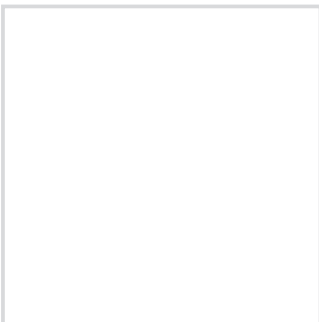


## Low Voltage Joints & Terminations

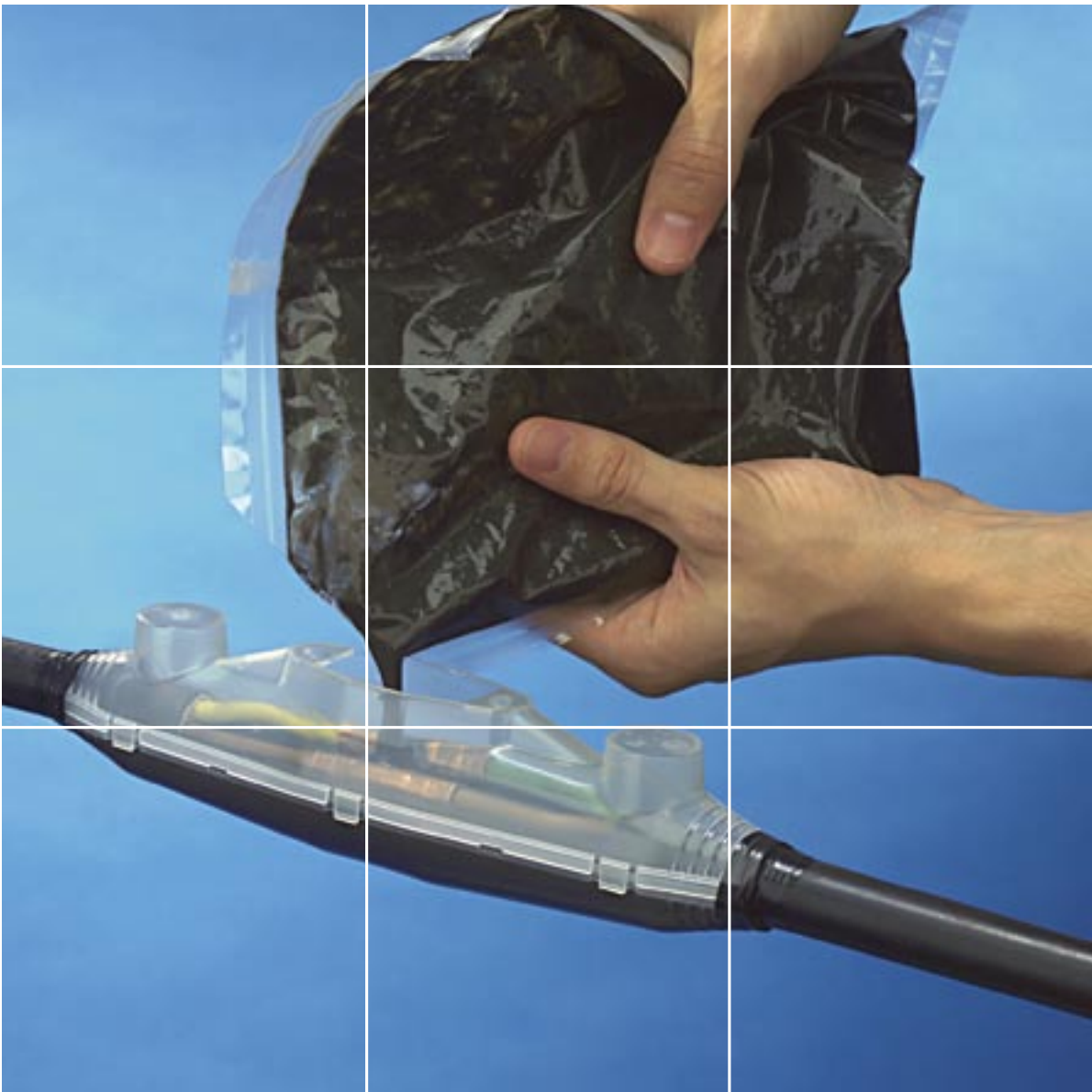


## Low Voltage Joints

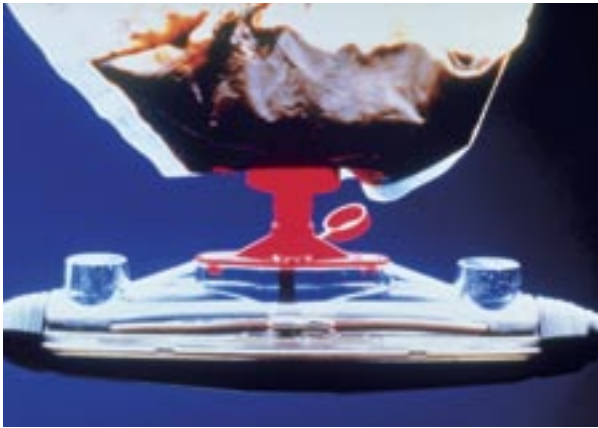
3M produce a full range of quality Jointing Systems suitable for a variety of diverse applications. Designed for PVC, XLPE, Paper, Armoured and Unarmoured Cables up to 3.3kV (up to 6.6kV for unscreened cables) using Scotchcast™ Resins, Heatshrink, and Coldshrink Options.

Resin Joints include the unique 3M Advanced Resin Delivery System – totally enclosed mixing and pouring system with no spillage (up to size 4).

Armour continuity is included where applicable using constant force springs, and connectors are available separately for all applications.



# Low Voltage - Resin Joints



## 3M™ LA Kits with Armour Continuity - Up to 3.3kV (6.6kV for unscreened cables)

Inline joint for PVC/SWA/PVC & XLPE Insulated cables.

Also suitable for Transition joints, and Paper joints, with the use of supplementary kits; see selection tables for details.

### Safer Cable Jointing;

Unique 3M Advanced Resin Delivery System – totally enclosed mixing and pouring

- No spillage
- No accidental contact whatever your working conditions
- Conforms to BS7888 (HD623)

### Faster and Easier;

Easy to use delivery system that gives you complete control

- No special tools required
- Short Curing time
- Simple step-by-step instructions

### More Reliable;

Tough polyetherurethane resin power jointing resin – at least equal to the strength of the cable

- Transparent resin bag – ensures reliable mixing and installation
- Minimal risk of leakage
- Complete with Armour continuity – constant force springs
- Self-amalgamating tape provides high insulation value

Each kit includes two-part mould, polyetherurethane Resin No. 1471 (Closed Mix & Pour system), Armour Continuity, tapes, and full instructions. This kit can be upgraded for use with 3.3kv Cables, and is also suitable for 6.6kV Unscreened Cables, by using additional 23 Insulating tape. See instructions for full details.

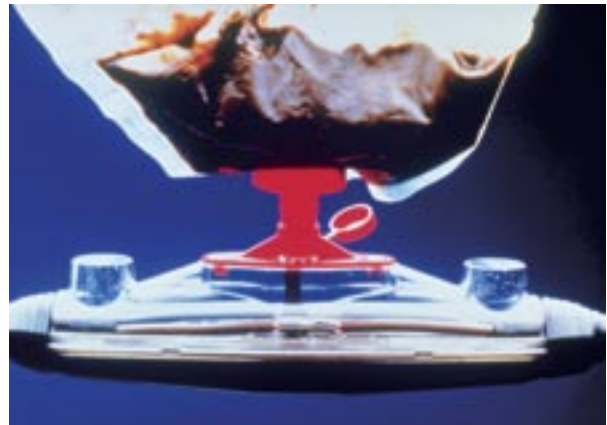
NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	CORES	KIT REF
1.5	2	LA21
	3	LA21
	4	LA21
2.5	2	LA21
	3	LA21
	4	LA21
4	2	LA21
	3	LA21
	4	LA22
6	2	LA22
	3	LA22
	4	LA22
10	2	LA22
	3	LA22
	4	LA22
16	1	LA22
	2	LA22
	3	LA23
25	4	LA23
	1	LA22
	2	LA22
35	3	LA23
	4	LA24
	1	LA22
50	2	LA23
	3	LA24
	4	LA24

NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	CORES	KIT REF
70	1	LA22
	2	LA24
	3	LA25
	4	LA25
95	1	LA22
	2	LA24
	3	LA25
	4	LA25
120	1	LA23
	2	LA25
	3	LA25
	4	LA25
150	1	LA23
	2	LA25
	3	LA26
	4	LA26
185	1	LA23
	2	LA25
	3	LA26
	4	LA26
240	1	LA24
	2	LA26
	3	LA26
	4	LA27
300	1	LA24
	2	LA26
	3	LA27
	4	LA27
400	1	LA24
	2	LA27
	3	LA27
500	1	LA25
630	1	LA25
800	1	LA26
1000	1	LA26

# Low Voltage - Resin Joints

## 3M™ LA Inline Joint

Joining Kit	Resin Volume CC	Cable Diameter	
		Max	Min
LA21	173	26	8
LA22	400	32	14
LA23	673	37	23
LA24	1164	51	28
LA25	2909	60	33
LA26	6364	80	48
LA27	9545	90	45



## 3M™ LA Transition Joint

### Supplementary Kits for Transition, and Paper Cable Jointing

Use one supplementary kit for a Transition joint, and two for a Paper-to-Paper joint. Full instructions are supplied with the kit, which is designed to be used in conjunction with the standard LA Series Joints.

Joining Kit	Supplementary Kit
LA23	TX3
LA24	TX4
LA25	TX5
LA26	TX6
LA27	TX7



# Low Voltage - Resin Joints

## 3M™ BK Joints for Street Lighting - Up to 1kV

Inline joint for PVC/SWA/PVC & XLPE designed for street lighting applications.

### Safer Cable Jointing;

- Closed mix system
- Conforms to BS7888 (HD623)

### Faster and Easier;

- Self-amalgamating tape gives ease of handling when insulating connectors
- Excellent resin flow characteristics – eliminating any risk of voids
- Short Curing time
- Simple step-by-step instructions

### More Reliable;

- Tough polyetherurethane resin power jointing resin – at least equal to the strength of the cable
- Transparent resin bag – ensures reliable mixing and installation
- Self-amalgamating tape provides high insulation value

Each kit includes two-part mould, polyetherurethane Resin No. 47, armour continuity, tape, and full instructions.

NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	NBR OF CORES	KIT REF	CABLE DIAMETER			
			Min (mm)	Max (mm)		
1.5	2	<b>BK1</b>	8	26		
	3	<b>BK1</b>				
	4	<b>BK1</b>				
2.5	2	<b>BK1</b>	8	26		
	3	<b>BK1</b>				
	4	<b>BK1</b>				
4	4	<b>BK2</b>	14	32		
6	2	<b>BK2</b>	14	32		
10	2	<b>BK2</b>	14	32		
	3	<b>BK2</b>				
	4	<b>BK2</b>				
16	1	<b>BK2</b>	14	32		
	2	<b>BK2</b>				
	3	<b>BK3</b>			23	37
	4	<b>BK3</b>				
25	1	<b>BK2</b>	14	32		
	2	<b>BK2</b>				
	3	<b>BK3</b>			23	37
	4	<b>BK4</b>			28	51

NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	NBR OF CORES	KIT REF	CABLE DIAMETER			
			Min (mm)	Max (mm)		
35	1	<b>BK2</b>	14	32		
	2	<b>BK3</b>				
	3	<b>BK4</b>			28	51
	4	<b>BK4</b>				
50	1	<b>BK2</b>	14	32		
	2	<b>BK3</b>				
	3	<b>BK4</b>			28	51
70	1	<b>BK2</b>	14	32		
	2	<b>BK4</b>			28	51
95	1	<b>BK2</b>	14	32		
	2	<b>BK4</b>			28	51
120	1	<b>BK3</b>	23	37		
150	1	<b>BK3</b>	23	37		
185	1	<b>BK3</b>	23	37		
240	1	<b>BK4</b>	28	51		
300	1	<b>BK4</b>	28	51		
400	1	<b>BK4</b>	28	51		

# Low Voltage - Resin Joints

## 3M™ 91-A Joints without Armour Continuity - Up to 1kV

### Inline joint for PVC / XPLE Cables

Each kit includes two-part mould, polyetherurethane Resin No. 1471 (Closed Mix & Pour system), and full instructions. This kit can be upgraded for use with 3.3kV Cables by using additional Insulating 23 Tape.



Low Voltage Joints & Terminations

NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	NBR OF CORES	KIT REF	CABLE DIAMETER			
			Min (mm)	Max (mm)		
1.5	2	91-A11	8	26		
	3	91-A11				
	4	91-A11				
2.5	2	91-A11	8	26		
	3	91-A11				
	4	91-A11				
4	2	91-A11	8	26		
	3	91-A11				
	4	91-A12	14	32		
6	2	91-A12	14	32		
	3	91-A12				
	4	91-A12				
10	2	91-A12	14	32		
	3	91-A12				
	4	91-A12				
16	1	91-A12	14	32		
	2	91-A12				
	3	91-A13			23	37
	4	91-A13				
25	1	91-A12	14	32		
	2	91-A12				
	3	91-A13			23	37
	4	91-A14			28	51
35	1	91-A12	23	37		
	2	91-A13				
	3	91-A14			28	51
	4	91-A14				
50	1	91-A12	14	32		
	2	91-A13			23	37
	3	91-A14			28	51
	4	91-A14				

NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	NBR OF CORES	KIT REF	CABLE DIAMETER			
			Min (mm)	Max (mm)		
70	1	91-A12	14	32		
	2	91-A14			28	51
	3	91-A15			33	60
	4	91-A15				
95	1	91-A12	14	32		
	2	91-A14			28	51
	3	91-A15			33	60
	4	91-A15				
120	1	91-A13	23	37		
	2	91-A15			33	60
	3	91-A15				
	4	91-A15				
150	1	91-A13	23	37		
	2	91-A15			33	60
	3	91-A16			48	80
	4	91-A16				
185	1	91-A13	23	37		
	2	91-A15			33	60
	3	91-A16			48	80
	4	91-A16				
240	1	91-A14	28	51		
	2	91-A16			48	80
	3	91-A16				
	4	91-A17			45	90
300	1	91-A14	28	51		
	2	91-A16			48	80
	3	91-A17			45	90
	4	91-A17				
400	1	91-A14	28	51		
	2	91-A17			45	90
	3	91-A17				
500	1	91-A15	33	60		
630	1	91-A15	33	60		
800	1	91-A16	48	80		
1000	1	91-A16	48	80		

# Low Voltage - Resin Joints

## 3M™ 90-A Joints for Street Lighting without Earth - Up to 1kV

### Inline joint for PVC/XLPE Cables

Each kit includes two-part mould, polyetherurethane Resin No. 47, tape, and full instructions



NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	NBR OF CORES	KIT REF	CABLE DIAMETER	
			Min (mm)	Max (mm)
1.5	2	90-A1	8	26
	3	90-A1		
	4	90-A1		
2.5	2	90-A1	8	26
	3	90-A1		
	4	90-A1		
4	2	90-A1	8	26
	3	90-A1		
	4	90-A2	14	32
6	2	90-A2	14	32
	3	90-A2		
	4	90-A2		
10	2	90-A2	14	32
	3	90-A2		
	4	90-A2		
16	1	90-A2	14	32
	2	90-A2		
	3	90-A3	23	37
	4	90-A3		
25	1	90-A2	14	32
	2	90-A2		
	3	90-A3	23	37
	4	90-A4	28	51
35	1	90-A2	14	32
	2	90-A3	23	37
	3	90-A4	28	51
	4	90-A4		
50	1	90-A2	14	32
	2	90-A3	23	37
	3	90-A4	28	51
	4	90-A4		

NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	NBR OF CORES	KIT REF	CABLE DIAMETER	
			Min (mm)	Max (mm)
70	1	90-A2	14	32
	2	90-A4	28	51
	3	90-A5	33	60
	4	90-A5		
95	1	90-A2	14	32
	2	90-A4	28	51
	3	90-A5	33	60
	4	90-A5		
120	1	90-A3	23	37
	2	90-A5	33	60
	3	90-A5		
	4	90-A5		
150	1	90-A3	23	37
	2	90-A5	33	60
	3	90-A6	48	80
	4	90-A6		
185	1	90-A3	23	37
	2	90-A5	33	60
	3	90-A6	48	80
	4	90-A6		
240	1	90-A4	28	51
	2	90-A6	48	80
	3	90-A6		
	4	90-A6		
300	1	90-A4	28	51
	2	90-A6	48	80
	3	90-A7	45	90
	4	90-A7		
400	1	90-A4	28	51
	2	90-A7	45	90
	3	90-A7		
500	1	90-A5	33	60
630	1	90-A5	33	60
800	1	90-A6	48	80
1000	1	90-A6	48	80

# Low Voltage - Resin Joints

## 3M™ 92-A Joints

**High Humidity - Up to 1 kV Un-armoured Inline joint for armoured/Unarmoured PVC/XLPE cables, moisture resistant for high humidity areas.**

Kit includes two-part mould, Epoxy Resin No. 4, and full instructions. Armour continuity is achieved by joining the armour wires together

Supplied with Epoxy Resin for use where there is a risk of water seepage or high humidity during curing.

Low Voltage Joints & Terminations

NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	NBR OF CORES	KIT REF	CABLE DIAMETER	
			Min (mm)	Max (mm)
1.5	2	92-A1	8	22
	3	92-A1		
	4	92-A1		
2.5	2	92-A1	8	22
	3	92-A1		
	4	92-A1		
4	2	92-A1	8	22
	3	92-A1		
	4	92-A1		
6	2	92-A1	8	22
	3	92-A1		
	4	92-A1		
10	2	92-A2	14	30
	3	92-A2		
	4	92-A2		
16	1	92-A2	14	30
	2	92-A2		
	3	92-A2		
	4	92-A2		
25	1	92-A2	14	30
	2	92-A2		
	3	92-A2		
	4	92-A2		

NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	NBR OF CORES	KIT REF	CABLE DIAMETER	
			Min (mm)	Max (mm)
35	1	92-A3	23	35
	2	92-A3		
	3	92-A3		
	4	92-A3		
50	1	92-A3	23	35
	2	92-A3		
	3	92-A3		
70	1	92-A4	28	47
	2	92-A4		
	3	92-A4		
	4	92-A4		
95	1	92-A4	28	47
	2	92-A4		
	3	92-A4		
	4	92-A4		
120	1	92-A4	28	47
150	1	92-A4	28	47
185	1	92-A4	28	47
240	1	92-A4	28	47
300	1	92-A4	28	47
400	1	92-A4	28	47



# Low Voltage - Resin Joints

## 3M™ 99 D Joints

### Inline Joint for 0.6/1kV Pilot, Control and Telecommunications Cables

- Range of inline joints specifically designed for encapsulating connections in polyethylene and PVC insulated and sheathed cables
- Rigid, two-part mould designed to withstand chemical and physical attack

PVC/PVC/SWA/PVC

Multipair Cables - 0.9mm Diameter

CABLE SIZE (PAIRS)	KIT TYPE	ARMOUR CONTINUITY KIT	RECOMMENDED S/LOK CONN
2	99-D1	SB1	UR2
5 - 15	99-D2	SB2	UR2
20 - 30	99-D3	SB2	UR2
40 - 50	99-D4	SB4	UR2
75 - 100	99-D5	SB4	UR2

- Totally enclosed easy to use mixing and pouring with the unique Advanced Resin Delivery System
- Range accommodates cable sizes from 2 to 100 pairs
- Particularly suitable for low and medium pair or core count when used with Scotchlok™ connectors (available separately)

Each kit includes two part mould, polyetherurethane Resin No. 1471N, Tapes, and full instructions. The SB Earth Continuity Kit for an armoured cable joint is supplied separately.

PE/SWA/PVC

Multipair Cables - 0.9mm Diameter

CABLE SIZE (PAIRS)	KIT TYPE	ARMOUR CONTINUITY KIT	RECOMMENDED S/LOK CONN
4	99-D2	SB2	UR2
7	99-D2	SB2	UR2
19	99-D3	SB3	UR2
37	99-D4	SB4	UR2
61	99-D5	SB5	UR2

PVC/PVC/SWA/PVC Multicore Cables -  
1.5 - 2.5mm 2 Conductor

CABLE SIZE (CORES)	KIT TYPE	ARMOUR CONTINUITY KIT	RECOMMENDED S/LOK CONN
2 - 4	99-D2	SB2	C42-1101
7 - 19	99-D3	SB3	C42-1101
27 - 37	99-D4	SB4	C42-1101

PVC Unarmoured Multipair Cables

0.4mm UY Conn*	0.5mm UY Conn*	0.63mm UY Conn*	0.9mm UR2 Conn*	KIT TYPE
20 pair	20 pair	20 pair	10 pair	99-D1
50 pair	50 pair	50 pair	30 pair	99-D2
100 pair	100 pair	100 pair	50 pair	99-D3
300 pair	200 pair	200 pair	150 pair	99-D4
400 pair	400 pair	400 pair	400 pair	99-D5

\*Recommended

Additional Information

KIT TYPE	RESIN VOLUME			CABLE DIAMETER	
	GRAMMES	CC	LITRES	MIN	MAX
99-D1	170	153	0.156	8	26
99-D2	420	378	0.384	14	32
99-D3	720	649	0.659	23	37
99-D4	1230	1108	1.125	28	51
99-D5	3180	2865	2.909	33	60

# Low Voltage - Resin Joints

## Scotchcast™ 82-F Joints

### Flexible Splice Kit

3M™ Scotchcast™ 82-F Series Flexible Power Cable Splicing Kits are a series of flexible inline and tap splices for use on non-shielded portable power cables and cords. They are designed to be used on single and multiple conductor cables rated up to 1000 Volts (600/2000 Volts mine portable cable rating). The 82-F Series will accommodate a single-conductor cable rated up to 5 kV.

### Features

- Factory quality “permanent” joint; MSHA accepted equal to shop or factory vulcanizing
- Flexible compound allows joint to bend with cable; for installation, handling, reeling, etc
- Scotchcast™ 2130 Compound is self-curing; a cold cure requiring no torch, no heated mould and no cooking time
- Scotchcast™ 2130 Compound bonds to common jacket materials; neoprene, hypalon, PVC, nitrile/PVC, EPR, urethane, 2130 (itself)
- Scotchcast™ 2130 Compound forms a joint or repair that is abrasion resistant and flame retardant
- Smooth tapered joint profile eliminates cable hang-ups and joint end lifting.

### Applications

To join or re-jacket non-Armoured portable power cable and portable cords

For inline single-conductor cables rated up to 5kV

For branch single-conductor cables rated up to 1000V

For inline and branch multi-conductor cables rated up to 1000V

For mine portable cable rated 600/2000V (P-145-5 MSHA)

For use with compression inline connectors (82-F) and

compression “C” branch connectors (82-BF)

For jacket repairs

For indoor and outdoor applications:

Weather exposed

Direct burial

Submerged

Cable reels

Each kit contains sufficient quantities to make one splice or cable repair (connectors are available separately)

KIT No.	CABLE O.D. RANGE mm (inches)	CONNECTOR TYPE	No. of CONDUCTORS	CONNECTION MAX O.D. mm (inches)	VOLTAGE RATING (Max V)	CONDUCTOR SIZE RANGE (AWG)
<b>82-F1</b>	6 - 20 (0.25 - 0.80)	Compression	1	16 (0.62) Connector	5000	6 - 1/0
		Inline	Multi	23 (0.90) Connector Bundle	1000*	**
<b>82-F2</b>	20 - 30 (0.80 - 1.20)	Compression	1	21 (0.82) Connector	5000	2/0 - 4/0
		Inline	Multi	33 (1.30) Connector Bundle	1000*	**
<b>82-BF1</b>	6 - 20 (0.25 - 0.80)	Compression	1	-	1000*	Up to 1/0
		“C” Tap	Multi	-	1000*	**

\* Mine portable cable rating of 600/2000V.

\*\* Base multi-conductor selection on cable O.D. range.

# Low Voltage - Resin Joints

## 3M™ 91 AB Multi-purpose Joints

Branch / Double Branch / Inline joint for XLPE/PVC Insulated Unarmoured cables up to 1 kV

- Easy and safe to use
- The branch line runs parallel to the main cable
- Double branch joints can be accommodated

- Semi transparent mould enables correct positioning
- Supplied with 1471 Polyetherurethane resin

Each kit Includes two-part mould, polyetherurethane Resin No. 1471 (Closed Mix and pour system), and full instructions. This kit can be used with Armoured Cables, by ordering separate Armour Continuity Kits

MAIN CABLE			SERVICE BRANCH			KIT REF	MOULD		
NBR OF CORES	NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	MAX CABLE OD (mm)	NBR OF CORES	NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	MAX CABLE OD (mm)		LENGTH (mm)	INNER	OUTER
2 - 4	2.5 - 4	22	2 - 4	2.5 - 4	21	<b>91-AB 112</b>	170	220	58
2 - 4	6 - 16	29	2 - 4	6 - 10	22	<b>91-AB 113</b>	225	300	75
2 - 4	16 - 35	35	2 - 4	16	25	<b>91-AB 114</b>	350	400	95
2 - 4	50 - 70	50	2 - 4	25 - 35	30	<b>91-AB115</b>	445	500	112
2 - 4	95	58	2 - 4	50	35	<b>91-AB116</b>	540	610	125



## Low Voltage - Resin Joints

### 3M™ Resin Pressure Jointing Method

The resin pressure method provides a jointing system to suit all cables up to 33kV

The method involves the use of the same materials no matter what type of joint may be required

- Versatile – suitable for inline, branch, tee joints, and sheath repairs on all types of cable
- Insulation thickness on the sheath and armour is easily controlled
- Finished joint dimension is smaller than conventional methods
- Job is completed immediately after resin injection – no waiting or topping up
- Particularly suited to emergency joints when the type or size of cable or joint are not known in advance
- Suitable for vertical or overhead joints where resin pouring is not possible
- High performance and well-proven epoxy and polyetherurethane resins
- Safe and easy to mix resin packs
- Compatible with compression, or mechanical connectors
- Compatible with Scotchcast armour and earth continuity kits
- Water-resistant
- Mechanically strong

All components are available separately - please contact the customer service team for selection charts.

### Specialist Resin Pressure Method Components;

**E4F Resin pressure gun** – enables easy delivery / injection of resin into the joint

**P1B Injection Fitting / P5B Piercing Nozzle** – to enable safe transfer of resin through gun and into the joint

**P3F Spacer Tape** – Used to build up voids in odd shaped splices, ensures full resin coverage, and forms a liquid tight mould.

**P4 Restricting Tape** – Provides outer layer to ensure safe and enclosed resin injection

### Standard 3M products used in resin pressure jointing;

33+ Vinyl Tape

88 Vinyl Tape

23 Self amalgamating Tape

Epoxy Resin No4

Polyetherurethane Resin No1471

AC Type Armour continuity kits



# Low Voltage - Cold Shrink Joints & Terminations

3M Cold Shrink Joints and Terminations use a series of Pre-stretched tubes, which are factory expanded and assembled onto a removable core. The core is removed after the tube is positioned for installation over an inline connection, or terminal lug, allowing the tube to shrink and provide a waterproof seal.



## 3M™ LC Series

### Cold Shrink Splice Kits - Up to 3.3kV Cables

Suitable for Cable Types: XLPE/PVC Insulation, Lead Sheath, Steel Wire Armour, PVC Sheathed

For Cables rated: 0.6/1kV up to 1.9/3.3kV

Each kit includes EPDM Rubber Cold Shrink Tube, Armour continuity, Tape, and full instructions

### Features

- Simple installation – no special tools required
- No torches or heat required
- Safe installation - replaces conventional resin jointing method
- Accommodates a wide range of cable sizes
- Improved tough rubber formulation withstands rough backfilling
- Resistant to acids, alkalis, ozone, UV light, and fungus
- Waterproof seal

### Applications

Indoor, Outdoor, Overhead, or use in Cable Trays

Additional Information

KIT REF	ACCEPTED CABLE DIAMETER (COLDSHRINK TUBE)		DIAMETER OVER LEAD/ARMOUR (CONSTANT FORCE SPRING)	
	MIN (mm)	MAX (mm)	MIN (mm)	MAX (mm)
LC1	16.2	33.1	9	15
LC2	16.2	33.1	14	22
LC3	16.2	33.1	18.5	29
LC4	24.9	56.4	23.5	37
LC5	37.8	84.3	31	50
LC6	37.8	84.3	44	70

## 3M™ Network Rail Specification Products

APPLICATION	KIT	MIN DIA	MAX DIA	LENGTH
500/630/1000mm <sup>2</sup> 3RD Rail Terminations	L041	24.4	98.2	228mm
161/240mm <sup>2</sup> Inline joints or terminations	L042	15.2	61	191mm
500/630/800/1000 Inline Joint	LA11	38.1	114	457mm

NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	2 CORE 1kv	3 CORE 1kv	4 CORE 1kv	3 CORE 3.3kv
1.5	LC1	LC1	LC1	N/A
2.5	LC1	LC1	LC1	N/A
4	LC1	LC1	LC2	N/A
6	LC2	LC2	LC2	N/A
10	LC2	LC2	LC3	N/A
16	LC3	LC3	LC3	LC4
25	LC3	LC3	LC3	LC4
35	LC3	LC3	LC4	LC4
50	LC3	LC4	LC4	LC4
70	LC4	LC4	LC5	LC5
95	LC4	LC5	LC5	LC5
120	LC4	LC5	LC5	LC5
150	LC5	LC5	LC6	LC5
185	LC5	LC6	LC6	LC6
240	LC6	LC6	N/A	LC6
300	LC6	N/A	N/A	N/A

## 3M™ Cold Shrink Joints 92-AC Series 6.6kV Cables

Suitable for 3 core Polymeric insulated, unscreened, armoured cable, rated to 3.6/6.6kV

- Simple installation – no special tools required
- No torches or heat required
- Safe installation - replaces conventional resin jointing method
- Accommodates a wide range of cable sizes
- Improved tough rubber formulation withstands rough backfilling
- Resistant to acids, alkalis, ozone, UV light, and fungus
- Waterproof seal

Part Number	Accepted Cable CSA (mm <sup>2</sup> )
92-AC62-3	50 – 150
92-AC63-3	185 – 240



# Low Voltage - Cold Shrink Joints & Terminations

## 3M™ Cold Shrink Cable Abandonment Kits

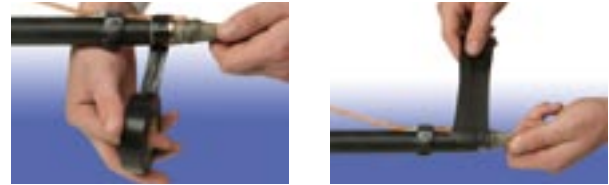
**Suitable for Cable Types: XLPE/PVC Insulation, Lead Sheath, Steel Wire Armour, PVC Sheathed. Also suitable for Ship wiring Cables, Rubber/GSWB, and/or Unarmoured Cables**

**Up to and including 1.9/3.3kV. Single and Multi-core Cables**

A complete kit with all the components required to abandon cables either temporarily or permanently. Provides environmental seal and mechanical protection, eliminates the requirements for heat during installation using 3M Cold Shrink technology.

Each kit includes Cold Shrink End Cap, Coldshrink Pre Stretched Tube, Armour continuity, tapes, and full instructions

ACCEPTED CABLE DIAMETER (mm)	KIT REFERENCE
12 - 18	CSCAK/1
18 - 25	CSCAK/2
25 - 42	CSCAK/3
42 - 55	CSCAK/4
56 - 81	CSCAK/5



## 3M™ LCT Low Voltage Indoor Cold Shrink Terminations

For 3 Core Cables, Suitable for PILC, Steel Wire Armour, Sheathed, and / or XLPE/PVC, Lead Sheath, Steel Wire Armour, PVC Sheathed Cables, 0.6/1kV and 1.9/3.3kV

It is assumed that the Armour will be glanded separately.

NOMINAL CONDUCTOR AREA	KIT REF	ACCEPTED CABLE DIAMETER OVER LEAD SHEATH (CFS)		ACCEPTED CABLE DIAMETER OVER INSULATION (PST)	
		Max (mm)	Max (mm)	Max (mm)	Max (mm)
35 50	LCT/1 LCT/1	23.5	37	16	33
70 95 120	LCT/2 LCT/2 LCT/2	31	50	16	33
150 185	LCT/3 LCT/3	44	70	19	40
240 300 400	LCT/4 LCT/4 LCT/4	TBA	TBA	TBA	TBA

# Low Voltage - Heat Shrink Joints & Accessories

## 3M™ 91-AHA Heat Shrink Cable Joints

**Suitable for Cable Types: XLPE/PVC Insulation, Steel Wire Armour Cables rated to 0.6/1kV**

Each kit includes Adhesive lined Heat Shrink Tubes, Armour Continuity, and full instructions

Connectors are available separately

- Quick and easy to use
- Designed to accommodate large range of cable sizes
- Excellent moisture sealing
- Flame retardant tubing



NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	NBR OF CORES	KIT REF	ACCEPTED CABLE DIAMETER (HEATSHRINK TUBE)		DIAMETER OVER ARMOUR (CONSTANT FORCE SPRING)	
			MIN (mm)	MAX (mm)	MIN (mm)	MAX (mm)
6	4	91-AHA-21-S	12	38	18.5	29
10	4	91-AHA-21-S				
16	4	91-AHA-21-S				
25	4	91-AHA-22-S	15	55	18.5	29
35	4	91-AHA-22-S				
50	4	91-AHA-23-S	15	65	23.5	37
70	4	91-AHA-23-S				
95	4	91-AHA-24-S	26	85	31	50
120	4	91-AHA-24-S				
150	4	91-AHA-24-S				
185	4	91-AHA-25-S	38	128	44	70
240	4	91-AHA-25-S				

## 3M™ 91-AHSC-A Heat Shrink Cable Joint

**Suitable for Cable Types: XLPE/PVC Insulation, Steel Wire Armour Cables rated to 0.6/1kV**

Kits include Heat Shrink Tubes, Armour Continuity, and full instructions

Complete with screw type mechanical connectors and installation tool

- Quick and easy to use
- Designed for cables from 1.0 to 6.0mm<sup>2</sup> Cross sectional area
- Excellent moisture sealing
- Flame retardant tubing
- Range taking connectors – no crimping tool required

NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	NBR OF CORES	KIT REF	ACCEPTED CABLE DIAMETER (HEATSHRINK TUBE)		DIAMETER OVER ARMOUR (CONSTANT FORCE SPRING)	
			MIN (mm)	MAX (mm)	MIN (mm)	MAX (mm)
1 - 6	3 - 4	91-AHSCA-6	8	30	14	22

# Low Voltage - Heat Shrink Joints & Accessories



## 3M™ LHT Low Voltage Indoor Heat Shrink Terminations Series Termination

For XLPE/PVC Insulation, Lead Sheath, Steel Wire Armour, Sheathed Cables rated from 0.6/1kV up to and including 1.9/3.3kV

NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	2 CORE 0.6/1KV	3 CORE 0.6/1KV	4 CORE 0.6/1KV	3 CORE 0.6/1KV
2.5	LHT2/1	LHT3/1	LHT4/1	N/A
4	LHT2/1	LHT3/1	LHT4/1	N/A
6	LHT2/1	LHT3/1	LHT4/1	N/A
10	LHT2/1	LHT3/1	LHT4/1	N/A
16	LHT2/1	LHT3/1	LHT4/1	LHT3.3/1
25	LHT2/1	LHT3/1	LHT4/1	LHT3.3/1
35	LHT2/2	LHT3/2	LHT4/1	LHT3.3/1
50	LHT2/2	LHT3/2	LHT4/2	LHT3.3/1
70	LHT2/2	LHT3/2	LHT4/2	LHT3.3/1
95	LHT2/2	LHT3/2	LHT4/2	LHT3.3/2
120	LHT2/2	LHT3/2	LHT4/2	LHT3.3/2
150	N/A	LHT3/3	LHT4/2	LHT3.3/2
185	N/A	LHT3/3	N/A	LHT3.3/2
240	N/A	LHT3/3	N/A	LHT3.3/2
300	N/A	LHT3/3	N/A	LHT3.3/3



# Low Voltage - Branch Joints

## 3M™ LB Joints with Armour Continuity - up to 3.3kV

Branch joint for Inline joint for PVC/SWA/PVC & XLPE insulated cables up to 1kV

### Safer Cable Jointing;

- Unique 3M Advanced Resin Delivery System – totally enclosed mixing and pouring
- No spillage
- No accidental contact whatever your working conditions
- Conforms to BS7888 (HD623)

### Faster and Easier;

- Easy to use delivery system that gives you complete control
- No special tools required
- Short Curing time
- Simple step-by-step instructions

### More Reliable;

- Tough polyetherurethane resin power jointing resin – at least equal to the strength of the cable
- Transparent resin bag – ensures reliable mixing and installation
- Minimal risk of leakage
- Complete with Armour continuity – constant force springs
- Self-amalgamating tape provides high insulation value

Kit Includes two-part mould, polyetherurethane Resin No. 1471 (Closed Mix and pour system), armour continuity, tape, and full instructions.

This kit can be upgraded for use with 3.3kV Cables, by using additional 23 Insulating tape

MAIN CABLE		SERVICE BRANCH			KIT REF	RESIN VOLUME			CABLE DIAMETER (mm)			
NOMINAL CONDUCTOR AREA (mm²)	NBR OF CORES	NOMINAL CONDUCTOR AREA (mm²)				cc	Grammes	Litres	MAIN CABLE		BRANCH	
		2 Core	3 Core	4 Core					MIN	MAX	MIN	MAX
1.5 - 2.5	2 - 4	1.5 - 2.5	1.5 - 2.5	1.5 - 2.5	<b>LB21</b>	234	260	0.238	10	24	10	24
4 - 10	2 - 4	1.5 - 10	1.5 - 6	1.5 - 4	<b>LB22</b>	450	500	0.457	16	26	10	24
16 - 35	2 - 4	1.5 - 25	1.5 - 25	1.5 - 16	<b>LB23</b>	1441	1600	1.464	23	42	13	32
50 - 70	2 - 4	1.5 - 70	1.5 - 70	1.5 - 50	<b>LB24</b>	3784	4200	3.843	30	50	17	42
95 - 185	2 - 4	50 - 185	50 - 120	50 - 95	<b>LB25</b>	6314	7008	6.412	36	58	34	50



Funnels shown for illustration purposes only

## Low Voltage - Branch Joints

### 3M™ 91 Joints for Unarmoured Cables - 1kV Branch joint for XLPE/PVC insulated unarmoured cables up to 1 kV

#### Safer Cable Jointing;

- Unique 3M Advanced Resin Delivery System – totally enclosed mixing and pouring
- No spillage
- No accidental contact whatever your working conditions
- Conforms to BS7888 (HD623)

#### Faster and Easier;

- Easy to use delivery system that gives you complete control
- No special tools required
- Short Curing time
- Simple step-by-step instructions

#### More Reliable;

- Tough polyetherurethane resin power jointing resin – at least equal to the strength of the cable
  - Transparent resin bag – ensures reliable mixing and installation
  - Minimal risk of leakage
  - Complete with Armour continuity – constant force springs
  - Self-amalgamating tape provides high insulation value
- Kit Includes two-part mould, polyetherurethane Resin No. 1471 (Closed Mix and pour system), and full instructions.

This kit can be used with Armoured Cables, by ordering separate Armour Continuity Kits.

MAIN CABLE OD (mm)	SERVICE BRANCH OD (mm)	KIT REF
14 - 30	8 - 24	<b>91-C11</b>
30 - 58	17 - 42	<b>91-B16</b>

### 3M™ 90-B1 Cathodic Protection with Armour Continuity up to 1kV

3M's 90-B1 Kit is ideal for single core unarmoured tee or branch jointing rated up to 1kV, above or below ground, e.g. traffic signal systems, cathodic protection and street lighting.

Each kit contains a clear two-part mould, epoxy Resin No.4, funnel, end-sealing tape and step by step instructions. The large mould body enables crimps or split-bolt connectors to be used.

	RESIN VOLUME cc	ACCEPTED CABLE DIAMETER mm			
		MAIN		BRANCH	
		MAX	MIN	MAX	MIN
90-B1	187	20	12	9.5	8



# Low Voltage - Cable Sheath Repair

## 3M™ Heavy Duty Wraparound HDCW

The HDCW Wraparound Heat Shrink Cable Repair Sleeve is designed to repair damaged cable sheaths. It is also suitable for use with cable joints and as additional corrosion protection on undamaged cables.

HDCW is made from modified cross-linked polyolefin with a hot-melt adhesive coated to the inner side of the sleeve. Upon heating, the sleeve shrinks and the adhesive melts, thereby achieving a safe and watertight bond between the sleeve and the cable. A corrosion proof metal clip is used to fully close the sleeve.

- Quick and easy to use
- Maximum protection against mechanical stress
- Good bonding to PE and PVC surfaces
- Excellent resistance to even the harshest environments
- Forms a perfect seal to prevent moisture ingress



CABLE DIAMETER MAX/MIN (mm)	EXPANDED INNER DIAMETER (mm)	RECOVERED INNER DIAMETER (mm)	PART NUMBER	LENGTH (mm)	MINIMUM RECOVERED WALL THICKNESS (mm)
35 / 10	50	8	HDCW 35/10-250	250	2.0
			HDCW 35/10-500	500	
			HDCW 35/10-750	750	
			HDCW 35/10-1000	1000	
55 / 15	75	13	HDCW 55/15-250	250	2.0
			HDCW 55/15-500	500	
			HDCW 55/15-750	750	
			HDCW 55/15-1000	1000	
80 / 25	100	23	HDCW 80/25-250	250	2.0
			HDCW 80/25-500	500	
			HDCW 80/25-750	750	
			HDCW 80/25-1000	1000	
110 / 30	132	25	HDCW 110/30-250	250	2.0
			HDCW 110/30-500	500	
			HDCW 110/30-750	750	
			HDCW 110/30-1000	1000	
140 / 40	145	32	HDCW 140/40-250	250	1.8
			HDCW 140/40-500	500	
			HDCW 140/40-750	750	
			HDCW 140/40-1000	1000	

# Low Voltage - Cable Sheath Repair

## 3M™ Joint and Repair kit for flexible and trailing Cables up to 1kV

### M Series / 91 AV Series

Scotchcast™ flexible power cable jointing and repair kits are a flexible cold pour resin system for the permanent jointing and repair of single or multi-core flexible power cables. The flexible Scotchcast resin bonds securely to the cable sheath, providing a permanent joint or repair with tight seal - a seal that won't tear or work loose after installation. They can be used to joint or repair frequently coiled power cables, and are tough enough to use in weather exposed, direct burial or submerged locations.

- Simple installation – no workshop needed.
- Non-vulcanising – no costly equipment needed.
- Drastic reduction in repair time – compared to vulcanising.
- No heat required – safer system, no permit for hot work required.
- High performance – repaired/jointed section can be reeled without sagging.
- Permanent – both electrically and mechanically.
- No end lifting – bonds to all modern cable sheath materials such as neoprene, polychloroprene and nitrile/PVC even PVC, EPR and hypalon.
- Abrasion resistant – equivalent to vulcanising.
- Weather resistant – over a wide temperature range.
- Flame retardant – resin system.

## M Series Kits

Each kit includes a re-useable mould, with full instructions. 2130 Resin is required, and must be purchased separately. See selection tables below for guidelines

If Kit is to be used for a repair, all required components are included. If Kit is to be used for a Cable Joint, then additional components may be required. Full details are available on request.



### 3M 91-AV Series

KIT REF	CABLE DIAMETER		RESIN	RESIN VOLUME INCLUDED		
	Min (mm)	Max (mm)		Gram	cc	Litres
91-AV 120	16	26	2140U	420	389	0.349
91-AV 130	25	30	2140U	650	602	0.539
91-AV 140	29	34	2140U	840	778	0.697

### 3M M-Series

KIT REF	CABLE DIAMETER		RESIN	RESIN VOLUME REQUIRED*		
	Min (mm)	Max (mm)		Gram	cc	Litres
M20	40	63	2130	1232	1140	1.022
M30	47	100	2130	2464	2280	2.045
M40	27	150	2130	3696	3420	3.067

### To Select Resin Packs

M20	Qty 2 packs of 616g
M30	Qty 4 packs of 616g
M40	Qty 6 packs of 616g

# Low Voltage - Airfield Ground Lighting

NOMINAL CONDUCTOR AREA (mm <sup>2</sup> )	KIT REF	CABLE DIAMETER	
		MIN (mm)	MAX (mm)
6	82-A1	6	16
10	82-A1		
16	82-A1		
25	82-A2	16	25
35	82-A2		
50	82-A2		
70	82-A3	25	36
95	82-A3		
120	82-A3		

Part Number	Application
AGL/CS001U	Cold Shrink Unscreened
AGL/CS001E	Cold Shrink External Earthed
AGL/CS001S	Cold Shrink Screened
AGL/HS001U	Heatshrink Unscreened
AGL/HS002U	Heatshrink Unscreened 2 Core
AGL/HS001S	Heatshrink Screened
AGL/HS001E	Heatshrink External Earthed

## 3M™ Airfield Ground Lighting Kit - Scotchcast 82 Series In-line Joint

Designed for single core screened airfield lighting cables rated up to 5kV, and Multi Core Unarmoured cables rated up to 1.1kV

3M Epoxy No 4 Resin is included, suitable for high humidity and wet areas. Approved by DOE (Department of the Environment)



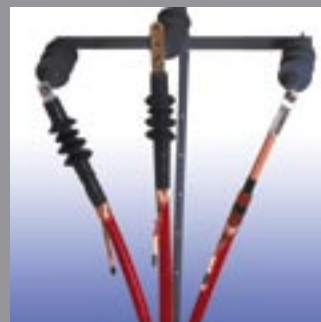
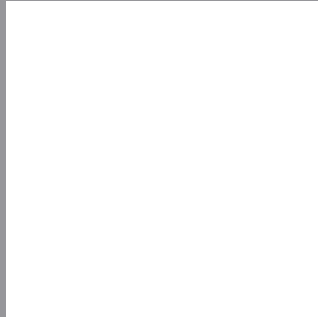
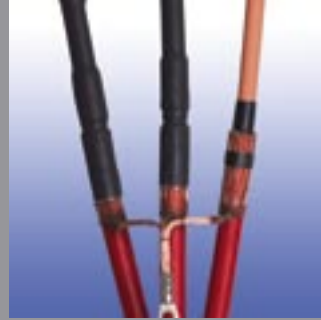
## 3M Airfield Ground Lighting Kit - AGL Series - Available in Heat Shrink or Cold Shrink versions

Approved by Defence Estates, Ministry of Defence

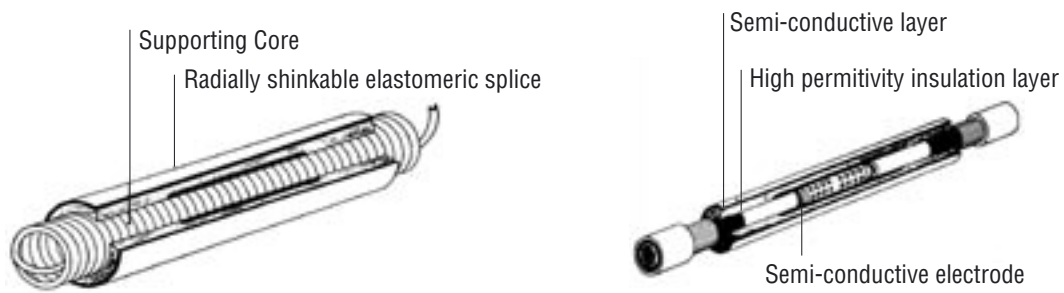




# Medium Voltage Joints & Terminations



## Medium Voltage - Cold Shrink Joints



### 6.6/11/(12) kV

3M QS1000 is a one-piece cold shrink joint body manufactured from a specially formulated silicone material, which provides flexibility, easy installation at low temperatures and superior electrical performance over a wide range of operating temperatures. The finished body is expanded and loaded onto a removable supporting core, which allows the joint to be installed without the need for tools or heat.

3M QS1000 is injection moulded and consists of three layers. A semi-conductive electrode, which forms a Faraday Cage around the connector, a high permittivity insulation layer, which both insulates and stress controls, and an outer semi-conductive layer which ensures all screens are at earth potential.

All finished bodies are tested after manufacture and undergo AC Withstand and Partial Discharge testing.

All joint types have been tested in accordance with VDE 0278, HD 629 and/or BS7888. Details of type tests are available upon request.

#### Features

- One part joint body
- 100% tested after manufacture
- No heat required
- Tool free installation
- Permanent radial pressure
- Suitable for paper and polymeric cables
- Compatible with compression and mechanical connectors
- Low temperature installation
- Provides consistent installation quality



# Medium Voltage - Cold Shrink Joints

## 3M™ QS1000 Single Core Polymeric Copper Wire Screened, Armoured

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-AG 611-1	70-150	17.7 – 26.0
92-AG 621-1	185-240	22.3 – 33.2
92-AG 631-1	300-400	28.4 – 42.0

## 3M™ QS1000 TRIF/Transition 3 Core Belted PILC/ PICAS to Three Single Core Polymeric

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-FV 611-3	50-95	17.7 – 26.0
92-FV 621-3	120-240	22.3 – 33.2
92-FV 631-3	300-400	28.4 – 42.0

## 3M™ QS1000 Single Core Polymeric Copper Tape Screened

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-AG 612-1	70-150	17.7 – 26.0
92-AG 622-1	185-240	22.3 – 33.2
92-AG 632-1	300-400	28.4 – 42.0

## 3M™ QS1000 Three Core Polymeric/Paper/Transition, Lead sheath and/or armoured

Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)	Supplementary Kit for Transition Joint	Supplementary Kit for Paper Joint
50-120	17.7 – 26.0	PILCL1	PILCL1 Qty 2
150-185	22.3 – 33.2	PILCL2	PILCL2 Qty 2
300-400	28.4 – 42.0	PILCL3	PILCL3 Qty 2



## Medium Voltage - Cold Shrink Joints

**Outer Protection Selection for 92-AV series 3 core joints. Choose Cold Shrink EPDM Kit for Polymeric Joints, or a mould and resin combination if required**

Joint	Coldshrink Kit	Mould Volume	Resin Standard	#1471 Resin	#1400U Resin Hazardous Area
92-AV 610-3	CS 610-3	1451	14 Litres	10 x 1600g packs	2 x 9060g packs
92-AV 620-3	CS 620-3	1451	14 Litres	10 x 1600g packs	2 x 9060g packs
92-AV-630-3	CS 630-3	1451	21 Litres	14 x 1600g packs	3 x 9060g packs

### 3M™ Coldshrink Single Core Polymeric Cable Build Up Supplementary Kit

Select in conjunction with any QS1000 Joint kit for polymeric cable, when one or both cables to be joined fall below the minimum range of the joint.

Build Up Kit (Polymeric only)	Range CSA (mm <sup>2</sup> )	Insulation Diameter (mm)
92-PG610-1	25 - 50	13.7 - 20.4
92-PG620-1	70 - 150	17.7 - 24.2
92-PG630-1	150 - 240	22.3 - 31.0

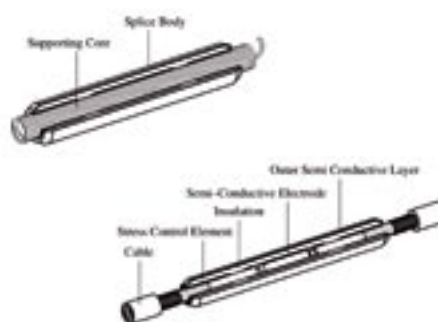
Note: These are single phase kits, one is required for each phase to be joined that falls below the minimum range of the joint.

### 12/20/(24) kV and 19/33/(36) kV

The 3M QS2000 is a one-piece Cold Shrink splice of a multi-layered Silicone rubber body provided in an expanded state. The finished body is loaded onto a removable supporting core, which allows the joint to be installed without the need for tools or heat.

The splice body provides the essential stress relief, re-insulation and semi-conductive screen of power distribution cable systems

- Two inner stress control elements provide the proper electric field distribution.
- The inner semi-conductive electrode electrically surrounds the high voltage connector eliminating the use of tape or additional moulded or metallic electrodes.
- The splice insulation effectively replaces and continues the performance characteristics of the cable insulation across the entire splice.
- The outer semi-conductive layer of the splice adapts to the geometry of the insulation and re-establishes the electromagnetic screen.
- Versatile design of prefabricated one-piece splice body allows installation on a wide range of cable sizes and types.
- Designed to fit all standard cable connectors.



- High contact pressure ensures absolute water tightness.
- Wide temperature range
- "Solderless" earth continuity connection.
- Extreme compact size allows installation in narrow areas.
- 100% production tested.
- Cold Shrink technology ensures quick, easy and tool-free installation.

### 3M™ QS2000 Joint – Single Core for Polymeric Copper Wire Screened Cable 12/20(24)kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
93-AP 611-1	50-95	17.7-26.0
93-AP 621-1	95-300	22.3-33.2
93-AP 631-1	240-400	28.4-43.0

### 3M™ QS2000 Joint – Single Core for Polymeric Copper Wire Screened Cable 19/33(36)kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
94-AP 631-1	50-400	28.4-42.0 (standard)

Note: Can accommodate smaller cables, with primary insulation from 20.0 - 28.4mm with the use of supplementary build up kit, reference 94-PG620-1. This is a single core kit, 2 must be purchased if both cables to be joined are smaller than 28.4mm over primary insulation diameter.

# Medium Voltage - Cold Shrink Joints

## 6.6/11/(12) kV and 12/20/(24) kV

3M QS2000B Branch Splice Body – developed from the QS2000 Inline Splice

- One-part splice body for a wide application range
- Tool-free installation
- Symmetrical cutback dimensions including the branch cable
- Supplied complete with mechanical branch connectors
- 100% tested at point of manufacture
- Compact design for installations in narrow areas

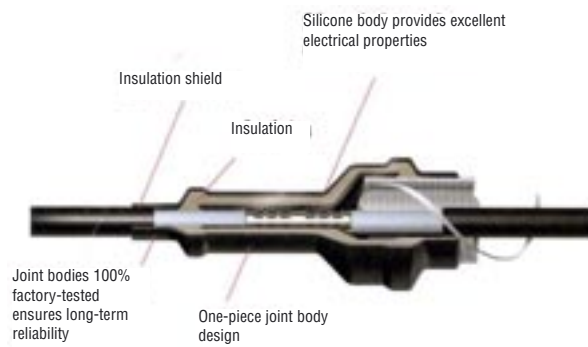
- Excellent performance and reliability developed from the QS2000 inline splice
- Constructed from high-performance LSR - silicone
- Excellent shrinkage at low temperatures
- Permanent radial pressure on the cable
- Outstanding dielectric properties
- Very high thermal stability and long-term elasticity
- Excellent mechanical properties

### 3M™ QS2000B Single Core Branch –XLPE/Copper Wire Screened, Connectors included For 6.6/11 (12)kV and 12/20(24)kV Applications

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
93-BP 620-1	95-240	22.3 – 33.2

## 19/33/(36)kV

The 3M QSIII Splice Body revolutionised power cable jointing. The QS-III silicone rubber joint meets the customer demands for easy, consistent installations by eliminating the pushing, pulling or heating required by traditional splices. The Cold Shrink QS-III joint features a silicone rubber body, which provides excellent electrical properties and superior low temperature handling. Plus the QS-III meets the requirements of most world-wide standards including IEEE 404 and European VDE 278.



- No heat, flames or special installation tools required.
- Minimal training required.
- Easy, fast installation.
- Symmetrical cable cutback dimensions.
- Allows transitioning of different size cables.
- Silicone body provides excellent electrical performance and superior low temperature handling.
- Joint bodies are 100% factory tested.
- One-piece joint body design.
- Field proven technology.
- Meets IEEE 404 and European VDE and CENELEC/IEC standards.
- Wide Cable range for individual joint bodies.

### 3M™ QSIII Joint – Single Core for Polymeric Copper Wire Screened Cable

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
94-AC640-1	300-630	36.4-53.3

### 3M™ QSIII Joint – Single Core for Polymeric Lead Sheath Armoured Cable

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
94-AC642-1	300-630	31.5-52.6

## 25/46(52)kV

### 3M™ QSIII Joint - Single Core for Polymeric Copper Wire Screened Cable

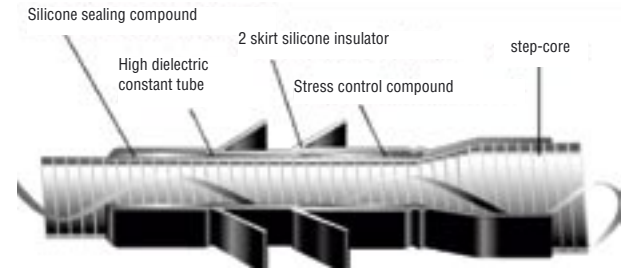
Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
95-AC643-1	120-630	33.5-53.8

## Medium Voltage - Cold Shrink Terminations

QTIII terminations offer easy installation and reliable performance when terminating indoor and outdoor medium voltage cables. QTIII is a one-piece silicone rubber termination, which is expanded and loaded onto a removable supporting core, which allows the termination to be installed without the need for tools or heat. The core is stepped to allow a greater application range for armoured cables. QTIII consists of a tubular silicone insulator, with a built in refractive stress control tube and compound, and a built in top seal. Due to this unique design the QTIII termination is installed in one operation without the need for any additional components.

QTIII terminations are suitable for use on polymeric cables medium voltage up to 52kV.

Both indoor and outdoor terminations are available for single core and three core cables. QTIII terminations have been tested in accordance with IEEE Std 48-1990, VDE 0278 Part 4 and IEC/CENELEC. Details of type tests are available upon request.



### Outdoor Termination



### Indoor Termination



# Medium Voltage - Cold Shrink Terminations

**QTIII terminations are manufactured from silicone rubber, which has been specially formulated to enhance the properties required for MV terminations.**

**Advantages of 3M Silicone as an insulator are:**

- Excellent insulating properties.
- Hydrophobic properties
- Hydrophobic recovery
- UV stable
- Non-flammable
- Fungus resistant
- Excellent high and low temperature properties
- Superior track and erosion resistance

## QTIII Features

- One-piece termination
- Built in stress control compound
- Built in top seal
- Moulded rain sheds on outdoor terminations
- Optimum High-K stress control
- Compact design
- High reliability, over 20 years of proven field experience
- Continuous operating temperature of 90°C, overload rating 130°C



## 6.6/11/(12) kV

**3M™ QTIII Indoor Single Core Polymeric Copper Tape Screened, Lead Sheath and/or Aluminium wire Armoured.**

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-EP623-1	50-95	16.3-27.4
92-EP633-1	120-150	20.5-38.9
92-EP643-1	185-400	20.5-38.9
92-EP653-1	500-630	26.7-45.7

**3M™ QTIII Outdoor Single Core Polymeric Copper Tape Screened, Lead Sheath and/or Aluminium wire Armoured.**

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-EP623-2	50-95	16.3-27.4
92-EP633-2	120-150	20.5-38.9
92-EP643-2	185-400	20.5-38.9
92-EP653-2	500-630	26.7-45.7

**3M™ QTIII Three Core Polymeric Copper Tape Screened / Armoured**

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
7621-T95-3W	16-50	12.7-17.8
7623-T95-3W	70-120	17.8-23.4
7624-T95-3W	150-300	23.4-30.0

**Outdoor**

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
7691-S4-3W	16-50	12.7-17.8
7692-S4-3W	70-120	17.8-23.4
7693-S4-3W	150-300	23.4-30.0

# Medium Voltage - Cold Shrink Terminations

## 6.6/11/(12) kV

### 3M™ QTIH Indoor 11kV Single Core Polymeric Copper Wire Screened

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-EP621-1	50-95	16.3-27.4
92-EP631-1	120-400	20.5-38.9
92-EP641-1	500-630	26.7-45.7
92-EP656-1	630-1000	35.9-55.9

### 3M™ QTIH Outdoor 11kV Single Core Polymeric Copper Wire Screened

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-EP621-2	50-95	16.3-27.4
92-EP631-2	120-400	20.5-38.9
92-EP641-2	500-630	26.7-45.7

### 3M™ 11kV Three Core Termination for Belted PILC / PICAS Cables (Paper Insulated Lead Covered/Paper Insulation Corrugated Aluminium Sheath)

- Inorganic cold shrink silicone insulation
- Coldshrink EPDM moisture sealing tubes
- Track resistant surface
- Moulded rain sheds for outdoor version
- No tools, easy install, ultra lightweight assembly
- Cold pour 2130 resin to fill and insulate crotch area

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
MT16	70-300	Indoor
MO16	70-300	Outdoor

## 12/20/(24) kV

### 3M™ QTIH Indoor Single Core Terminations - Polymeric / Copper Wire Screened / Non Armoured

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
93-EP610-1	25-120	16.3-27.4
93-EP620-1	95-240	21.1-38.9

### 3M™ QTIH Outdoor Single Core Terminations - Polymeric / Copper Wire Screened / Non Armoured

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-EP621-2	50-95	16.3-27.4
92-EP631-2	120-400	20.5-38.9
92-EP641-2	500-630	26.7-45.7

## 19/33/(36) kV

### 3M™ QTIH Indoor / Outdoor 33kV Single Core Polymeric / Copper Wire Screened

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
94-EP610-2	35-120	18.3-32.8
94-EP620-2	50-150	21.1-38.9
94-EP630-2	120-300	26.7-45.7
94-EP640-2	240-630	38.9-58.9



## 25/46/(52) kV

### 3M™ QTIH Indoor/Outdoor Single Core Polymeric/Copper Wire Screened

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
95-EP 631-2	240-500	38.6-51.0

### 3M™ QTII Indoor/Outdoor Termination Single Core Polymeric Copper Wire Screened

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
95-EB 62-2	70-400	33-53
95-EB 63-2	400-1000	46-66



## Separable Connectors

3M Produce a range of silicone rubber Separable elbow, straight and T connector kits. Each kit contains all the necessary components to install one Separable Connector, including all connection devices.



# Separable Connectors



## Separable Elbow Connectors

**Features:**

- Material: Silicone rubber
- Provides a fully screened and submersible system
- Fast and easy installation
- All components included to make the installation
- Meets European standard specifications: Cenelec HD 629.1 S1 and IEC 60502-4

**Benefits:**

- Minimum skill required: no heat, torch or special tools are needed
- Provides total safety in case of accidental touch
- Close positioning between 3 phases and to earth
- Immediately energisable



## Separable Straight Connectors

**Features:**

- Material: Silicone rubber
- Provides a fully screened and submersible system
- Fast and easy installation
- All components included to make the installation
- Meets European standard specifications: Cenelec HD 629.1 S1 and IEC 60502-4

**Benefits:**

- Minimum skill required: no heat, torch or special tools are needed
- Provides total safety in case of accidental touch
- Close positioning between 3 phases and to earth
- Immediately energisable



## Separable T-Connectors

**Features:**

- Material: Silicone rubber
- One-piece design, including a built -in capacitive test point
- Provides a fully screened and submersible system
- Fast and easy installation
- All components included to make the installation
- Meets European standard specifications: Cenelec HD 629.1 S1 and IEC 60502-4

**Benefits**

- Minimum skill required: no heat, torch or special tools are needed
- Provides total safety in case of accidental touch
- Close positioning between 3 phases and to earth
- Immediately energisable

# Separable Connectors - Rated 6/10 (12)kV

## Elbow Connectors

The 93-EE 605-2 kits and the 93-EE 605-4 consist of an elbow type Separable Connector. The assembly is fully screened and has an integrated stress control element. Each kit contains all the necessary components to install one Separable Connector, including all connection devices.

### Applications

These kits are designed to be installed on wire screened non-armoured polymeric insulated cables for 6/10kV ( $U_m = 12kV$ ) up to 12/20kV ( $U_m = 24kV$ ) – 400A / 630A applications. The Separable Connector establishes the connection between any polymeric insulated cable onto transformers, switchgears, motors or other equipment.

## Straight Connectors

The 92-EE 600-2 kits consist of a straight type Separable Connector. The assembly is fully screened and has an integrated stress control element. Each kit contains all the necessary components to install one Separable Connector, including all connection devices.

### Applications

The 92-EE 600-2 kits consist of a straight type Separable Connector. The assembly is fully screened and has an integrated stress control element. Each kit contains all the necessary components to install one Separable Connector, including all connection devices.

## T-Connectors

The 93-EE 7x5-6 kits consist of a T-type Separable Connector. The assembly is fully screened and has an integrated stress control element. Each kit contains all the necessary components to install one Plug-In, including all connection devices.

### Applications

These kits are designed to be installed on wire screened non-armoured polymeric insulated cables for 6/10kV ( $U_m = 12kV$ ) up to 12/20kV ( $U_m = 24kV$ ) – 400A / 630A applications. The Separable Connector establishes the connection between any polymeric insulated cable onto transformers, switchgears, motors or other equipment.

### Elbow Connector 250A

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)	Connector Type
93-EE 605-2/-95	25 - 95	17.2 - 25.0	MC 25-95
92-EE 615-2/120	120		CC 120
92-EE 615-2/150	150		CC 150

### Elbow Connector 400A

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)	Connector Type
93-EE 605-4/-95	25 - 95	15.0 - 32.6	MC 25 - 95
93-EE 605-4/-240	95 - 240	15.0 - 32.6	MC 95 - 240

#### Connectors Key

MC = Mechanical Connector

CC = Compression Connector

### Straight Connector 250A

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)	Connector Type
92-EE 600-2/25	25	12.7 - 15.2	CC 25
92-EE 600-2/35	35	13.8 - 16.3	CC 35
92-EE 600-2/50	50	15.0 - 17.5	CC 50
92-EE 600-2/70	70	16.7 - 19.2	CC 70
92-EE 600-2/95	95	18.3 - 20.8	CC 95
92-EE 600-2/120	120	19.8 - 22.8	CC 120
92-EE 600-2/150	150	21.3 - 24.3	CC 150

#### Connectors Key

MC = Mechanical Connector

CC = Compression Connector

### T Connector 630A

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)	Connector Type
93-EE 705-6/-95	50 - 95	15.0 - 32.6	MC 25-95
93-EE 705-6/-240	95 - 240	15.0 - 32.6	MC 95-240
92-EE 715-6/300	300		CC 300
92-EE 715-6/400	400		CC 400

#### Connectors Key

MC = Mechanical Connector

CC = Compression Connector



# Separable Connectors - Rated 12/20 (24)kV

## Elbow Connectors

The 93-EE 605-2 kits and the 93-EE 605-4 consist of an elbow type Separable Connector. The assembly is fully screened and has an integrated stress control element. Each kit contains all the necessary components to install one Separable Connector, including all connection devices.

### Applications

These kits are designed to be installed on wire screened non-armoured polymeric insulated cables for 6/10kV ( $U_m = 12kV$ ) up to 12/20kV ( $U_m = 24kV$ ) - 400 Applications. The Separable Connector establishes the connection between any polymeric insulated cable onto transformers, switchgears, motors or other equipment.

## Straight Connectors

The 93-EE 600-2 kits consist of a straight type Separable Connector. The assembly is fully screened and has an integrated stress control element. Each kit contains all the necessary components to install one Separable Connector, including all connection devices.

### Applications

These kits are designed to be installed on wire screened non-armoured polymeric insulated cables up to 6/10kV ( $U_m = 12kV$ ) up to 12/20kV ( $U_m = 24kV$ ) – 400A / 630A applications. The Separable Connector establishes the connection between any polymeric insulated cable onto transformers, switchgears, motors or other equipment.

## T-Connectors

The 93-EE 705-6/x2 kits consist of a T-type Separable Connector. The assembly is fully screened and has an integrated stress control element. Each kit contains all the necessary components to install one Plug-In, including all connection devices.

### Applications

These kits are designed to be installed on wire screened non-armoured polymeric insulated cables up to 6/10kV ( $U_m = 12kV$ ) up to 12/20kV ( $U_m = 24kV$ ) – 400A / 630A applications. The Separable Connector establishes the connection between any polymeric insulated cable onto transformers, switchgears, motors or other equipment.

## Elbow Connector 250A

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)	Connector Type
93-EE 605-2/-95	25 - 95	17.2 - 25.0	MC 25-95
93-EE 615-2/120	120	24.0 - 27.0	CC 120
93-EE 615-2/150	150	25.5 - 28.5	CC 150

## Elbow Connector 400A

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)	Connector Type
93-EE 605-4/-95	25 - 95	15.0 - 32.6	MC 25 - 95
93-EE 605-4/-240	95 - 240	15.0 - 32.6	MC 95 - 240

### Connectors Key

MC = Mechanical Connector

CC = Compression Connector

## Straight Connector 250A

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)	Connector Type
93-EE 600-2/25	25	17.0 - 19.5	CC 25
93-EE 600-2/35	35	18.0 - 20.5	CC 35
93-EE 600-2/50	50	19.2 - 21.7	CC 50
93-EE 600-2/70	70	20.9 - 23.4	CC 70
93-EE 600-2/95	95	22.5 - 25.0	CC 95
93-EE 600-2/120	120	24.0 - 27.0	CC 120
93-EE 600-2/150	150	25.5 - 28.5	CC 150

### Connectors Key

MC = Mechanical Connector

CC = Compression Connector

## T Connector 630A

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)	Connector Type
93-EE 705-6/-95	50 - 95	15.0 - 32.6	MC 25-95
93-EE 705-6/-240	95 - 240	15.0 - 32.6	MC 95-240
93-EE 715-6/300	300	30.2 - 34.6	CC 300
93-EE 715-6/400	400	33.5 - 37.8	CC 400

### Connectors Key

MC = Mechanical Connector

CC = Compression Connector

# Separable Connectors - Rated 18/30 (36)kV

## Elbow Connectors

The 94-EE 605-4 kits consist of an elbow type Separable Connector. The assembly is fully screened and has an integrated stress control element. Each kit contains all the necessary components to install one Separable Connector, including all connection devices.

### Applications

These kits are designed to be installed on wire screened non-armoured polymeric insulated cables up to 18/30kV (Um = 36kV) - 400A applications. The Separable Connector establishes the connection between any polymeric insulated cable onto transformers, switchgears, motors or other equipment.

## Elbow Connector 250A

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)	Connector Type
94-EE 605-4/35	35	22.8 - 25.5	CC 35
94-EE 605-4/50	50	23.5 - 26.7	CC 50
94-EE 605-4/70	70	25.1 - 28.4	CC 70
94-EE 605-4/95	95	26.7 - 30.0	CC 95
94-EE 605-4/120	120	28.3 - 32.0	CC 120
94-EE 605-4/150	150	29.9 - 33.5	CC 150
94-EE 605-4/185	185	31.5 - 35.1	CC 185
94-EE 605-4/240	240	33.4 - 37.6	CC 240
94-EE 605-4/300	300	35.6 - 39.6	CC 300

### Connectors Key

MC = Mechanical Connector

CC = Compression Connector

## T-Connectors

The 94-EE 705-6/x kits consist of a T-type Separable Connector. The assembly is fully screened and has an integrated stress control element. Each kit contains all the necessary components to install one Plug-In, including all connection devices.

### Applications

These kits are designed to be installed on wire screened non-armoured polymeric insulated cables for 18/30 (Um = 36kV) 400A/ 630A applications. The Separable Connector establishes the connection between any polymeric insulated cable onto transformers, switchgears, motors or other equipment.

## T Connector 630A

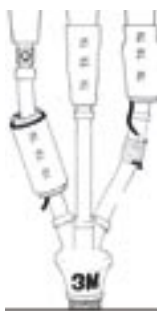
Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)	Connector Type
94-EE 705-6/70	70	25.1 - 28.4	CC 70
94-EE 705-6/95	95	26.7 - 30.0	CC 95
94-EE 705-6/120	120	28.3 - 32.0	CC 120
94-EE 705-6/150	150	29.9 - 33.5	CC 150
94-EE 705-6/185	185	31.5 - 35.1	CC 185
94-EE 715-6/240	240	33.4 - 37.6	CC 240
94-EE 715-6/300	300	35.6 - 39.6	CC 300

### Connectors Key

MC = Mechanical Connector

CC = Compression Connector

## Medium Voltage - Termination Accessories



Part Number	Application
MB 61	Universal Tape
MB 63	Cold Shrink In-line

### 3M™ Barrier Boots

3M Cold Shrink In-line Barrier Boot MB63 has been designed for the installation of cable terminations to bushing connections in switchgear and transformer cable end boxes for inline applications.

#### Features

- Suitable for use on paper or polymeric cables
- 11kV rated voltage (75kV BIL)
- Can be applied on cables with conductors up to 630mm<sup>2</sup>
- Complete cold system. No heat required
- Quick, simple and easy installation
- Track resistant EPDM material

3M Cold Shrink, Pre-Stretch Tubing enables the installer to Cold insulate bushing connections using a collapsible core on which the EPDM rubber is pre-stretched, this ensures that a total all round shrink is achieved. Tape version is also available, see MB61.



Range available
92EE717-1 Universal push on

### 3M™ Barrier Boot System 92EE717-1

The 3M Barrier Boot System 92EE717-1 consists of a one piece EPDM rubber body suitable for operating wet indoors under conditions of ambient temperature and loading. The barrier boot is designed to accommodate bushings of cast resin or porcelain type with diameters between 40.0-70.0mm and is intended for Coldshrink terminations of power cables up to 15kV with extruded insulation from 50 up to 300mm<sup>2</sup>. Voltage rating maximum 8.7/15(17.5)kV. Suitable for both straight and right angled applications.

Build up kit 92-EE717-1-BSK is available for smaller bushings



### 3M™ Gland Kits & Seals

	Application Range Diameter	Voltage Rating	Gland Part Number
Top hat gland kits	36-65mm	11kV	THG1
	53-94mm	11kV	THG2
Top hat gland seal only	To fit THG1	11kV	THGS1
	To fit THG2	11kV	THGS2



### 3M™ Cold Earth Bonding Kits

Application	Voltage Range	Part Number	Rating
Paper Cable 95 - 185mm <sup>2</sup>	11kV	SBT1	3kA / 3 seconds
	11kV	SBT2	7kA / 3 seconds
	11kV	SBT3	13.1kA / 3 seconds
Paper Cable 240 - 400mm <sup>2</sup>	11kV	SBT4	3kA / 3 seconds
	11kV	SBT5	7kA / 3 seconds
	11kV	SBT6	13.1kA / 3 seconds

# Medium Voltage - Special Contract Kits

## ScottishPower - Joints

### QS1000 Single Core Aluminium Inline Joints XLPE Cable with Copper Wire Screen – with outer Goldshrink Tube – rated 6/10 (12) kV and 8.7/15

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-AG613-1-SP	95 - 185	17.7 - 26.0
92-AG623-1-SP	95 - 300	22.3 - 33.2

### QS1000 Single Core Copper Inline Joints XLPE Cable with Copper Wire Screen – with outer coldshrink Tube – for Compression Connectors only – rated 6/10 (12) kV and 8.7/15 (17.5) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-AG614-1-SP	70 - 185	17.7 - 26.0
92-AG624-1-SP	300	22.3 - 33.2
92-AG634-1-SP	500	28.4 - 42.0

### QS1000 Three Core Inline Joints Aluminium XLPE Cable with Copper Wire Screen – with outer Goldshrink tube - rated 6/10 (12) kV and 8.7/15 (17.5) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-AG615-3-SP	95 - 185	17.7 - 26.0
92-AG625-3-SP	95 - 300	22.3 - 33.2

### QS1000 Trifurcating Joint for Three Core Common Copper Wire Screened Cable, to Three Single Core Cable with Copper Wire Screen - rated 6/10 (12) kV and 8.7/15 (17) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-MC610-3-SP	95 - 185	17.7 - 26.0
92-MC620-3-SP	95 - 300	22.3 - 33.2

### QS1000 Three Core PILC/PICAS Cable to Three Single Core Aluminium XLPE/CWS - Transition Trifurcating Joint – with outer Mould and Resin - rated to 6/10 (12) kV and 8.7/15 (17.5) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )		Diameter over Primary Insulation (mm)
	Paper	XLPE	
92-FV611-3-SP	<50 - 95	95 or 185	17.7 - 26.0
92-FV621-3-SP	<50 - 155	95 - 300	22.3 - 33.2
92-FV631-3-SP	>185 - 300	185 or 300	28.4 - 42.0

Supplementary Kits available separately for use with this joint

### QS1000 Three Core Inline Transition Joint – PILC/PICAS to Aluminium XLPE/CWS Cable – with Outer Mould and Resin - rated to 6/10 (12) kV and 8.7/15 (17.5) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )		Diameter over Primary Insulation (mm)
	Paper	XLPE	
92-FV612-3-SP	<50 - 95	95 or 185	17.7 - 26.0
92-FV622-3-SP	<50 - 185	95 - 300	22.3 - 33.2
92-FV632-3-SP	>185 - 300	185 or 300	28.4 - 42.0

Supplementary Kits available separately for use with this joint

### QS1000 Pot End Kit for Single Core Aluminium XLPE Copper Wire Screened Cable – with Outer Coldshrink Tube - rated to 6/10 (12) kV and 8.7/15 (17.5) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-KV610-1-SP	95 - 185	17.7 - 26.0
92-KV620-1-SP	300	22.3 - 33.2

### QS1000 Pot End Kit for Three Core Aluminium XLPE Copper Wire Screened Cable – with Outer Mould and Resin - rated to 6/10 (12) kV and 8.7/15 (17.5) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-KV610-3-SP	95 - 185	17.7 - 26.0
92-KV620-3-SP	300	22.3 - 33.2

# Medium Voltage - Special Contract Kits

## ScottishPower - Joints

**QS1000 Pot End Kit for Three Core PILC/PICAS Belted and screened Cable - with Outer Mould and Resin - rated to 6/10 (12) kV and 8.7/15 (17.5) kV**

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-KV611-3-SP	up to 95	17.7 - 26.0
92-KV621-3-SP	>95 - 185	22.3 - 33.2
92-KV631-3-SP	>185 - 300	28.4 - 42.0

**QS2000B Branch Joint for Single Core Aluminium XLPE Copper Wire Screened Cables – with Outer Coldshrink Tube - rated to 6/12 (12) kV and 12/20 (24) kV**

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-BP622-1-SP	95 - 300	25.0 - 68.0

**QS2000B Branch Joint for Three Core Aluminium XLPE Collective Copper Wire Screened Cables - with outer Coldshrink Tube - rated to 6/12 (12) kV and 12/20 (24) kV**

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-BV620-3-SP	95 - 300	22.3 - 33.2

**QS2000B Branch Joint for 3 Core Transition, PILC/ PICAS to Aluminium XLPE collective copper wire screened cables - with outer mould and resin - rated to 6/12 (12) kV and 12/20 (24) kV**

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-BV621-3-SP	XLPE 95-300 / Paper <50 - 95	22.3 - 33.2
92-BV622-3-SP	XLPE 95-300 / Paper >95 - 300	22.3 - 33.2

**QS2000B Loop Joint for Three Core Aluminium XLPE Collective Copper Wire Screened cables - with outer mould and resin - rated to 6/12 (12) kV**

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-LV620-3-SP	95 - 300	22.3 - 33.2

**QS2000B Transition Loop Joint for Three core Aluminium XLPE Copper Wire Screened to PILC/PICAS - with outer mould and resin - rated to 6/12 (12) kV**

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-LV621-3-SP	XLPE 95-300 / Paper <50-95	22.3 - 33.2
92-LV622-3-SP	XLPE 95-300 / Paper >95-300	22.3 - 33.2

**QS2000B Trifurcating / Transition Branch - Aluminium Single Core Polymeric Copper Wire Screened to 3 Core PILC/PICAS - with outer mould and resin - rated to 6/12 (12) kV**

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-BV 626-3-SP	XLPE 95-300 / Paper 95	22.3 - 33.2
92-BV 627-3-SP	XLPE 95-300 / Paper 185-300	22.3 - 33.2

**QS2000B Straight Joint - 6 Core PILC/PICAS to either 3 core or three Single Core Aluminium XLPE Copper Wire Screened - with outer mould and resin - rated to 6/12 (12) kV**

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-BV 628-3-SP	XLPE 95-300 / Paper <50-95	22.3 - 33.2
(3 x single core XLPE)		
92-BV 629-3-SP	XLPE 95-300 / Paper >95-185	22.3 - 33.2
(3 core XLPE)		

# Medium Voltage - Special Contract Kits

## ScottishPower - Joints

### Goldshrink Build up & Supplementary Kits for use with PILC/PICAS Cables rated to 6/10 (12) kV

Kit Ref	Application & Range
92-PG 611-3-SP	50 – 95mm <sup>2</sup> PILC/PICAS Cables Build up
PILCBL	PILC/PICAS Belted or Screened Branch & Loop Build up
PILCS0-SP	PILC/PICAS Belted or Screened 3 Core 16-50mm <sup>2</sup> Inline Joints
SPM-SP	For Screened Paper Cables – Inline, Trifurcating, & Pot End Joints
92-PG612-3 (BL)	Polymeric build up kit for branch & loop joints
92-PG612-3 (95)	Polymeric build up kit for 95mm <sup>2</sup> cables
92-PG612-3 (185)	Polymeric build up kit for 185mm <sup>2</sup> cables
92-PG612-3 (300)	Polymeric build up kit for 300mm <sup>2</sup> cables

### QS2000 Inline Joint for Single core XLPE Cable – with outer Cold Shrink tube - rated to 18/33 (36) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
94-AP632-1	150 - 185	28.4 - 42

### QS2000 Inline Transition Joint – with outer Cold Shrink tube - rated to 18/33 (36) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
94-FC630-1-SP	95 - 240	28.4 - 42

## Scottishpower - Joints (due for release 2006)

### QSIII Inline Transition Joint – with outer Cold Shrink tube - rated to 18/33 (36) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
94-FC640-1-SP (500)	500	31.5 - 52.6
94-FC640-1-SP (630)	630	31.5 - 52.6

### Mechanical Earthing Kits for use with Paper Cables - rated to 6/10 (12) kV

Kit Ref	Cable Size	Application
MEHV0-SP	Up to 35mm <sup>2</sup>	PILC Cables
MEHV2-SP	50 – 95mm <sup>2</sup>	PILC Cables
MEHV3-SP	120 – 300mm <sup>2</sup>	PILC Cables
MEHV4-SP	50 – 95mm <sup>2</sup>	PICAS Cables
MEHV5-SP	120 – 300mm <sup>2</sup>	PICAS Cables

### QSIII Inline Joint for Single Core XLPE Cable – with outer Cold Shrink tube - rated to 18/33 (36) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
94-AC641-1-SP (500)	500	31.5 - 52.6
94-AC641-1-SP (630)	630	31.5 - 52.6

### QS2000 Single Core Copper Transition Joint – with outer Cold Shrink tube - rated to 6/10 (12) kV and 8.7/15 (17.5) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-FC630-1(300)	300	28.4 - 42
92-FC630-1(500)	500	28.4 - 42

### Supplementary kit for Transition joints to allow for paper cable to paper cable, Straight, Branch & Loop joints

Kit Ref	Application Range CSA (mm <sup>2</sup> )
PM1	<50 - 95
PM2	>95 - 300

### QS2000 Three Core HSL/H-Type Paper Cables Transition Joint to 3 Single Core Copper XLPE Cables - with outer Mould and Resin - rated 18/33 (36) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
94-FV635-3-SP	XLPE 150 - 185	28.4 - 42.0
	Paper 185 - 300	

# Medium Voltage - Special Contract Kits

## ScottishPower - Terminations

### QTIII Outdoor Termination for Three Core Aluminium XLPE Collective Copper wire screened cable - rated to 6/10 (12) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-EP622-3-SP	95	16.3 - 27.4
92-EP632-3-SP	185	21.1 - 38.9
92-EP642-3-SP	300	21.1 - 38.9

### QTIII Outdoor Termination for Single Core Aluminium XLPE Copper Wire Screened Cable - rated to 6/10 (12) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-EP622-2-SP	95	16.3 - 27.4
92-EP632-2-SP	185	21.1 - 38.9
92-EP642-2-SP	300	21.1 - 38.9

### QTIII Indoor Termination for Single Core XLPE Copper Wire Screened cable – rated to 6/10 (12) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Conductor	Diameter over Primary Insulation (mm)
92-EP621-1-SP	95	Alu	16.3 - 27.4
92-EP631-1-SP	185 - 300	Alu	20.5 - 38.9
92-EP641-1-SP	500 - 630	Cu	26.7 - 45.7

### QTIII Outdoor Termination for single core XLPE Copper wire screened cable – rated to 6/10 (12) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Conductor	Diameter over Primary Insulation (mm)
92-EP641-2-SP	500 - 630	Cu	26.7 - 45.7

### QTIII Indoor / Outdoor Termination for single core Copper XLPE Copper wire screened cable – rated to 18/33 (36) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
94-EP630-2-SP	150	26.7 - 45.7
94-EP640-2-SP	500 - 630	38.9 - 58.9

### Cold applied Barrier Boots, Flexible - rated 8.7/15 kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )
92-EE717-1-SP	50 - 300

### Bushing Supplementary kit for use with Cold Applied Barrier Boots

Kit Ref
92-EE717-1-BSK-SP

# Medium Voltage - Special Contract Kits

## CE - Electric - Terminations

### QTIII Single Core Indoor Polymeric Termination - Copper Wire Screened Cable – rated to 6/10 (12) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-EP621-1-NY43	95	16.3 - 27.4
92-EP621-1-NY44	185 - 300	21.1 - 38.9
92-EP621-1-NY45	400	26.7 - 45.7
92-EP621-1-NY52	630	26.7 - 45.7

### QTIII Single Core Outdoor Polymeric Termination - Copper Wire Screened Cable – rated to 6/10 (12) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-EP621-2-NY46	95	16.3 - 27.4
92-EP631-2-NY47	185 - 300	21.1 - 38.9

### QTIII Single Core Indoor Polymeric Termination - Copper Wire Screened Cable – rated to 12/20 (24) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
93-EP620-1-NY74	95 - 185	21.1 - 38.9
93-EP620-1-NY75	300	26.7 - 45.7

### QTIII Single Core Outdoor Polymeric Termination - Copper Wire Screened Cable- rated to 12/20 (24) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
92-EP620-2-NY83	95	16.3-27.4
92-EP620-2-NY84	185 - 300	21.1 - 38.9

### QTIII Single Core Indoor Polymeric Termination - Copper Wire Screened Cable – rated to 19/33 (36) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
94-EP620-2-NY59	95 - 185	21.1 - 38.9
94-EP630-2-NY60	300 - 400	26.7 - 45.7
94-EP640-2-NY61	630	38.9 - 58.9

### QTIII Single Core Outdoor Polymeric Termination - Copper Wire Screened Cable – rated to 19/33 (36) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
94-EP620-2-NY80	95 - 185	21.1 - 38.9
94-EP630-2-NY81	300 - 400	26.7 - 45.7
94-EP640-2-NY82	630	38.9 - 58.9



# Medium Voltage - Special Contract Kits

## ESB Joints

### QS2000 Single Core Inline Joint, Polymeric Copper Wire Screened Cable - rated to 12/20 (24) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
93-AP621-1	185	22.3 - 33.2
93-AP631-1	400	28.4 - 43.0

### QSIII Single Core Inline Joint, Polymeric Copper Wire Screened Cable - rated to 12/20 (24) kV

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
95-AC642-1	630	33.3 - 53.8

## ESB - Terminations

### QTII Single Core Outdoor Termination, Polymeric Copper Wire Screened Cable - rated to

Kit Ref	Application Range CSA (mm <sup>2</sup> )	Diameter over Primary Insulation (mm)
95-EB63-2	400 - 1000	46 - 66