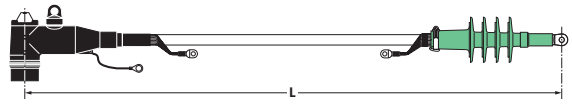
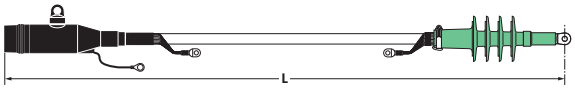
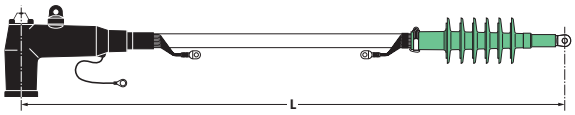
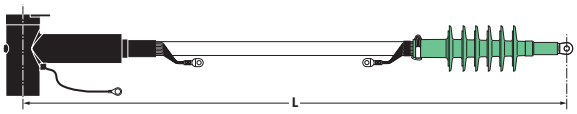
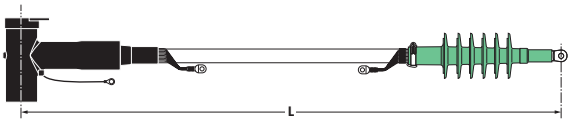
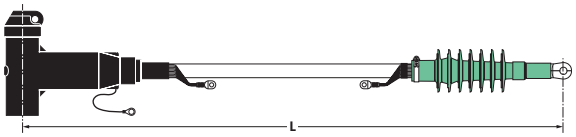
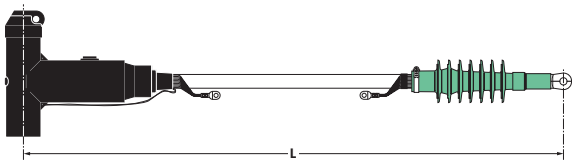
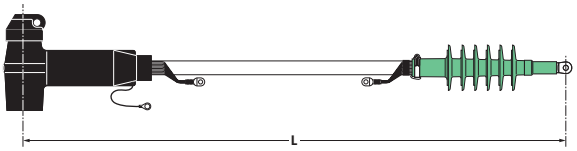
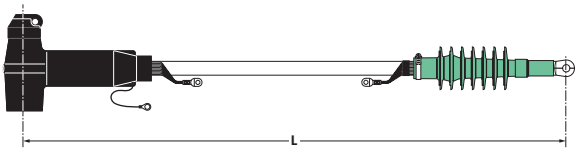
The accessories of the cable jumpers are installed on a (VDE standard) cable. This is an XLPE insulated cable with an aluminium conductor and a copper wire screen. This cable has a minimum bending radius of at least 15 times the outer sheath diameter.

If the cable needs to be more flexible, with a bending radius of up to 5 times the outer diameter, an EPR cable can be used.

Upon request, cable jumpers with other cables, such as class 5 flexible cable used in windturbines, can be supplied.

Ordering instructions

Select the part number with the correct equipment bushing interface and substitute **L** with the required cable length (in cm).

Ordering part number	Interface type	Voltage Um (kV)	Current Ir (A)	Con-nector type	Termi-nation type	Diagram
TL-24-AL-**L**	A	24	250	158LR	AFN20	
TL-24-AS-**L**	A	24	250	152SR	AFN20	
TL-36-B-**L**	B	36	400	400LR	AFN30	
TL-36-C0-**L**	C	36	800	480TB	AFN30	
TL-36-C4-**L**	C	36	1250	484TB	AFN30	
TL-24-D-**L**	D	24	1250	676LR	AFN36	
TL-36-E-**L**	E	36	1250	784TB	AFN36	
TL-36-F-**L**	F	36	1250	944TB	AFN30	
TL-42-F-**L**	F	42	1250	944TB	AFN36	

SINGLE-CORE CONNECTION CABLE

RHEYFIRM®(SI) NTMCGCWOEUS 12/20 kV

RHEYFIRM NTMCGCWOUS neu

Applications

Flexible high voltage cable used in short length, e.g. between short-circuit breaker and mobile transformer, in switch-gears generators and motors or single cable motor power supply. Termination with sealing ends on request.

Design

Conductor
Copper, tinned, flexible stranded, acc. to DIN EN / IEC 60228 class 5

Insulation
Triple extruded insulation, consisting of:

- inner semi-conductive stress control layer
- elastomeric insulation made of dielectric and thermal high graded ozone-resistant ethylene-propylene-rubber compound 3GI3 acc. to DIN VDE 0207 part 20
- outer semi-conductive insulation shield layer, easy strip (Thermo strip); All three covers are applied and cross-linked in one process

Screen
Close spiral wrap of tinned copper wires / copper strands acc. DIN VDE 0250 part 1

Outer sheath
Heavy duty chlorinated rubber compound type 5GM5 acc. DIN VDE 0207 part 21, oil-resistant acc. EN 60811-2-1, flame-retardant acc. DIN EN 60332-1-2, abrasion and notch-resistant, colour: red

Marking
Embossed marking e.g.:
RHEYFIRM (N) / NTMCGCWOEUS 1x95/16 6/10 kV I NEXANS I VDE year

Approvals

GOST R 00563, UL File E302473

Standards

National DIN VDE 0250 part 1;
DIN VDE 0250 part 813;
DIN VDE 0298 part 4;
DIN VDE 0298 part 3

Rated voltage 12/20 kV

Max. permissible operating voltage Ubmax AC systems: 24 kV
Max. permissible operating voltage Ubmax DC systems: 36 kV
Test voltage acc. to DIN VDE 0250 part 813: 29 kV A.C. 72.5 kV D.C.

⁂Other cross sections and nominal voltages on request.

Item 71270321 Stocked in Australia, Use Code IT4026.

	Type	Cross-section	Conductor-Ø	Ø over insulation	Max. conductor resistance at 20° C	Outer-Ø min.	Outer-Ø max.	Weight approx.	Permissible tensile load
		[mm²]	[mm]	[mm]	[Ohm/km]	[mm]	[mm]	[kg/km]	[N]
	71270320	1x 25/16	6.6	18.9	0.795	26	29	1010	375
⁂	71270321	1x 35/16	7.7	20.0	0.565	27	30	1130	525
	71270326	1x 50/16	9.2	21.5	0.393	29	32	1320	750
	71270327	1x 70/16	10.9	23.2	0.277	30	33	1560	1050
	71270328	1x 95/16	12.8	25.1	0.210	33	36	1900	1425
	71270329	1x120/16	14.3	26.6	0.164	35	38	2150	1800
	71270330	1x150/25	16.0	28.3	0.132	36	39	2560	2250
	71270331	1x185/25	17.9	30.2	0.108	39	42	3000	2775
	71270332	1x240/25	20.4	32.7	0.0817	42	45	3600	3600
	71270334	1x300/25	22.5	34.8	0.0654	45	48	4180	4500
	71303348	1x630/35	37.0	44.1	0.0292	57	62	8000	9450
	71270635	1x630/50	37.0	44.1	0.0292	62	66	8625	9450
	71303349	1x800/95	39.0	46.0	0.0224	63	68	10500	12000


Conductor flexibility Flexible class 5


Mechanical resistance to impacts Excellent


Cable flexibility Flexible


Oil resistance IEC 60811-2-1


Flame retardant IEC 60332-1-2


Ambient static op. temp -40 .. 80 °C

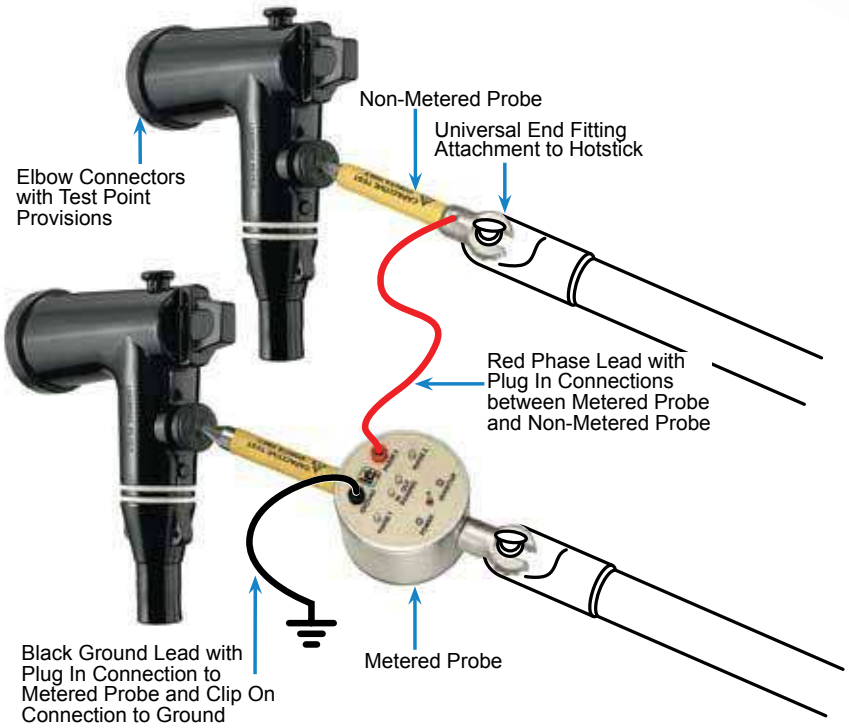

Ambient dynamic operating temperature, range -25 .. 80 °C


Max.conductor temp.in service 90 °C

PD35 VOLTAGE & PHASE INDICATOR

The PD35 Voltage & Phase Indicator used for determining the correct phasing and energized status of single and three phase underground distribution circuits, rated 5kV thru 35kV. The unit has been specifically designed for use on 200 & 600amp elbows, splices and other cable accessory components equipped with IEEE 386 Standard capacitive test points. The tool eliminates direct exposure to high voltage, while using established indirect test methods for capacitance-coupled, cable connection test points.

The Phase & Voltage Indicator is designed for hotstick operation and includes universal end fittings for convenient mounting to existing hotsticks. The unit is lightweight, portable and self-powered by a built-in, replaceable, standard 9-volt battery. The tool features rugged, impact resistant construction and easily readable LED indicator lights. Advanced low impedance, solid state circuitry provides accurate and reliable readings with sensitivity as low as 1.5kV phase to ground.



NEON VOLTAGE INDICATORS

V2 Standard Features

Test Point Mounted Neon Voltage Indicators provide a convenient, visual method for determining the energized status of underground distribution circuits. The indicator consists of a self-powered voltage sensor connected to a neon light that flashes when energized. Flash rate is proportional to the system voltage and the same indicator may be used for 5kV thru 35kV applications.

Units are designed to mount directly to 200 & 600 Amp elbows, splices and other cable accessory components equipped with IEEE 386 Standard capacitive test points. Indicators include a universal mounting provision, allowing installation on test point products as manufactured by Elastimold® and others.

Designs feature compact, shielded and sealed, corrosion resistant construction. The indicator is enclosed in a durable EPDM molded rubber housing and includes a built-in pulling eye for easy hotstick installation and removal of the indicator from the test point.

Self Powered Flashing Neon Display
Elastimold® Voltage Indicators are self powered from the test point and are provided with a 20-year, long life neon bulb. A reflective background surrounds the bulb to provide increased brightness. Flash rate per minute is proportional to the phase to phase system voltage with output as follows:

VOLTAGE & FLASH RATE

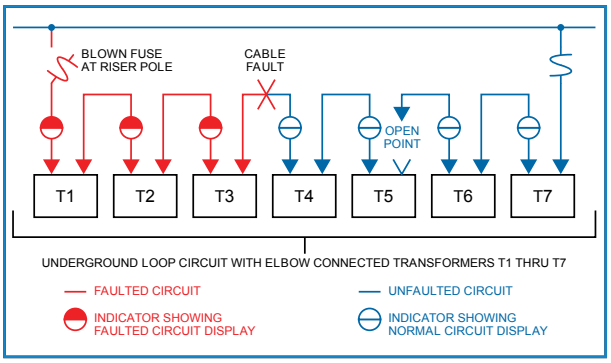
5kV voltage	20 flash rate	25kV voltage	140 flash rate
10kV voltage	40 flash rate	30kV voltage	160 flash rate
15kV voltage	70 flash rate	35kV voltage	180 flash rate
20kV voltage	100 flash rate		

Voltage Indicator Test Box permits field testing of V2 Voltage Indicators and provides assurance that the indicator is properly functioning. The test box is lightweight, portable and self powered by replaceable C-Size batteries. The unit includes a standard Elastimold test point, a push to test button, a green LED operation indicating light and a rugged, impact resistant plastic housing.

TESTING EQUIPMENT

FAULT INDICATORS

Thomas & Betts' Elastimold® Fault Indicators aid in the location and isolation of the faulted cable or equipment in overhead and underground distribution systems through 35kV (L-G). This product guide details the different types of faulted circuit indicators, voltage indicators and phase indicators. With a complete line of elbow test point mount and cable mount indicators, you will find the best product to meet your system's performance needs.



Fault Indicators reduce outage duration by quickly pinpointing the location of the fault. As shown in the circuit diagram, the fault is located between the last tripped indicator and the first untripped indicator. Once identified, this section is switched to become the new open point, allowing full service restoration to the rest of the customers during repairs.

FEATURE	BENEFIT/DESCRIPTION
AccQTrip™ "Off The Trip" Logic Circuitry	Prevents false tripping due to transient current surges or system overloading.
AccQClamp™ Self Adjusting Mounting Provision	No need for customer to specify cable O.D. when ordering cable mount FCI's. The AccQClamp™ maintains 10% trip accuracy over the entire clamping range (.4"-2.2"), and is composed of U.V. stable polycarbonate, stainless steel reinforced materials.
Voltage Reset Fault Indicators	Eliminate false resetting and false tripping. Ideal for use on lightly loaded circuits where sufficient current may not be available to reliably energize a current reset type fault indicator. Automatic reset upon restoration of system voltage and/or time reset after 4 hours.
High/Low Trip Setting Selection	Coordinates FCI's with current limiting fuses. No minimum load current requirements and no load surveys needed.
Inrush Restraint Circuitry	Coordinates FCI's with circuit breaker or auto reclosure operation, avoiding misindication due to inrush currents.
Internal Adjacent Phase Shielding	Prevents electro-magnetic interference from adjacent phase conductors.
1 ms Trip Response Time	Coordinates FCI's with current limiting fuses, and other protective devices.
No False Trips Due to Back Feed	Voltage operated time reset indicators will not trip or reset due to current backfeed
Quality Manufacturing Processes	Manufactured using state-of-the-art surface mount technology, and premium quality electronic components, for the highest degree of performance and reliability. All fault indicators meet or exceed ANSI/IEEE Standard 495-1986.

TPM Series Standard Features

AccQ Trip™ Logic Circuitry In voltage reset units prevents false indications due to inrush currents, cold load pickup, and overloading.

High/Low Trip Setting Selection No minimum load current requirement, and no load surveys needed.

Internal Magnetic Shielding Prevents adjacent phase effects

Trip Response .001 Seconds Coordinates with current limiting fuses, as well as other protection devices

Magnetically Latched Flag Indication Flag Indication will not change state due to shock or vibration

Light Weight, Compact and Sealed

Test Point Mounted Fault Indicators provide a clear, visual means for locating faulted cables and equipment on underground distribution systems. Indicators are self-powered and consist of a solid state current sensor connected to a faulted circuit display. Designs incorporate advanced circuit logic, monitoring system protection operation and preventing indicator tripping unless an overcurrent condition is followed by a loss of system voltage. Trip and reset operations are automatic and the same indicator may be used for 5kV thru 35kV applications.

Units are designed to mount directly to 200 & 600 amp elbows, splices and other cable accessory components equipped with IEEE 386 Standard capacitive test points. Indicators include a universal mounting provision allowing installation on test point products as manufactured by Elastimold and others.

Designs feature compact, shielded and sealed, corrosion resistant construction. The indicator is enclosed in a rugged, impact resistant Lexan housing and includes an EPDM molded rubber, test point mounting boot. A built-in pulling eye allows for easy hotstick installation and removal of the indicator from the test point.

UCM Series Standard Features

AccQ Clamp™ Mounting Provision Universal one-size-fits-all design automatically adjusts

High/Low Trip Setting Selection No minimum load current requirement, and no load surveys needed.

Trip Response .001 Seconds Coordinates with current limiting fuses, as well as other protection devices

Internal Magnetic Shielding Prevents adjacent phase effects

URD Cable Mounted Fault Indicators aid in locating faulted cables and equipment on underground distribution systems. Indicators are self powered and consist of a solid state current sensor connected to faulted circuit display.

Units are designed for direct installation to an underground power cable using a spring loaded, over center toggle clamp mounting provision. The clamp accommodates cables ranging from .4 to 2.2 inches in diameter and includes retainer pads to prevent slip and twist. The clamp positions the cable conductor at a constant distance from the current sensor, maintaining indicator trip accuracy over the entire range of cable sizes.

Designs feature compact, shielded and sealed, corrosion resistant construction. The indicator is enclosed in a durable, impact resistant Lexan housing and includes a built-in pulling eye for easy hotstick installation and removal from the cable.

TEST RODS

370TR

TEST ROD

The elastimold 370TR Test Rod is designed to test and allow determination of the condition of the circuit. It is designed to mate with all the Elastimold 200amp Loardbreak Bushing Products.

400TR 800TR

Application

- The test rod can be used for:
  - cable fault location
  - cable testing
  - phasing checks, etc.
- Connections may be made with a cable lug, a 4 mm plug or spring clips.

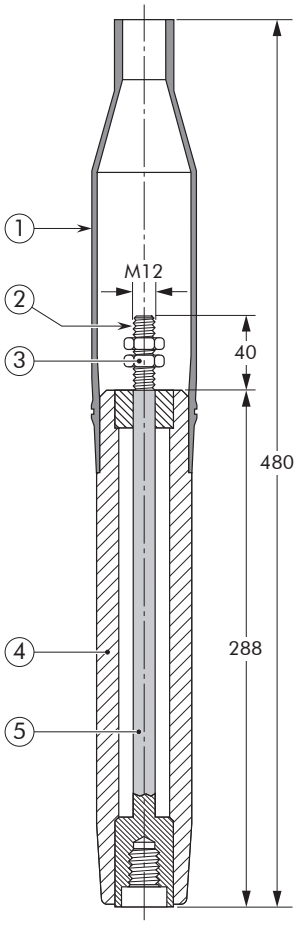
Technical characteristics

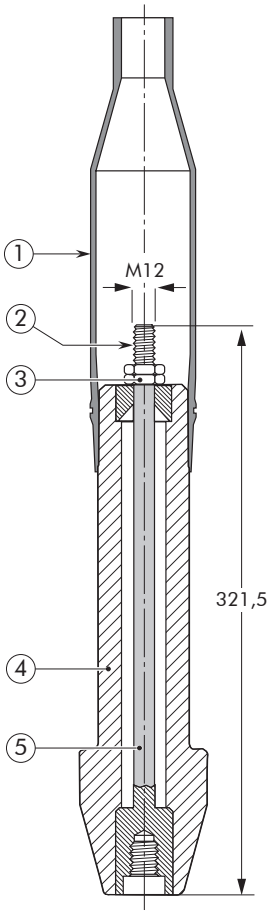
- The 400TR test rod can be used with 430TB connectors.
- The 800TR is for use with the 484TB.

Design

1. Insulating shroud.
2. Threaded rod for test connection.
3. Two nuts M12.
4. Insulation.
5. Copper test rod stem.
6. Wing nut.

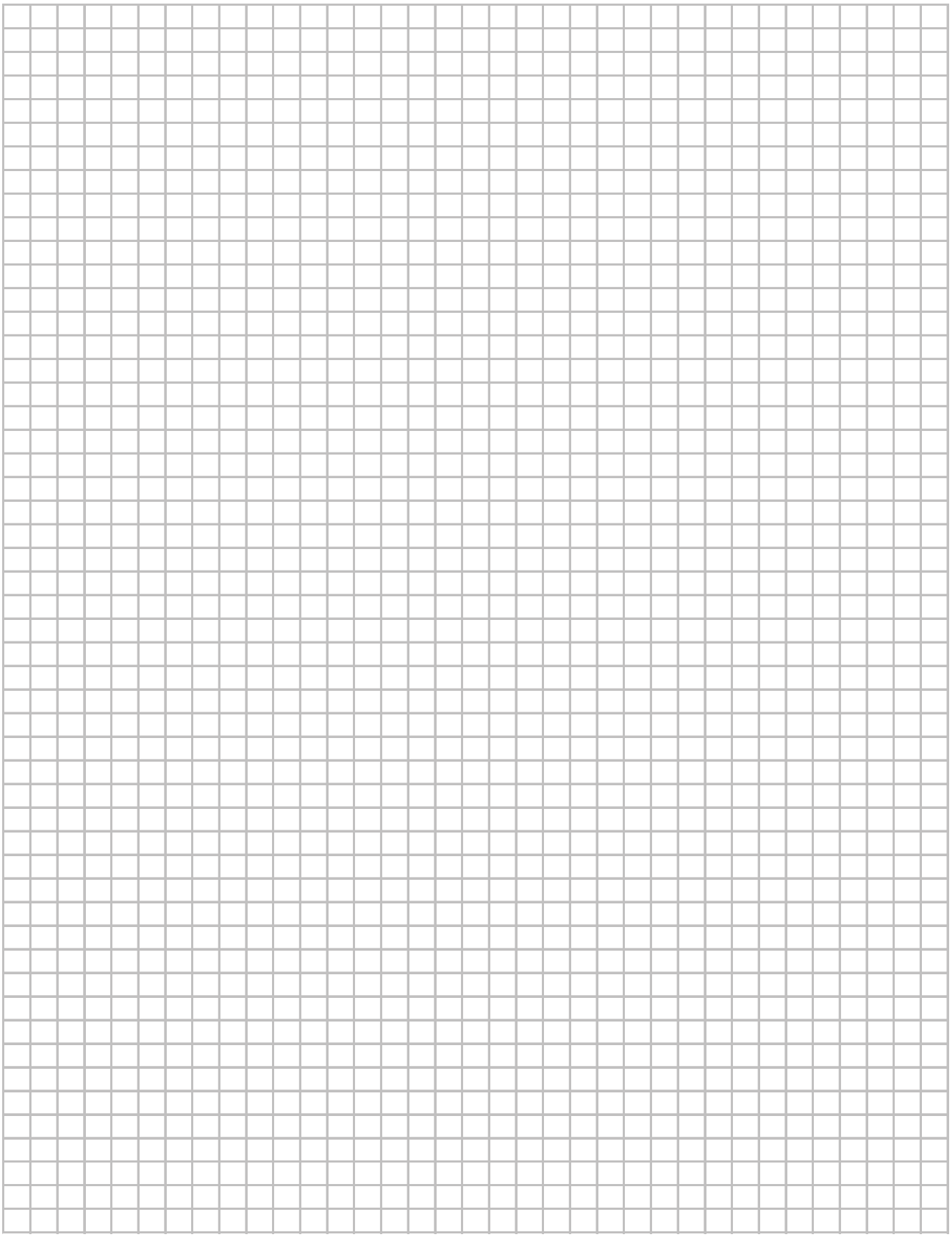
An insulating shroud is provided to allow the application of test voltages when bushings are closely spaced.





In mm.

Notes / Comments :



S TOOLING EQUIPMENT

Medium Voltage XLPE Cable Preparation and Installation Tools

Outer Sheath - Removing

Semi-Con - Scoring & Stripping

XLPE Insulation - Removing

XLPE Insulation - Chamfering

Installation

Tool Kits

Product	Standard KIT	Premium KIT	Option	Australmold Item No	Part Number	Description	Application	Benefit	Range	Weight
		●		IT4808	MVTOOLKIT-PREMIUM	Nexans MV Tool Kit Case Premium complete with tools	Cable Preparation of Medium Voltage power Cable	Hard wearing, foam cut-out case to protect contents ensuring long life	32mm - 70mm Cable OD	7650g
	●			IT4807	MVTOOLKIT-STANDARD	Nexans MV Tool Kit Case Standard complete with tools	Cable Preparation of Medium Voltage power Cable	Hard wearing, foam cut-out case to protect contents ensuring long life	12.7mm - 63.5mm Cable OD	6200g
	●	●		IT4414	51012	High Impact Safe Case 430 x 380 x 154mm	Storage & Transportation of cable Prep tools	Protection of precision Tools	N/A	2800g
	●			IT3044	WS64-U-E	Adjustable Cable Stripper - End Stripping	Removes outer Jacket or insulating material	Quickly and easily adjusts to cable size with spring loaded "trigger-action" Jaw	Dual position jaw for cable OD 12.7mm - 63.5mm	860g
		●		IT4364	STRIPPER CUTTER59118	2 in 1 cable Sheath & Cable insulation cutter	Safe stripping of outer sheath and removal of insulation	One tool for stripping sheath and spiral or circumferential cutting of insulation	Stripping cable sheath min OD 32mm up to max OD 70mm	975g
	●	●		IT1433	AJS	Adjustable Jacket Slitter	For longitudinal, circumferential (ringing), & mid-span slitting of corrugated aluminium or copper shield cables, MDPE, & HDPE conduits.	Ideal for slitting cable coverings ranging from soft insulated jackets to high density HPDE	Slitting of jackets/covering thickness up to 6.3mm	318g

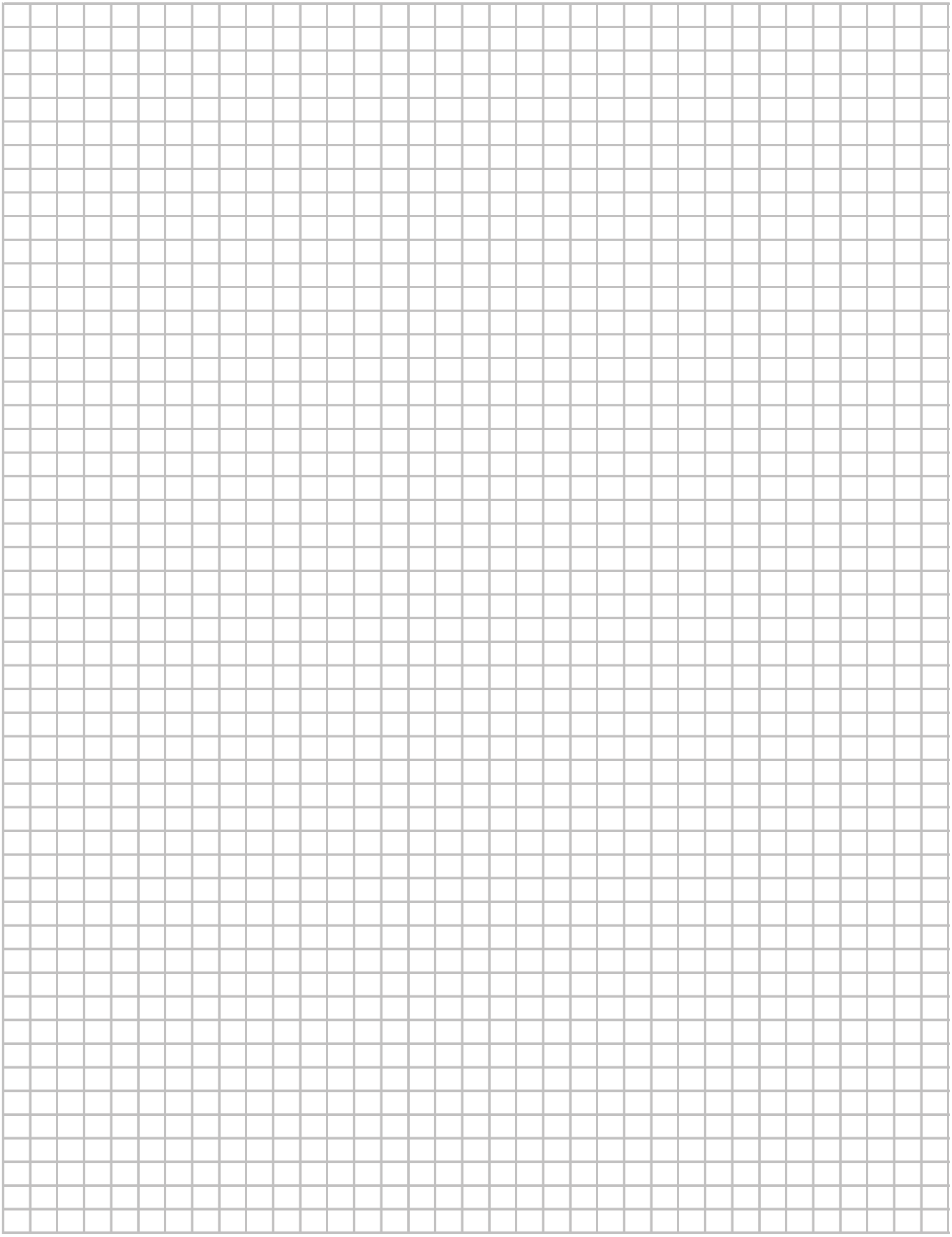
				IT4386	CK6 (46112)	Splicer's Knife 159mm Length	Removal of cable outer sheaths	Tough forged steel , coping-style blade with protective blade sheath and cushioned handle for ease of use and safety	N/A	68g
				IT4387	RFNP (46474)	Long Flat Nose Pliers for Semi-Con removal 152mm Length	Designed for the removal of Semi-Con	Drop-forged, hardened & Tempered steel allow, designed for rugged use. Soft ribbed grips for maximum comfort & durability	N/A	104g
				IT3479	SCS	Semi-con Scoring Tool	To make precision score depth cuts with strippable semi-con for the purpose of proper semi-con removal	Easy and precise blade adjustment. Capability of longitudinal, spiral cuts & calibrated square cut	Blade adjustment from 0-4mm depth. Cable ranges 8mm - 45mm	270g
				IT0066	1/4 CHAIN SAW FILE	1/4 Chain Saw File with Handle	Used for semicon radial cutback	Precision engineered to provide maximum gram removal per stroke and amazing longevity. Features a safe point on the end to help prevent injuries	N/A	75g
				IT1626	CHAM55154	Chamfering Tool	For removal of sharp edges at the cut-off edge of XLPE cable insulation	Avoid possible damage to and to ease installation of slip-on accessories	Insulation 15mm - 60mm	253g
				IT4415	12/920513	13mm A/F 1/2"Impact Socket 6 Point	Tighten shear bolts	Correct tool for the application	N/A	90g
				IT4416	12/920517	17mm A/F 1/2"Impact Socket 6 Point	Tighten shear bolts	Correct tool for the application	N/A	100g

	●	●		IT4417	12/920519	19mm A/F 1/2"Impact Socket 6 Point	Tighten shear bolts	Correct tool for the application	N/A	110g
	●	●		IT4418	12/920522	22mm A/F 1/2"Impact Socket 6 Point	Tighten shear bolts	Correct tool for the application	N/A	120g
	●	●		IT4419	12/920524	24mm A/F 1/2"Impact Socket 6 Point	Tighten shear bolts with impact wrench and tighten the 400BIP with Torque wrench	Correct tool for the application	N/A	130g
	●	●		IT3860	GH40-IV	Holding tool	Holding of shear off lugs	To avoid twisting while tightening shear off lugs	Insulated connector diameter 14-40mm	425g
			●	IT1280	600-SW	Spanner Wrench	Used for installation of K400RTPA reducing tap plugs, K650CP connecting plugs, K650RTP tap plugs and K650RTWS tap wells	Provides an easy to use tool for tightening and loosening	N/A	340g

			●	IT3824	DMV65	Torque Amplifier Max torque 65Nm	For removal of shear-off-heads bolts of mechanical connectors using standard cordless screwdrivers - Use HEX (SW8-1/2") Allen Bit	Enables optimum clamping force using mechanical GPH Connectors	24mm-52mm Barrel Conductor cross-section up to 630mm2	941g
			●	IT2989	TSA (38290)	Torque shaft assembly	For load break separable connector system with rubber moulded components	Used with standard torque wrench	Shaft Length 292.1mm	236g
	●	●		IT4580	HEX (SW6I)	6mm Allen Hex Bit 19mm long 1/2" drive Impact for shear off	For tightening of shear-off-heads bolts of mechanical links & lugs	Has correct shaft length (19mm) for insertion into shear-bolt	(16-95mm) & (185-400mm)	60g
	●	●		IT4581	HEX (SW8I)	8mm Allen Hex Bit 19mm long (minimum) 1/2" drive Impact for shear off	For tightening of shear-off-heads bolts of larger mechanical links & lugs	Has correct shaft length (19mm Minimum) for insertion into shear-bolt	(400-630mm) & (800-1200mm)	100g
			●	IT4720	HEX (SW8 - 1/2'')	8mm Allen Hex Bit 19mm long 1/2" drive Impact for shear off	For tightening of shear-off-heads bolts of larger mechanical links & lugs - required when using DMV65 Torque Amplifier	Has correct shaft length (19mm) for insertion into shear-bolt - required when using DMV65 Torque Amplifier	(400-630mm) & (800-1200mm)	75g
			●	IT2095	HEX (14288)	10mm Allen Hex Bit 100MM Long 1/2" drive for K400CP	For use with Euromold screened Coupling connectors - for installation of Contact Rod	Has correct shaft length (100mm) for this application	N/A	120g
			●	IT2879	SOCKET 22MM CW NYLON	22mm Deep Socket 1/2" drive - with nylon Spacer	Used for installation of 400TCS in Euromold Screened Connectors (especially 'T' type)	Easier access to bushing - the long socket holds the clamping screw for insertion	N/A	200g

Notes / Comments :

Notes / Comments :



AC Highpot, PD & IR Test on Leads

Overview of different tests on Cable Leads (Jumpers) and Test Leads

AC Hipot test:

Hipot test is the short name for high potential (high voltage) test and it is also known as Dielectric Withstand test. A Hipot test checks for "good insulation."

Hipot test checks to confirm that no current will flow from one point to another point.

Hipot test is the opposite of a continuity test.

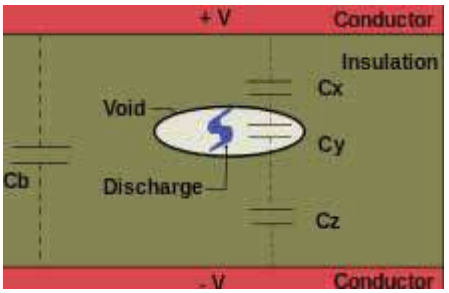
Continuity test checks to confirm current flows easily from one point to another point while Hipot test checks to confirm current does not flow from one point to another point (during test, the voltage is increased dramatically just to make sure no current will flow).

PD test:

In electrical engineering, partial discharge (PD) is a localized dielectric breakdown of a small portion of a solid or fluid electrical insulation system under high voltage stress, which does not bridge the space between two conductors. While a corona discharge is usually revealed by a relatively steady glow or brush discharge in air, partial discharges within solid insulation system are not visible.

PD can occur in a gaseous, liquid or solid insulating medium. It often starts within gas voids, such as voids in solid epoxy insulation or bubbles in transformer oil. Protracted partial discharge can erode solid insulation and eventually lead to breakdown of insulation.

PD usually begins within voids, cracks, or inclusions within a solid dielectric, at conductor-dielectric interfaces within solid or liquid dielectrics, or in bubbles within liquid dielectrics. Since PDs are limited to only a portion of the insulation, the discharges only partially bridge the distance between electrodes. PD can also occur along the boundary between different insulating materials.



A partial discharge within solid insulation.

When a spark jumps the gap within the gas-filled void, a small current flows in the conductors, attenuated by the voltage divider network Cx, Cy, Cz in parallel with the bulk capacitance Cb.

AC Highpot, PD & IR Test on Leads

Partial discharges within an insulating material are usually initiated within gas -filled voids within the dielectric. Because the dielectric constant of the void is considerably less than the surrounding dielectric, the electric field across the void is significantly higher than that across an equivalent distance of dielectric. If the voltage stress across the void is increased above the corona inception voltage (CIV) for the gas within the void, PD activity will start within the void.

IR test:

The insulation resistance (IR) test (also commonly known as a Megger) is a spot insulation test which uses an applied DC voltage (typically either 250Vdc, 500Vdc or 1,000Vdc for low voltage equipment <600V and 2,500Vdc and 5,000Vdc for high voltage equipment) to measure insulation resistance in either kΩ, MΩ or GΩ. The measured resistance is intended to indicate the condition of the insulation or dielectric between two conductive parts, where the higher the resistance, the better the condition of the insulation. Ideally, the insulation resistance would be infinite, but as no insulators are perfect, leakage currents through the dielectric will ensure that a finite (though high) resistance value is measured.

Because IR testers are portable, the IR test is often used in the field as the final check of equipment insulation and also to confirm the reliability of the circuit and that there are no leakage currents from unintended faults in the wiring (e.g. a shorted connection would be obvious from the test results).

One of the advantages of the IR test is its non -destructive nature. DC voltages do not cause harmful and/or cumulative effects on insulation materials and provided the voltage is below the breakdown voltage of the insulation, does not deteriorate the insulation. IR test voltages are all well within the safe test voltage for most (if not all) insulation materials.

Factors Affecting Test Results

There are two main factors that will affect IR test results:

Temperature

Electrical resistance has an inverse exponential relationship with temperature, i.e. as temperature increases, resistance will decrease and vice versa. Since the minimum acceptable IR test values are based on a fixed reference temperature (usually 20°C), the measured IR test values must be corrected to the reference temperature in order to make sense of them.

As a rule of thumb, the resistance halves for every 10 °C increase in temperature (and vice versa). So if the measured IR test value was 2MΩ at 20°C, then it would be 1MΩ at 30 °C or 4MΩ at 10 °C.

Humidity

The presence (or lack) of moisture can also affect the IR test measurements, the higher the moisture content in the air, the lower the IR test reading. If possible, IR tests should not be carried out in very humid atmospheres (below the dew point). While there are no standard correction factors or guidance for humid conditions, it is good practice to record the relative humidity of each IR test so that they can be used for baseline comparisons in future tests. For example, having past data on the IR test values for dry and humid days will give you a foundation for evaluating future test values.

AC Highpot, PD & IR Test on Leads

Summary:

Hipot:

- ✔ Determines the adequacy of electrical insulation
- ✔ Detects inadequate creepage
- ✔ Detects poor workmanship
- o Destructive test

PD test

- ✔ Non-destructive test
- ✔ Test and location of poor workmanship
- ✔ Can detect actual and future problems

IR test

- ✔ Low cost test
- ✔ No cage is needed
- ✔ Small device
- ✔ Non destructive
- o Only insulation test
- o No future image
- o No fault location
- o Different circumstances can influence the test

Conclusion:

The combination of a Hipot and PD test will provide an actual and future quality image of insulation, creepage distance, field control, gives an image of the weakness and fault location of the product.

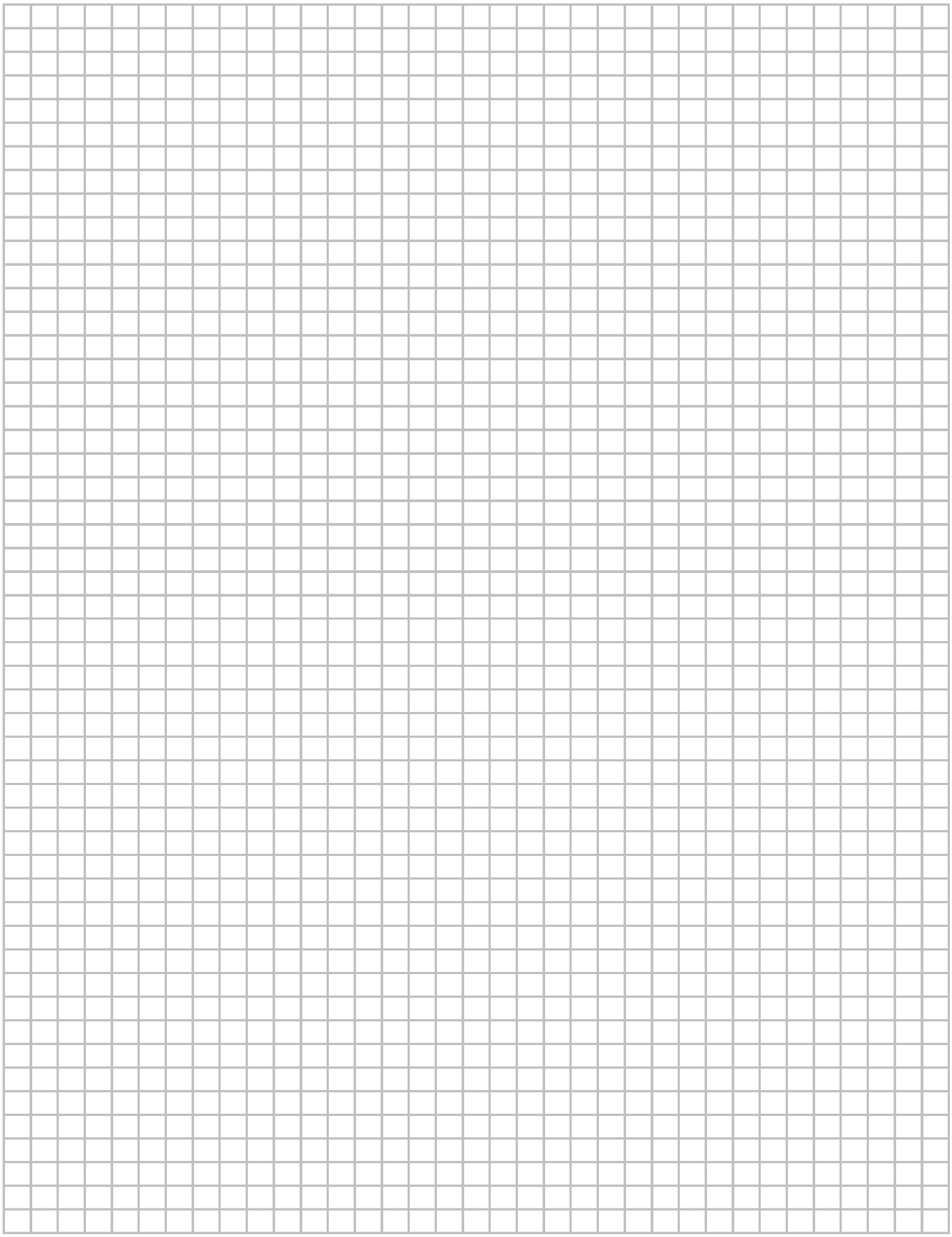
The IR test will provide an actual image of the insulation with no fault location.

Baeyens Bart

Customer Service and Process Engineer Jumpers & Test Lead

Nexans Network Solutions NV - Div. Euromold - Belgium

Notes / Comments :



MEDIUM VOLTAGE CABLE ACCESSORIES
A THEORETICAL & PRACTICAL APPRAISAL

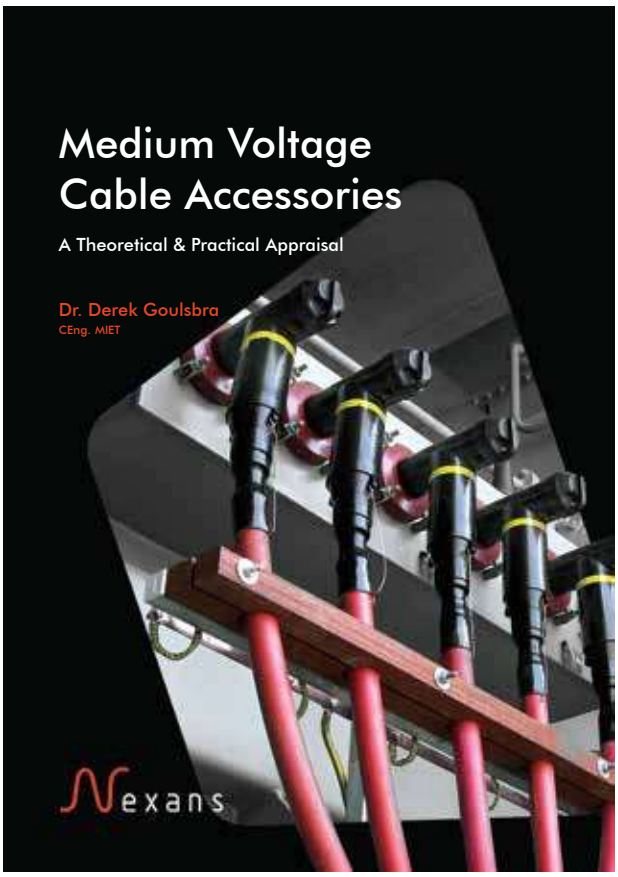
This book is a detailed look at medium voltage cable accessories which will be of value to jointers and engineers alike

Synopsis

Cable accessories account for the least capital expenditure of a distribution network but can prove to be the weakest component of the system becuase they have to be assembled on site. This book examines the detailed workings of accessories and provides information to assist engineers and jointers who are responsible for specifying and installating medium voltage cable accessories.

Terminations, separable connectors, joints and associated equipment such as cable glands and cleats are examined in detail with explanations of the various technologies used. Great emphasis is placed on failure modes and methods of preventing potential problems in service.

By following the information presented, the reliability of accessories will be improved thus reducing the cost of expensive failures.



The Author

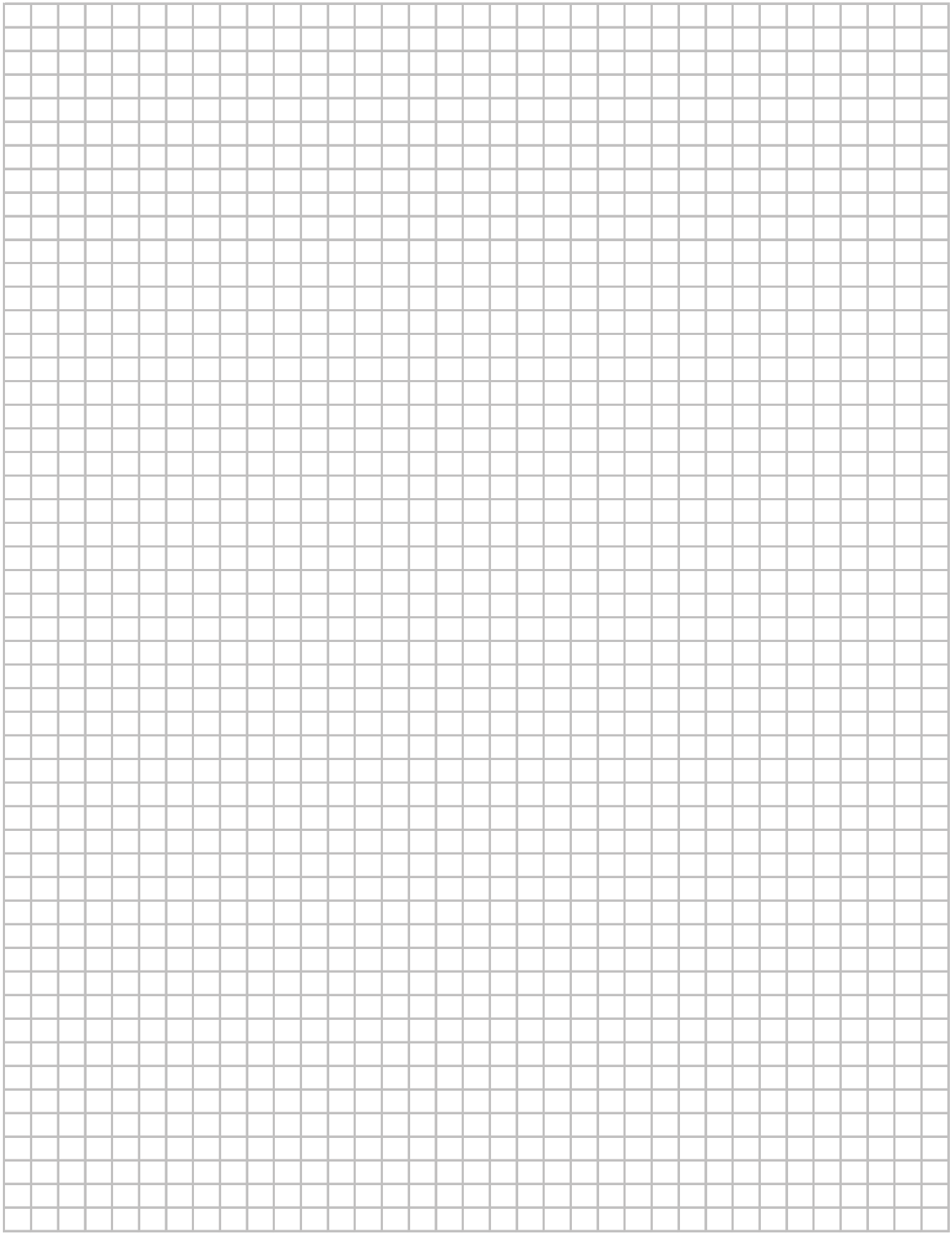
Dr. Derek Goulsbra has over thirty years' experience working in the field of cable accessories having been heavily involved in product development, failure analysis and engineer and jointer training.

Chapters

Details

Product Code: 82419
Price: $149.95 (AUD)
Format: Hardback
Pages: 160
Size: 300 x 215mm
Illustrations: Nexans Power Accessories (UK) Ltd
Publication date: March 2013

Notes / Comments :



REQUEST FOR PRICE/TECHNICAL INFORMATION

Australmold

41 Lambeck Drive,
Tullamarine, Vic, 3043
Australia

Tel.: 03) 9338 1600
Fax: 03) 9338 9675
E-Mail: sales@australmold.com.au

Your company details:

Company: .....

Address: .....

.....

Tel.: .....

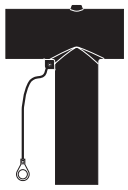
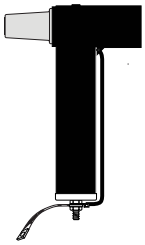
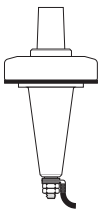
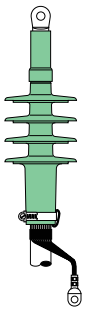
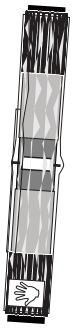
Fax: .....

E-Mail: .....

1. Request for: ❑ Price

❑ Technical information

2. Request for:

❑ Connectors	❑ Surge arresters	❑ Bushings	❑ Terminations	❑ Joints	❑ Cable lugs/ Contacts
					

3. For <u>connectors and bushings</u>, specify type of interface:

❑ A ❑ B ❑ C ❑ D ❑ E ❑ F

For <u>joints and terminations</u>, specify (preferred technology):

❑ Heatshrink ❑ Coldshrink ❑ Slip-on

4. Voltage class (Umax):

❑ 12 kV ❑ 24 kV ❑ 36 kV ❑ 42 kV ❑ 52 kV ❑ Other: .....

5. Cable data: Please send us the cable data sheet linked to your application or complete the attached cable information sheet as much as possible.

6. Quantity needed: ..... pieces (1 piece=1 unit) or ..... sets (1 set=3 pieces)

7. Very urgent delivery: ❑ Yes ❑ No

Optional: required delivery period mentioned by customer .....

8. Other useful information/documents given by customer: ❑ Attached to this request

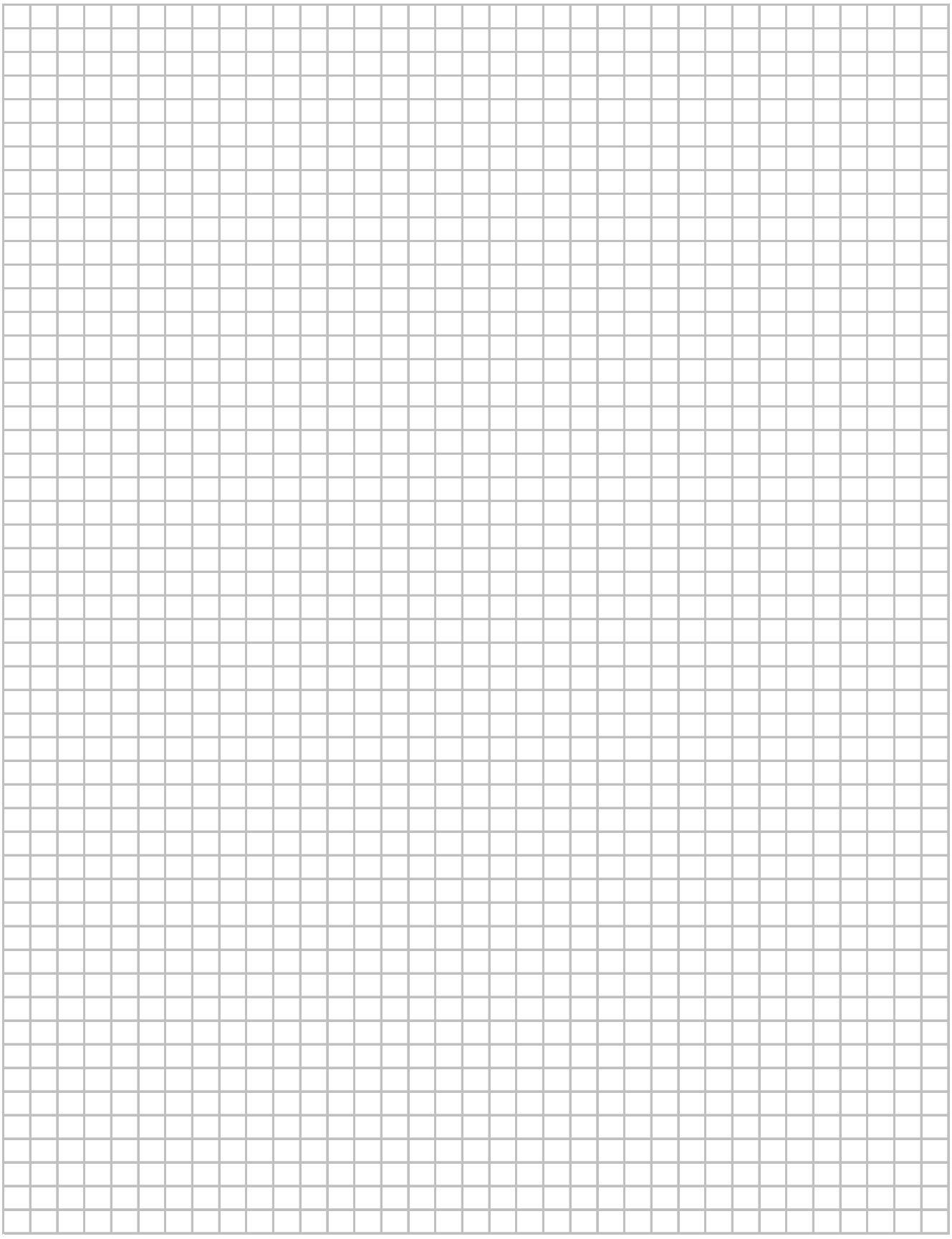
❑ Not applicable

Comments: .....

.....

.....

Notes / Comments :



ENQUIRY SHEET

Australmold

41 Lambeck Drive,
Tullamarine, Vic, 3043
Australia

Tel.: 03) 9338 1600
Fax: 03) 9338 9675
E-Mail: sales@australmold.com.au

Your company details:

Company: .....

Address: .....

.....

Tel.: .....

Fax: .....

E-Mail: .....

Cable Data

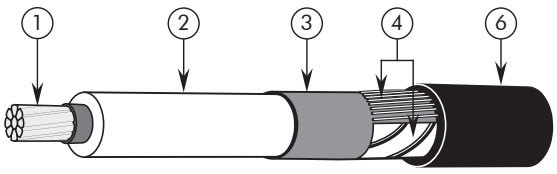
1. Cable manufacturer: ..... **/ Cable identification:** .....

2. Cable type: ❑ Single core ❑ Three core

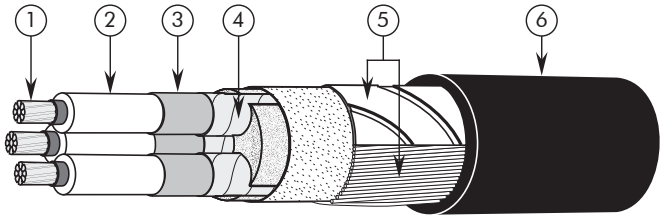
3. Cable voltage (kV): ❑ 3.6/6 (7.2) ❑ 12/20 (24) ❑ 20.8/36 (42)
❑ 6/10 (12) ❑ 12.7/22 (24) ❑ Other: ..... / ..... (.....)
❑ 6.35/11 (12) ❑ 18/30 (36)
❑ 8.7/15 (17.5) ❑ 19/33 (36)

4. System current (A): ❑ 250 ❑ 630 ❑ 1250
❑ 400 ❑ 800 ❑ Other: ..... A

Single core



Three core



5. Cable description:

❑ Conductor material: ❑ Al ❑ Cu

Conductor size: ..... mm^2 (16 - 25 - 35 - 50 - 70 - 95 - 120 - 150 - 185 - 240 - 300 - 400 - 500 - 630 - 800 - 1000 mm^2)

❑ Core insulation: - type: ❑ XLPE ❑ EPR ❑ Paper
- diameter: ..... mm

❑ Semi-conductive screen: - type: ❑ Bonded ❑ Easy strip ❑ Fabric tape
- diameter (Optional): ..... mm

❑ Metal screen type: ❑ Al ❑ Cu ❑ Wire screen ❑ Tape screen

❑ Armour type: ❑ No ❑ SWA ❑ STA

6. Bushing type (If applicable): .....

Please fax to: 03) 9338-9675 or Scan and Send to sales@australmold.com.au

Please copy this page and use it for all enquiries to Australmold.

Blank Page

Nexans

Australmold are proud to represent...

Nexans Network Solutions
Euromold

Nexans Italy

Nexans Power Accessories
Germany (GPH)

Ripley Tools

Thomas & Betts
Elastimold

Central Moloney

HJ International

And more...

Nexans

Nexans Australmold - Building 2, 69 Dalton Road
Thomastown VIC 3074
Tel.: +61 3 9205 8400
WEB: www.australmold.com.au - E: sales@australmold.com.au