



Science.  
Applied to Life.™

**DANGER**

KEEP AWAY



High voltage—more

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3M™ Electrical Products

**Medium voltage joints,  
terminations and cable  
accessories.**

**3M's success is founded on listening to the customer's needs and applying technology to offer a solution. With hundreds of technology platforms 3M has an ongoing commitment to research and development.**

With over 45 years' experience in the energy market this method of working has led to the development of the first ever vinyl insulation tape and the invention of Cold Shrink technology in 1972. 3M Cold Shrink technology is a safer, more reliable, and easier to install solution for medium voltage joints and terminations than heat shrink alternatives. They do not require any additional tools for installation and are able to be used effectively and safely even in very limited, difficult work conditions. It is a preferred solution of power utilities, power network operators and electrical suppliers around the world and over 10 million 3M™ Cold Shrink products have been installed worldwide.

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# Five unbeatable advantages of 3M™ Cold Shrink technology.



Many components have one-part construction



Simple, tool free installation



Lower installed cost – compared to many other products



Consistent, radial pressure for the lifetime of the joint or termination



Installation without the need for heat source



# 3M™ Cold Shrink Termination Products

Ever since the installation of the first 3M™ Cold Shrink termination in 1972, we have developed products that deliver market leading efficiencies and reliability to our customers.

3M™ Cold Shrink technology ensures that a constant radial pressure is applied to the cable. This combined with a comprehensive factory testing programme and a simple installation process makes Cold Shrink the preferred termination solution for public and private networks operators across the world.

## The simple application of a 3M™ Cold Shrink Termination.



1 Prepare the cable as normal and clean with 3M™ Cable Wipes.



2 Place the 3M™ Cold Shrink termination body over the cable and position at the correct point on the cable.



3 Begin to remove the inner core, allowing the termination to shrink down onto the cable.



4 Once the inner core has been fully removed, the termination installation is complete.



## 3M™ Plug-In EPDM Separable Connectors

Our easy to install range of plug-in separable connectors are moulded using high quality EPDM and meet the requirements of EN 50180 and EN 50181.

### Features

- ▶ Straight, elbow and symmetrical and assymetrical T-plug
- ▶ Available for outer cone bushings type A, B, C and C1 (250 A, 400 A, 630 A and 1250 A)
- ▶ Simple and safe installation on a wide range of cable sizes
- ▶ Maintenance-free
- ▶ One piece design, with built in capacitive test point
- ▶ Fully screened, moisture-proof connection
- ▶ Fully type tested to Cenelec HD 629.1 and IEC60502-4
- ▶ Available for voltage classes 6.6/11(12)kV, 20/22(24)kV, and 19/33(36)kV



## Premium

### 3M™ Cold Shrink Fully Integrated Quick Termination III (QTIII)

This fully integrated premium cable termination offers the greatest simplicity and flexibility in our range. Our premium termination covers a wide range of cable sizes and types. This termination has a shorter adjustable tail to enable it to fit into a wide range of boxes and with fewer installation steps it means there is less room for jointer error.

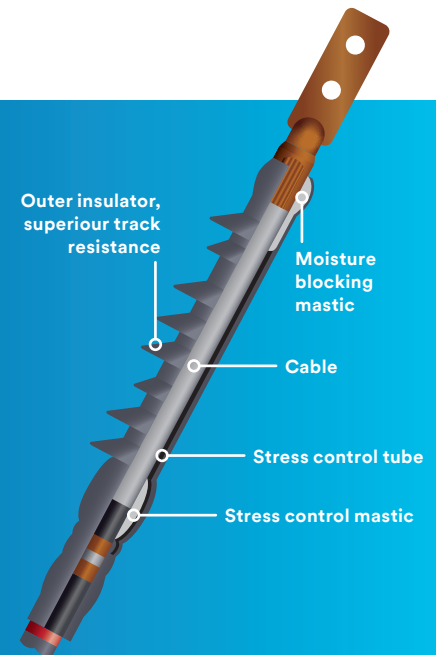
## Standard

### 3M™ Cold Shrink Part Integrated Quick Terminations (QTII)

Although this part integrated Cold Shrink termination requires additional installation steps to our Premium QTIII range it still offers additional benefits over heat shrink cable terminations, which have many more parts to install, and require heat and additional tools.

## Features of 3M™ Cold Shrink QTIII and QTII Terminations.

- ▶ Fabricated one-piece Cold Shrink termination body which allows fast and easy installation on a wide range of cable types and sizes
- ▶ Installation temperatures ranging from -20°C to +50°C
- ▶ The high-K stress control material distributes the electrical field evenly across the insulator and minimises the electrical stress on the termination
- ▶ Permanent radial contact pressure
- ▶ Quick and easy to install by pulling out the spiral core
- ▶ No heat/flame or tools are required for installation
- ▶ Meets and exceeds the requirements of European Standard CENELEC HD 629.1 and IEC 60502-4.v



	QTIII	QTII
Moisture Blocking Mastic	Integrated into termination	Applied separately using Scotch® 70 Silicone Tape
Outer Insulator	Very good track resistance	Good track resistance
Stress Control Tube	Integrated into termination	Integrated into termination
Silicone Grease providing Stress Relief	No – integrated mastic is enough	Yes – applied separately
Stress Control Mastic	Integrated into termination	No – requires silicone grease

# 3M™ Cold Shrink Jointing Products

All 3M™ Cold Shrink cable joints include built in components to ensure sound insulation, stress control and adequate earth potential over the screens. The 3M™ Cold Shrink technology ensures constant radial pressure is exerted over the cable for the duration of the cable joint's life.



## The simple application of a 3M™ Cold Shrink Cable Joint.



1 Place the 3M™ Cold Shrink splice body onto the prepared cable, connect the cores and clean thoroughly.



2 Thoroughly grease the connector cable in preparation for the splice body.



3 Once in position, begin to remove the inner coil from the splice body.



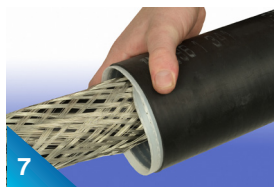
4 For extra peace of mind, the splice body position is easily checked using the marked centre point.



5 Place the earth copper screen stocking over the splice body. Secure with 3M™ Constant Force Springs.



6 Insulate the constant force springs with Scotch® 23 Rubber Splicing Tape and then overlay with Scotch® Rubber Mastic Tape 2228.



7 Position the pre-parked 3M™ Cold Shrink Outer Protection Tube over the stocking and begin to remove the inner supporting core.



8 Continue to remove the inner core until the outer tube is fully shrunk, completing the cable joint.

### Features

- ▶ Prefabricated one-piece Cold Shrink splice body with integrated semi-conductive electrode forms a faraday cage over the connector and eliminates the use of tapes or additional moulded or metallic electrodes
- ▶ Fast and easy installation at temperatures ranging from -20°C to +50°C
- ▶ Suitable for a broad range of cable type and sizes
- ▶ Permanent radial contact pressure
- ▶ Simple assembly by pulling out the spiral core
- ▶ Meets and exceeds the requirements of European Standard CENELEC HD 629.1 and IEC 60502-4.

	QS1000	QS2000	QSIII	QS200
Splice Body Type	Moulded	Moulded	Moulded	Extruded
Range Coverage	50mm <sup>2</sup> to 400mm <sup>2</sup>	50mm <sup>2</sup> to 400mm <sup>2</sup>	300mm <sup>2</sup> to 630mm <sup>2</sup>	50mm <sup>2</sup> to 1000mm <sup>2</sup>
Voltage Class	6.6/11(12)kV	20/22(24)kV to 19/33(36)kV	19/33(36)kV	6.6/11(12) kV to 19/33(36)kV
100% Factory Tested Splice Body	Yes	Yes	Yes	No



# 3M™ Cold Shrink End Caps

Our EPDM elastomer caps environmentally seal and protect exposed cables ends against dirt, moisture and mechanical deterioration.

## Features

- ▶ Easy and quick to install
- ▶ No tools required for installation
- ▶ Covers a wide range of cross sections
- ▶ High mechanical strength
- ▶ Waterproof, meets the requirements of ANSI C119.1
- ▶ Resistant to various chemicals and ozone
- ▶ Application temperature up to 90°C



# 3M™ Medium Voltage Abandonment Kits

Our 3M™ Cold Shrink Abandonment Kit CSCAK Series is a temporary or permanent solution for cable abandonment. The kits consist of 3M™ Cold Shrink End Caps, 3M™ Cold Shrink Pre-Stretched Tube, Scotch® 23 Self Amalgamating Insulation Tape and earth connection components.

## Features

- ▶ Quick, simple and reliable installation
- ▶ A temporary or permanent solution for cable abandonment
- ▶ Environmental sealing and mechanical protection
- ▶ Ensures a permanent, waterproof seal and insulation
- ▶ Available for single core, copper wire screened, medium voltage cables up to 33kV
- ▶ Waterproof, meets the requirements of ANSI C119.1
- ▶ Resistant to various chemicals and ozone
- ▶ Application temperature up to 90°C



# 3M™ Scotch® Electrical Tapes



## Scotch® Super 33+ Vinyl Electrical Tape

A premium grade, 0.178mm thickness, highly conformable, PVC insulating tape with aggressive adhesive and elastic backing ensures easy, moisture tight electrical and mechanical protection. Excellent electrical insulating properties to provide primary electrical insulation for joints up to 600V.

### Features

- ▶ Excellent cold weather handling
- ▶ Resistant to UV rays, abrasion, moisture, acids, and alkalis
- ▶ Flame retardant, to UL510
- ▶ Temperature range -18°C to 105°C

## Scotch® Super 88 Electrical Tape

Premium grade, 0.2mm thick, all weather PVC insulating tape, designed to perform continuously in very low temperatures, and is conformable for installation at -18°C. Aggressive adhesive ensures moisture tight electrical and mechanical protection.

### Features

- ▶ Temperature range -40°C to 105°C
- ▶ Excellent abrasion and puncture resistance
- ▶ High tensile and mechanical strength
- ▶ Flame retardant, to UL510



## Scotch® 23 Rubber Splicing Tape

A highly conformable, self-amalgamating EPR (Ethylene Propylene Rubber) tape, ideal for insulation and moisture sealing in many applications such as bus bar connections, re-jacketing, and primary insulation up to 69kV.

### Features

- ▶ Special polyester liner that will not stick when unwinding
- ▶ Stretch up to 100% for void-free, moisture-resistant insulation
- ▶ Non-vulcanising and shelf-stable
- ▶ Operating temperature up to 90°C



## Scotch® Electrical Semi-Conducting Tape 13

A highly conformable, semi-conducting, EPR (Ethylene Propylene Rubber) tape. Conforms easily to irregular shapes and retains its conductivity when stretched. This tape is used for high voltage connections and provides cable shield continuation and is compatible with all solid dielectric cable insulations.

### Features

- ▶ Semi Conducting (low resistivity)
- ▶ Withstands temperatures up to 90°C
- ▶ Prevents partial discharge
- ▶ Excellent resistance to solvents, UV and moisture







## Scotch® 70 Silicone Rubber Electrical Tape

High temperature arc and track resistant tape composed of self-fusing, inorganic silicone rubber, 0.3mm thickness. This tape provides moisture sealing on outdoor systems, transformers and terminations up to 69kV. Extremely conformable, even at very low temperatures.

### Features

- ▶ Excellent track and arc resistance
- ▶ High dielectric strength 34kV/mm
- ▶ Excellent instantaneous fusion; does not need to be held down
- ▶ Class H material (180°C continuous operation)



## Scotch® 2228 Rubber Mastic Tape

A conformable self-amalgamating rubber electrical insulating and sealing tape with an EPR (Ethylene Propylene Rubber) backing coated with a strong, temperature-stable mastic adhesive. This tape is 1.65mm thick and used to insulate, pad, and seal bus bar and connections up to 1000V.

### Features

- ▶ Good adaptability to uneven surfaces
- ▶ High material thickness for quick assembly of insulations and seals
- ▶ Temperature resistance up to 90°C
- ▶ Outstanding weather and moisture resistance



## Scotch® Cable Jacket Repair Tape 2234

Professional grade mastic tape designed for cable jacket repair. This tape is flexible and self-amalgamating with good moisture resistance. It has a tough, abrasion-resistant backing and is quick and easy to apply.

### Features

- ▶ Flexible and resistant to ageing
- ▶ Resistance to weathering, oil, ozone and UV
- ▶ Moisture-resistant, flame-retardant adhesive
- ▶ Temperature range of -30 to 90°C



## 3M™ Scotchfil™ Electrical Insulation Putty

A soft, pliable putty which can be wrapped, stretched or moulded around irregular shapes for quick smooth insulation build-up. Use for joint insulation for electrical conductors at temperatures up to 80°C and over-wrap with Super 33+™ or Super 88 Vinyl Electrical Tape. Also suitable for some cable repair applications.

### Features

- ▶ Soft and pliable – simply mould with your fingers
- ▶ Permanently elastic and age-resistant
- ▶ Self-amalgamating
- ▶ Temperature range of 0°C to 80°C

## Consumable products

3M supply a range of locating and marking, cable cleaners, wire pulling lubricants and cable marking products to complete your work.

Contact us for more details.



## Low voltage jointing

We have a full portfolio of low voltage inline joints, including heat shrink, cold shrink and resin joints, for a wide range of applications.

Product family	Joint type	Application
91-AH	Heat Shrink	Un-armoured power cables, standard buried application
91-AHA	Heat Shrink	Armoured power cables, standard buried application
92-NBA	Resin	Un-armoured power cables, standard buried application
92-NBA-GS	Resin (CMR Free)	Un-armoured power cables, standard buried application
92-NA-U	Resin	Un-armoured power cables, hazardous area application
LVI-2	Resin	Armoured power cables, standard buried application
LVI-2-PTU	Resin	Armoured Pilot and Telecom cables, standard buried application
LVI-3	Resin	Armoured power cables, hazardous area application
LVI-3-IC	Resin	Armoured Pilot and Telecom cables, hazardous area buried application
91-AC	Cold Shrink	Un-armoured power cables, indoor application
LC	Cold Shrink	Armoured power or pilot and telecom cables, indoor application
LC-STFF	Cold Shrink	Armoured power or pilot and telecom cables, indoor application, fire resistant



# Sustainability at 3M – expanding our positive global impact.

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3M will be investing approximately \$1billion over the next 20 years to accelerate three new environmental goals.

- ▶ We have committed to being carbon neutral across our global operations by 2050, achieving a 50% reduction by 2030 and 80% by 2040 (from a 2019 baseline)
- ▶ Reduce water use by 25% at our facilities by 2030, including 10% by 2022 and 20% by 2025
- ▶ Return higher quality water to the environment after use in manufacturing operations
- ▶ Combined these two goals will reduce 3M's water use by 2.5 billion gallons (approx. 9.5 billion litres) each year







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# 3M™ EPDM Separable Connectors

## 11kV EPDM Indoor Plug In - for Single Core Copper Wire Screened Cables

Kit Reference	Application Type	Voltage Class	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Bushing Connection Type
92-EE 895-2 35-50 MC 250A	Elbow 250A	11kV	35 - 50	12.6 - 17.5	A
93-EE 895-2 25-95 MC 250A	Elbow 250A	11kV	50 - 95	14.7 - 20.8	A
93-EE 895-2 70-150 MC 250A	Elbow 250A	11kV	120 - 150	19.9 - 24.3	A
93-EE 895-4 25-70 MC 400A	Elbow 400A	11kV	50 - 95	14.7 - 20.8	B
92-EE 895-4 95-120 MC 400A	Elbow 400A	11kV	95 - 120	14.7 - 22.8	B
93-EE 895-4 95-240 MC 400A	Elbow 400A	11kV	150 - 240	22.0 - 28.4	B
92-EE 890-2 35-50 MC 250A	Straight 250A	11kV	35 - 50	12.6 - 17.5	A
93-EE 890-2 25-95 MC 250A	Straight 250A	11kV	50 - 95	14.7 - 20.8	A
93-EE 890-2 70-150 MC 250A	Straight 250A	11kV	120 - 150	19.9 - 24.3	A
93-EE 995-6 400-630 MC 1250A	T Plug Asymmetrical 1250A	11kV	500 - 630	33.4 - 40.0	C2
93-EE 995-6 25-70 MC 630A	T Plug Asymmetrical 630A	11kV	50 - 95	14.7 - 20.8	C1
92-EE 995-6 95-150 MC 630A	T Plug Asymmetrical 630A	11kV	95 - 150	14.7 - 23.4	C1
93-EE 995-6 95-240 MC 630A	T Plug Asymmetrical 630A	11kV	150 - 240	22.0 - 28.4	C1
93-EE 998-6 25-70 MC 630A S	T Plug Symmetrical 630A	11kV	50 - 95	14.7 - 20.8	C1
92-EE 998-6 95-150 MC 630A S	T Plug Symmetrical 630A	11kV	95-150	14.7 - 24.3	C1
93-EE 998-6 95-240 MC 630A S	T Plug Symmetrical 630A	11kV	150 - 240	22.0 - 28.4	C1

## 20kV EPDM Indoor Plug In - for Single Core Copper Wire Screened Cables

Kit Reference	Application Type	Voltage Class	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Bushing Connection Type
93-EE 895-2 25-95 MC 250A	Elbow 250A	20kV	25 - 95	14.7 - 25.0	A
93-EE 895-2 70-150 MC 250A	Elbow 250A	20kV	70 - 150	19.9 - 28.5	A
93-EE 895-4 25-70 MC 400A	Elbow 400A	20kV	25 - 70	14.7 - 23.4	B
93-EE 895-4 95-240 MC 400A	Elbow 400A	20kV	95 - 240	22.0 - 32.6	B
93-EE 890-2 25-95 MC 250A	Straight 250A	20kV	25 - 95	14.7 - 25.0	A
93-EE 890-2 70-150 MC 250A	Straight 250A	20kV	70 - 150	19.9 - 28.5	A
93-EE 995-6 400-630 MC 1250A	T Plug Asymmetrical 1250A	20kV	400 - 630	33.4 - 44.2	C1
93-EE 995-6 25-70 MC 630A	T Plug Asymmetrical 630A	20kV	25 - 70	14.7 - 23.4	C1
93-EE 995-6 95-240 MC 630A	T Plug Asymmetrical 630A	20kV	95 - 240	22.0 - 32.6	C1
93-EE 995-6 240-400 MC 630A	T Plug Asymmetrical 630A	20kV	240 - 400	23.7 - 37.8	C1
93-EE 998-6 25-70 MC 630A S	T Plug Symmetrical 630A	20kV	25 - 70	14.7 - 23.4	C1
93-EE 998-6 95-240 MC 630A S	T Plug Symmetrical 630A	20kV	95 - 240	22.0 - 32.6	C1

## 33kV EPDM Indoor Plug In - for Single Core Copper Wire Screened Cables

Kit Reference	Application Type	Voltage Class	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Bushing Connection Type
94-EE 895-4 35-95 MC 400A	Elbow 400A	33kV	35 - 95	22.0 - 30.0	B
94-EE 895-4 95-120 MC 400A	Elbow 400A	33kV	95 - 120	22.0 - 32.0	B
94-EE 895-4 150-240 MC 400A	Elbow 400A	33kV	150 - 240	22.0 - 37.6	B
94-EE 995-6 400-630 MC 1250A	T Plug Asymmetrical 1250A	33kV	400 - 630	39.1 - 49.2	C2
94-EE 995-6 35-95 MC 630A	T Plug Asymmetrical 630A	33kV	35 - 95	22.0 - 30.0	C1
94-EE 995-6 95-150 MC 630A	T Plug Asymmetrical 630A	33kV	95 - 150	22.0 - 33.5	C1
94-EE 995-6 150-240 MC 630A	T Plug Asymmetrical 630A	33kV	150 - 240	30.8 - 37.6	C1
94-EE 995-6 240-400 MC 630A	T Plug Asymmetrical 630A	33kV	240 - 400	31.5 - 42.8	C1

# 3M™ Cold Shrink Termination Products

## 11kV Indoor Terminations – Single Core

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Termination Body Type
92-EP621-1	Copper Wire Screen	50 - 95	16.3 - 27.4	QTIII
92-EP631-1	Copper Wire Screen	120 - 400	21.1 - 38.9	QTIII
92-EP641-1	Copper Wire Screen	400 - 630	26.7 - 45.7	QTIII
92-EP656-1	Copper Wire Screen	800 - 1000	38.9 - 58.9	QTIII
92-EP623-1	Copper Tape Screen, Armour (+-Lead Sheath)	50 - 95	16.3 - 27.4	QTIII
92-EP633-1	Copper Tape Screen, Armour (+-Lead Sheath)	120 - 150	21.1 - 38.9	QTIII
92-EP643-1	Copper Tape Screen, Armour (+-Lead Sheath)	185 - 400	21.1 - 38.9	QTIII
92-EP653-1	Copper Tape Screen, Armour (+-Lead Sheath)	500 - 630	26.7 - 45.7	QTIII
92-EP629-1	Copper Tape Screen, Armour. Glanded Application	50 - 95	16.3 - 27.4	QTIII
92-EP639-1	Copper Tape Screen, Armour. Glanded Application	120 - 300	21.1 - 38.9	QTIII
92-EP649-1	Copper Tape Screen, Armour. Glanded Application	400 - 630	26.7 - 45.7	QTIII
92-EB62-1	Copper Wire Screen	50 - 150	15.9 - 30.0	QTII
92-EB63-1	Copper Wire Screen	185 - 500	22.6 - 41.4	QTII
92-EB64-1	Copper Wire Screen	300 - 630	27.3 - 49.3	QTII
92-EB65-1	Copper Wire Screen	500 - 1000	31.5 - 61.5	QTII

## 11kV Indoor Terminations - Three Core

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Termination Body Type
7620-T95-3W	Copper Tape Screen, Armour	10	8.4 - 12.7	QTIII
7621-T95-3W	Copper Tape Screen, Armour	16 - 50	12.7 - 17.8	QTIII
7623-T95-3W	Copper Tape Screen, Armour	70 - 120	17.8 - 23.4	QTIII
7624-T95-3W	Copper Tape Screen, Armour	150 - 300	23.4 - 30.0	QTIII
7925-T95-3W	Copper Tape Screen, Armour	300 - 400	30.0 - 38.6	QTIII
92-EP626-3	Copper Tape Screen, Armour (+-Lead Sheath)	50 - 120	16.3 - 27.4	QTIII
92-EP636-3	Copper Tape Screen, Armour (+-Lead Sheath)	150 - 185	21.1 - 38.9	QTIII
92-EP646-3	Copper Tape Screen, Armour (+-Lead Sheath)	240 - 300	26.7 - 45.7	QTIII
92-EP656-3	Copper Tape Screen, Armour (+-Lead Sheath)	400	26.7 - 45.7	QTIII
92-EB61-3	Copper Wire or Copper Tape Screen, Armour	35 - 70	14.2 - 22.1	QTII
92-EB62-3	Copper Wire or Copper Tape Screen, Armour	70 - 95	16.5 - 22.1	QTII
92-EB63-3	Copper Wire or Copper Tape Screen, Armour	120 - 150	19.8 - 33.0	QTII
92-EB64-3	Copper Wire or Copper Tape Screen, Armour	185 - 300	22.0 - 33.0	QTII



## 11kV Outdoor Terminations - Single Core

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Termination Body Type
92-EP621-2	Copper Wire Screen	50 - 95	16.3 - 27.4	QTIII
92-EP631-2	Copper Wire Screen	120 - 400	21.1 - 38.9	QTIII
92-EP641-2	Copper Wire Screen	400 - 630	26.7 - 45.7	QTIII
93-EB62-1	Copper Wire Screen	50 - 150	16.0 - 28.5	QTII
93-EB63-1	Copper Wire Screen	150 - 300	21.3 - 35.0	QTII
93-EB64-1	Copper Wire Screen	300 - 630	27.0 - 45.7	QTII
93-EB65-1	Copper Wire Screen	400 - 1000	33.0 - 53.3	QTII
92-EP623-2	Copper Tape Screen, Armour (+-Lead Sheath)	50 - 95	16.3 - 27.4	QTIII
92-EP633-2	Copper Tape Screen, Armour (+-Lead Sheath)	120 - 150	21.1 - 38.9	QTIII
92-EP643-2	Copper Tape Screen, Armour (+-Lead Sheath)	185 - 400	21.1 - 38.9	QTIII
92-EP653-2	Copper Tape Screen, Armour (+-Lead Sheath)	500 - 630	26.7 - 45.7	QTIII

## 11kV Outdoor Terminations - Three Core

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Termination Body Type
7691-S4-3W	Copper Tape Screen, Armour	16 - 50	12.7 - 17.8	QTIII
7692-S4-3W	Copper Tape Screen, Armour	70 - 120	17.8 - 23.4	QTIII
7693-S4-3W	Copper Tape Screen, Armour	150 - 300	23.4 - 30.0	QTIII
7695-S4-3W	Copper Tape Screen, Armour	300 - 400	30.0 - 38.6	QTIII
93-EB61-3	Copper Wire or Copper Tape Screen, Armour	50 - 70	16.0 - 28.4	QTII
93-EB62-3	Copper Wire or Copper Tape Screen, Armour	95 - 150	16.0 - 28.4	QTII
93-EB63-3	Copper Wire or Copper Tape Screen, Armour	185 - 300	21.3 - 35.0	QTII

## 20kV Indoor Terminations - Single Core

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Termination Body Type
93-EP610-1	Copper Wire Screen	25 - 120	16.3 - 27.4	QTIII
93-EP620-1	Copper Wire Screen	95 - 300	21.1 - 38.9	QTIII
93-EP630-1	Copper Wire Screen	185 - 400	26.7 - 45.7	QTIII
93-EP640-1	Copper Wire Screen	500 - 630	38.9 - 58.9	QTIII
93-EB62-1	Copper Wire Screen	25 - 95	16.0 - 28.5	QTII
93-EB63-1	Copper Wire Screen	70 - 240	21.3 - 35.0	QTII
93-EB64-1	Copper Wire Screen	185 - 500	27.0 - 45.7	QTII
93-EB65-1	Copper Wire Screen	400 - 1000	33.0 - 53.3	QTII
93-EP611-1	Copper Tape Screen, Armour. Glanded Application	25 - 120	16.3 - 27.4	QTIII
93-EP621-1	Copper Tape Screen, Armour. Glanded Application	95 - 300	21.1 - 38.9	QTIII
93-EP631-1	Copper Tape Screen, Armour. Glanded Application	185 - 400	26.7 - 45.7	QTIII
93-EP641-1	Copper Tape Screen, Armour. Glanded Application	500 - 630	38.9 - 58.9	QTIII

## 20kV Indoor Terminations -Three Core

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Termination Body Type
93-EB61-3	Copper Wire or Copper Tape Screen, Armour	25 - 35	16.0 - 28.4	QTII
93-EB62-3	Copper Wire or Copper Tape Screen, Armour	50 - 120	16.0 - 28.4	QTII
93-EB63-3	Copper Wire or Copper Tape Screen, Armour	120 - 240	21.3 - 35.0	QTII

## 20kV Outdoor Terminations - Single Core

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Termination Body Type
92-EP621-2	Copper Wire Screen	25 - 120	16.3 - 27.4	QTIII
92-EP631-2	Copper Wire Screen	95 - 240	21.1 - 38.9	QTIII
92-EP641-2	Copper Wire Screen	185 - 400	26.7 - 45.7	QTIII
94-EB62-1	Copper Wire Screen	25 - 95	16.2 - 28.5	QTII
94-EB63-1	Copper Wire Screen	70 - 240	21.3 - 35.0	QTII
94-EB64-1	Copper Wire Screen	185 - 500	27.0 - 45.7	QTII
94-EB65-1	Copper Wire Screen	400 - 1000	33.0 - 53.3	QTII

## 20kV Outdoor Terminations -Three Core

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Termination Body Type
7692-S4-3W	Copper Tape Screen, Armour	25 - 70	17.8 - 23.4	QTIII
7693-S4-3W	Copper Tape Screen, Armour	95 - 185	23.4 - 30.0	QTIII
7695-S4-3W	Copper Tape Screen, Armour	240 - 300	30.0 - 38.6	QTIII
94-EB61-3	Copper Wire or Copper Tape Screen, Armour	25 - 35	16.2 - 24.4	QTII
94-EB62-3	Copper Wire or Copper Tape Screen, Armour	50 - 120	16.2 - 28.4	QTII
94-EB63-3	Copper Wire or Copper Tape Screen, Armour	120 - 240	21.3 - 35.0	QTII

## 33kV Indoor Terminations - Single Core

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Termination Body Type
94-EP610-2	Copper Wire Screen	25 - 120	18.3 - 32.8	QTIII
94-EP620-2	Copper Wire Screen	70 - 240	21.1 - 38.9	QTIII
94-EP630-2	Copper Wire Screen	95 - 400	26.7 - 45.7	QTIII
94-EP640-2	Copper Wire Screen	400 - 630	38.9 - 58.9	QTIII
94-EB62-1	Copper Wire Screen	25 - 50	16.2 - 28.5	QTII
94-EB63-1	Copper Wire Screen	50 - 150	21.3 - 35.0	QTII
94-EB64-1	Copper Wire Screen	120 - 300	27.0 - 45.7	QTII
94-EB65-1	Copper Wire Screen	240 - 500	33.0 - 53.3	QTII
94-EP613-2	Copper Tape Screen or Lead sheath (Amour when Gland used)	25 - 120	18.3 - 32.8	QTIII
94-EP623-2	Copper Tape Screen or Lead sheath (Amour when Gland used)	70 - 240	21.1 - 38.9	QTIII
94-EP633-2	Copper Tape Screen or Lead sheath (Amour when Gland used)	95 - 400	26.7 - 45.7	QTIII
94-EP643-2	Copper Tape Screen or Lead sheath (Amour when Gland used)	400 - 630	38.9 - 58.9	QTIII

## 33kV Outdoor Terminations - Single Core

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Termination Body Type
94-EP610-2	Copper Wire Screen	25 - 120	18.3 - 32.8	QTIII
94-EP620-2	Copper Wire Screen	70 - 240	21.1 - 38.9	QTIII
94-EP630-2	Copper Wire Screen	95 - 400	26.7 - 45.7	QTIII
94-EP640-2	Copper Wire Screen	400 - 630	38.9 - 58.9	QTIII
94-EB62-1	Copper Wire Screen	25 - 50	16.2 - 28.5	QTII
94-EB63-1	Copper Wire Screen	50 - 150	21.3 - 35.0	QTII
94-EB64-1	Copper Wire Screen	120 - 300	27.0 - 45.7	QTII
94-EB65-1	Copper Wire Screen	240 - 500	33.0 - 53.3	QTII
94-EP613-2	Copper Tape Screen or Lead Sheath (Armour when Gland used)	25 - 120	18.3 - 32.8	QTIII
94-EP623-2	Copper Tape Screen or Lead Sheath (Armour when Gland used)	70 - 240	21.1 - 38.9	QTIII
94-EP633-2	Copper Tape Screen or Lead Sheath (Armour when Gland used)	95 - 400	26.7 - 45.7	QTIII
94-EP643-2	Copper Tape Screen or Lead Sheath (Armour when Gland used)	400 - 630	38.9 - 58.9	QTIII

## 33kV Indoor / Outdoor Terminations -Three Core

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Termination Body Type
94-EB63-4	Copper Wire or Copper Tape Screen, Armour	25 - 150	21.3 - 35.0	QTII
94-EB64-4	Copper Wire or Copper Tape Screen, Armour	95 - 240	27.4 - 45.7	QTII

# 3M Termination Accessories

## Barrier Boot Kits

Kit Reference	Voltage Class	Cable Type	Product Type	Application Guide CSA (mm <sup>2</sup> )
92-EE717-1	11kV - 15kV	All Polymeric Cables	Push On Barrier Boot	50 - 300
92-EE717-1-BSK	11kV - 15kV	All Polymeric Cables	Build up for Push On Boot	Up to 50
MB61	11kV	All Polymeric Cables	Taped Barrier Boot	Up to 630
94-EE310-3	33kV	All Polymeric Cables	Taped Barrier Boot	Up to 1000

## Gland Kits & Seals

Kit Reference	Voltage Class	Cable Type	Product Type	Cable OD Range (mm)
THG1	11kV - 33kV	All Polymeric Cables	Top Hat Gland	36 - 65
THG2	11kV - 33kV	All Polymeric Cables	Top Hat Gland	53 - 94
THGS1	11kV - 33kV	All Polymeric Cables	Cold Shrink Seal for Top Hat Gland	36 - 65
THGS2	11kV - 33kV	All Polymeric Cables	Cold Shrink Seal for Top Hat Gland	53 - 94



# 3M™ Cold Shrink Jointing Products

## 11kV Straight Joints – Single Core

All Joints are complete with mechanical connectors

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Splice Body Type	Earthing System	Outer Protection
92-AG611-1/C	Copper Wire Screen	70 - 150	17.7 - 26.0	QS1000	CFS / Stocking	Cold Shrink
92-AG621-1/C	Copper Wire Screen	185 - 240	22.3 - 33.2	QS1000	CFS / Stocking	Cold Shrink
92-AG631-1/C	Copper Wire Screen	300 - 400	28.4 - 42.0	QS1000	CFS / Stocking	Cold Shrink
92-AK610-1/C	Copper Wire Screen	50 - 150	14.6 - 28.0	QS200	CFS / Stocking	Cold Shrink
92-AK620-1/C	Copper Wire Screen	95 - 300	17.6 - 38.0	QS200	CFS / Stocking	Cold Shrink
92-AK630-1/C	Copper Wire Screen	300 - 630	26.1 - 45.0	QS200	CFS / Stocking	Cold Shrink
92-AG612-1/C	Copper Tape Screen, Armour	70 - 150	17.7 - 26.0	QS1000	CFS / Stocking	Cold Shrink
92-AG622-1/C	Copper Tape Screen, Armour	185 - 240	22.3 - 33.2	QS1000	CFS / Stocking	Cold Shrink
92-AG632-1/C	Copper Tape Screen, Armour	300 - 400	28.4 - 42.0	QS1000	CFS / Stocking	Cold Shrink
92-AK612-1/C	Copper Tape Screen, Armour	70 - 150	14.6 - 28.0	QS200	CFS / Stocking	Cold Shrink
92-AK623-1/C	Copper Tape Screen, Armour	120 - 300	19.1 - 38.0	QS200	CFS / Stocking	Cold Shrink
92-AK633-1/C	Copper Tape Screen, Armour	300 - 630	28.9 - 44.0	QS200	CFS / Stocking	Cold Shrink
92-AG613-1/C	Copper Tape Screen, Lead Sheath, Armour	70 - 150	17.7 - 26.0	QS1000	CFS / Stocking	Cold Shrink
92-AG623-1/C	Copper Tape Screen, Lead Sheath, Armour	185 - 240	22.3 - 33.2	QS1000	CFS / Stocking	Cold Shrink
92-AG633-1/C	Copper Tape Screen, Lead Sheath, Armour	300 - 400	28.4 - 42.0	QS1000	CFS / Stocking	Cold Shrink

## 11kV Straight Joints – Three Core

All Joints are complete with mechanical connectors

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Splice Body Type	Earthing System	Outer Protection
92-AG613-3/C	Copper Tape Screen, Armour (+-Lead Sheath)	50-120	17.7-26.0	QS1000	CFS / Stocking	Cold Shrink
92-AG623-3/C	Copper Tape Screen, Armour (+-Lead Sheath)	150-240	22.3-33.2	QS1000	CFS / Stocking	Cold Shrink
92-AG633-3/C	Copper Tape Screen, Armour (+-Lead Sheath)	240-400	28.4-42.0	QS1000	CFS / Stocking	Cold Shrink
92-AG614-3/C	Copper Tape Screen, Armour (+-Lead Sheath)	25-120*	13.7-26.0*	QS1000	CFS / Stocking	Cold Shrink
92-AG624-3/C	Copper Tape Screen, Armour (+-Lead Sheath)	50-240*	17.7-33.2*	QS1000	CFS / Stocking	Cold Shrink
92-AG634-3/C	Copper Tape Screen, Armour (+-Lead Sheath)	150-400*	22.3-42.0*	QS1000	CFS / Stocking	Cold Shrink
92-AG410-3/C	Copper Tape Screen, Armour (+-Lead Sheath)	50-120	17.7-26.0	QS1000	CFS / Stocking	Resin
92-AG420-3/C	Copper Tape Screen, Armour (+-Lead Sheath)	150-240	22.3-33.2	QS1000	CFS / Stocking	Resin
92-AG430-3/C	Copper Tape Screen, Armour (+-Lead Sheath)	240-400	28.4-42.0	QS1000	CFS / Stocking	Resin
92-AG412-3/C	Copper Tape Screen, Armour (+-Lead Sheath)	25-120*	13.7-26.0*	QS1000	CFS / Stocking	Resin
92-AG422-3/C	Copper Tape Screen, Armour (+-Lead Sheath)	50-240*	17.7-33.2*	QS1000	CFS / Stocking	Resin
92-AG432-3/C	Copper Tape Screen, Armour (+-Lead Sheath)	150-400*	22.3-42.0*	QS1000	CFS / Stocking	Resin
92-AG411-3/C	PILC/PICAS to Copper Tape Screen, Lead Sheath, Armour	50-120	17.7-26.0	QS1000	CFS / Stocking	Resin
92-AG421-3/C	PILC/PICAS to Copper Tape Screen, Lead Sheath, Armour	150-240	22.3-33.2	QS1000	CFS / Stocking	Resin
92-AG431-3/C	PILC/PICAS to Copper Tape Screen, Lead Sheath, Armour	240-400	28.4-42.0	QS1000	CFS / Stocking	Resin
92-AG413-3/C	PILC/PICAS to Copper Tape Screen, Lead Sheath, Armour	25-120*	13.7-26.0*	QS1000	CFS / Stocking	Resin
92-AG423-3/C	PILC/PICAS to Copper Tape Screen, Lead Sheath, Armour	50-240*	17.7-33.2*	QS1000	CFS / Stocking	Resin
92-AG433-3/C	PILC/PICAS to Copper Tape Screen, Lead Sheath, Armour	150-400*	22.3-42.0*	QS1000	CFS / Stocking	Resin
92-AG414-3/C	PLC/PICAS	50-120	17.7-26.0	QS1000	CFS / Stocking	Resin
92-AG424-3/C	PLC/PICAS	150-240	22.3-33.2	QS1000	CFS / Stocking	Resin
92-AG434-3/C	PLC/PICAS	240-400	28.4-42.0	QS1000	CFS / Stocking	Resin
92-AG415-3/C	PLC/PICAS	25-120*	13.7-26.0*	QS1000	CFS / Stocking	Resin
92-AG425-3/C	PLC/PICAS	50-240*	17.7-33.2*	QS1000	CFS / Stocking	Resin
92-AG435-3/C	PLC/PICAS	150-400*	22.3-42.0*	QS1000	CFS / Stocking	Resin
92-AV610-3/C **	Copper Tape Screen, Armour (+-Lead Sheath / Transition)	50 - 120	17.7 - 26.0	QS1000	CFS / Stocking	Various Options **
92-AV620-3/C **	Copper Tape Screen, Armour (+-Lead Sheath / Transition)	120 - 240	22.3 - 33.2	QS1000	CFS / Stocking	Various Options **
92-AV630-3/C **	Copper Tape Screen, Armour (+-Lead Sheath / Transition)	240 - 400	28.4 - 42.0	QS1000	CFS / Stocking	Various Options **
92-AV612-3/C	Mines & Quarries Copper Tape Screen, SWA/DWA	70 - 95	17.7 - 26.0	QS1000	CFS / Stocking	Resin
92-AV622-3/C	Mines & Quarries Copper Tape Screen, SWA/DWA	120 - 185	22.3 - 33.2	QS1000	CFS / Stocking	Resin
92-AV642-3/C	Mines & Quarries Copper Tape Screen, SWA/DWA	240 - 300	28.4 - 42.0	QS1000	CFS / Stocking	Resin

\*Includes build up components to extend kit range

\*\*Add your choice of outer protection module, cold shrink or resin

## 11kV Polymeric Trifurcating Joints

All Joints are complete with mechanical connectors

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Splice Body Type	Earthing System	Outer Protection
92-MV610-3/C **	Copper Tape Screen, Armour	50 - 95	17.7 - 26.0	QS1000	CFS / Stocking	Resin **
92-MV620-3/C **	Copper Tape Screen, Armour	120 - 185	22.3 - 33.2	QS1000	CFS / Stocking	Resin **
92-MV630-3/C **	Copper Tape Screen, Armour	240 - 300	28.4 - 42.0	QS1000	CFS / Stocking	Resin **
92-MG410-3/C	Copper Tape Screen, Armour	50 - 95	17.7 - 26.0	QS1000	CFS / Stocking	Resin
92-MG420-3/C	Copper Tape Screen, Armour	120 - 185	22.3 - 33.2	QS1000	CFS / Stocking	Resin
92-MG430-3/C	Copper Tape Screen, Armour	240 - 300	28.4 - 42.0	QS1000	CFS / Stocking	Resin

\*\*Resin packs sold separately

## 11kV Stop End Joints

All Joints are complete with mechanical connectors

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Splice Body Type	Earthing System	Outer Protection
92-KG612-3/C	Copper Tape Screen, Armour	70 - 95	17.7 - 26.0	QS1000	CFS / Stocking	Resin
92-KG622-3/C	Copper Tape Screen, Armour	120 - 185	22.3 - 33.2	QS1000	CFS / Stocking	Resin

## 11kV Branch Joints - Single Core

All Joints are complete with mechanical connectors

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Splice Body Type	Earthing System	Outer Protection
93-BP620-1/C	Copper Wire Screen	95 - 240	22.3 - 33.2	QS2000B	CFS / Stocking	Cold Shrink

## 11kV Branch Joints - Three Core

All Joints are complete with mechanical connectors

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Splice Body Type	Earthing System	Outer Protection
92-BV6210-3/C	Copper Tape Screen, Armour	95 - 300	22.3 - 33.2	QS2000B	CFS / Stocking	Resin

## 20kV Straight Joints - Single Core

All Joints are complete with mechanical connectors

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Splice Body Type	Earthing System	Outer Protection
93-AP611-1/C	Copper Wire Screen	50 - 95	17.7 - 26.0	QS2000	CFS / Stocking	Cold Shrink
93-AP621-1/C	Copper Wire Screen	95 - 240	22.3 - 33.2	QS2000	CFS / Stocking	Cold Shrink
93-AP631-1/C	Copper Wire Screen	240 - 400	28.4 - 43.0	QS2000	CFS / Stocking	Cold Shrink
93-AK620-1/C	Copper Wire Screen	50 - 240	19.1 - 36.8	QS200	CFS / Stocking	Cold Shrink
93-AK621-1/C	Copper Wire Screen	95 - 300	19.1 - 36.8	QS200	CFS / Stocking	Cold Shrink
93-AK630-1/C	Copper Wire Screen	400 - 630	33.4 - 67.6	QS200	CFS / Stocking	Cold Shrink

## 20kV Branch Joints - Single Core

All Joints are complete with mechanical connectors

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Splice Body Type	Earthing System	Outer Protection
93-BP620-1/C	Copper Wire Screen	95 - 240	22.3 - 33.2	QS2000B	CFS / Stocking	Cold Shrink

## 33kV Straight Joints – Single Core

All Joints are complete with mechanical connectors

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Splice Body Type	Earthing System	Outer Protection
94-AP630-1/C	Copper Wire Screen	120 - 240	28.4 - 42.0	QS2000	CFS / Stocking	Cold Shrink
94-AP631-1/C	Copper Wire Screen	185 - 400	28.4 - 42.0	QS2000	CFS / Stocking	Cold Shrink
94-AC640-1/C	Copper Wire Screen	300 - 630	31.5 - 52.6	QSIII	CFS / Stocking	Cold Shrink
94-AK620-1/C	Copper Wire Screen	50 - 240	19.4 - 36.0	QS200	CFS / Stocking	Cold Shrink
94-AK630-1/C	Copper Wire Screen	300 - 630	33.3 - 52.0	QS200	CFS / Stocking	Cold Shrink
94-AC642-1/C	Copper Tape Screen, Armour (+-Lead Sheath)	300 - 630	31.5 - 52.6	QSIII	CFS / Stocking	Cold Shrink
94-AP635-1/C	Copper Tape Screen, Armour	120 - 240	28.4 - 42.0	QS2000	CFS / Stocking	Cold Shrink
94-AP636-1/C	Copper Tape Screen, Armour	185 - 300	28.4 - 42.0	QS2000	CFS / Stocking	Cold Shrink
95-AC 440-1 -XB/C	Copper Wire Screen, with Cross Bond	300 - 630	31.5 - 54.0	QSIII	Mechanical	Resin
94-AC643-1/C	Copper Wire Screen, with External Earth	300 - 630	31.5 - 52.6	QSIII	CFS / Stocking	Cold Shrink
94-FC630-1/C	Transition - Copper Wire Screen to PILC	28.4 - 42.0	23.3 - 42.0	QS2000	CFS / Stocking	Cold Shrink
94-FC631-1/C	Transition - Copper Wire Screen to PILC	28.4 - 42.0	23.3 - 42.0	QS2000	CFS / Stocking	Cold Shrink
94-FC640-1/C	Transition - Copper Wire Screen to PILC	31.5 - 52.6	22.1 - 52.6	QSIII	CFS / Stocking	Cold Shrink

## 33kV Straight Joints - Three Core

All Joints are complete with mechanical connectors

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Splice Body Type	Earthing System	Outer Protection
94-AP230-3/C	Copper Tape Screen, Armour	120 - 240	28.4 - 40.3	QS2000	CFS / Stocking	Heat shrink
94-AP231-3/C	Copper Tape Screen, Armour	185 - 300	28.4 - 40.3	QS2000	CFS / Stocking	Heat shrink
94-AP430-3/C	Copper Tape Screen, Lead Sheath, Armour	120 - 240	28.4 - 40.3	QS2000	CFS / Stocking	Resin
94-AP431-3/C	Copper Tape Screen, Lead Sheath, Armour	185 - 300	28.4 - 40.3	QS2000	CFS / Stocking	Resin

## 33kV Transition Trifurcating Joints

All Joints are complete with mechanical connectors

Kit Reference	Cable Type	Application Guide CSA (mm <sup>2</sup> )	Insulation Diameter (mm)	Splice Body Type	Earthing System	Outer Protection
94-FP435-3/C	PILC/PICAS to Poly Copper Wire Screened	28.4 - 42.0	23.3 - 42.0	QS2000	CFS / Stocking	Resin
94-FP436-3/C	PILC/PICAS to Poly Copper Wire Screened	28.4 - 42.0	23.3 - 42.0	QS2000	CFS / Stocking	Resin

UK Selection – contact your local region for variations