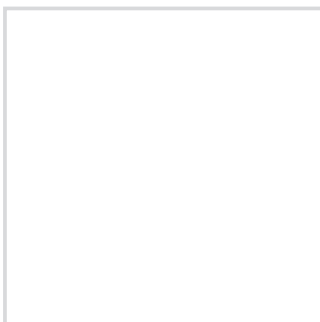
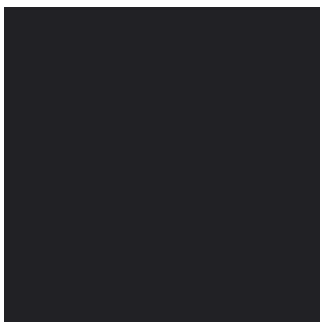


Low Voltage Joints & Terminations

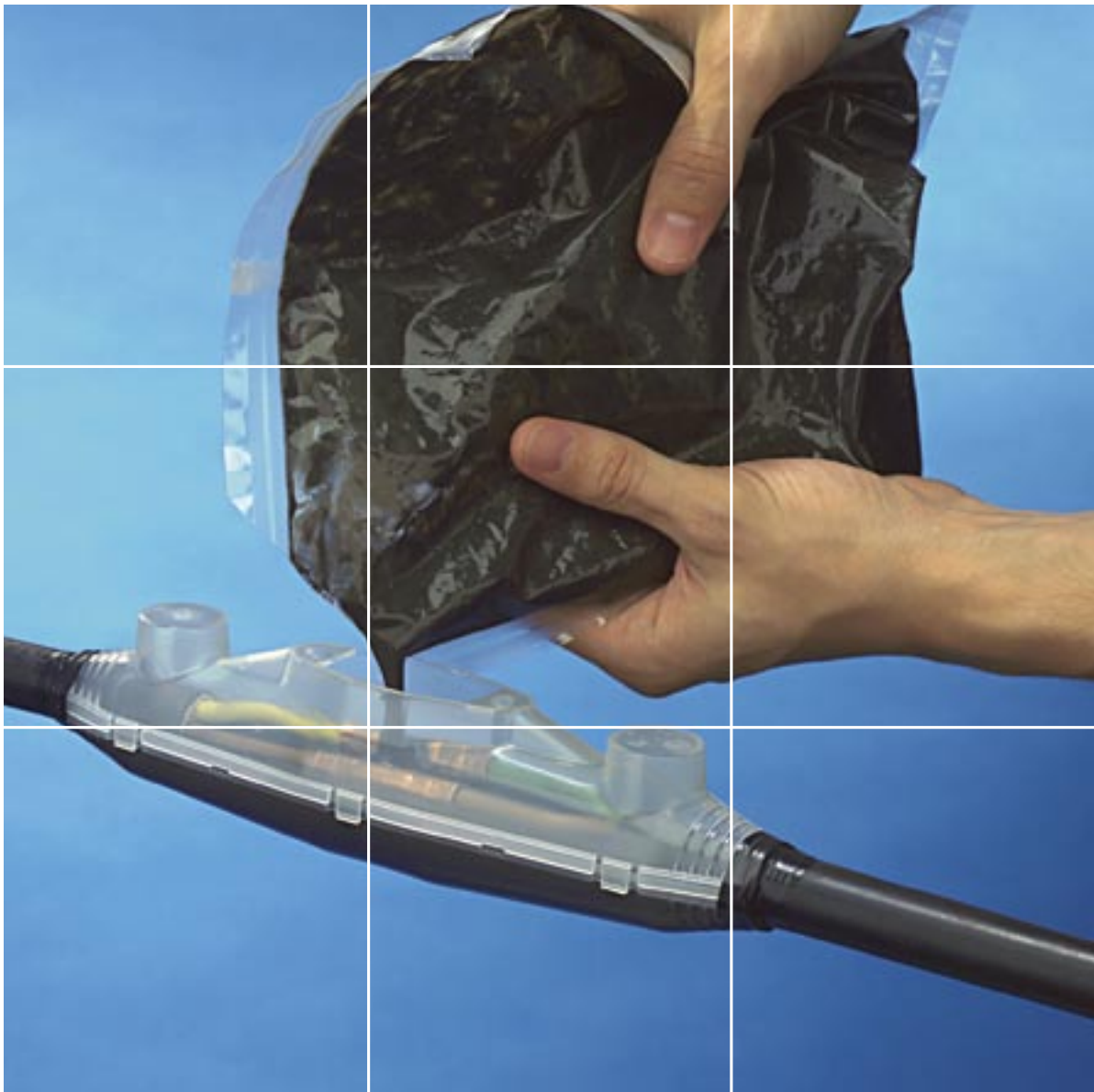


Low Voltage Joints

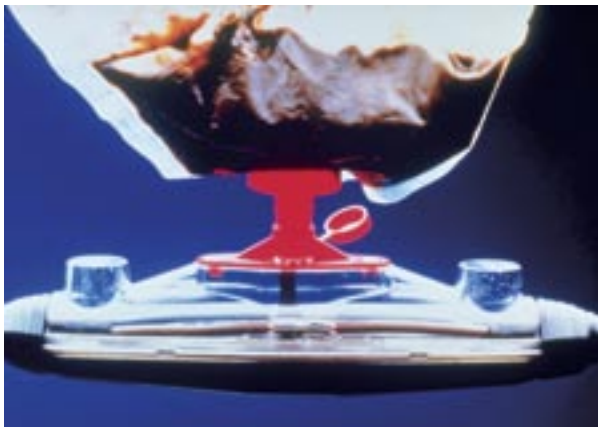
3M produce a full range of quality Jointing Systems suitable for a variety of diverse applications. Designed for PVC, XLPE, Paper, Armoured and Unarmoured Cables up to 3.3kV (up to 6.6kV for unscreened cables) using Scotchcast™ Resins, Heatshrink, and Coldshrink Options.

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.

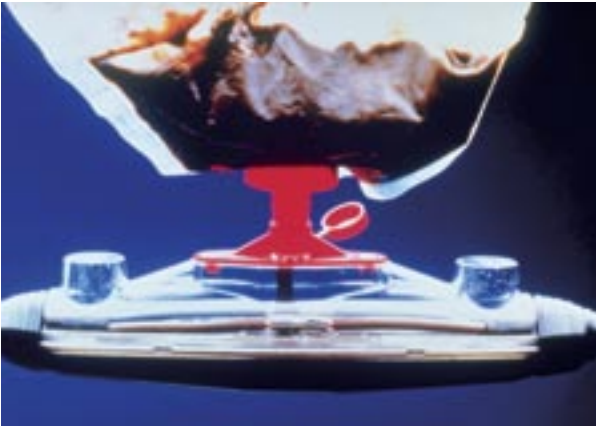
NOMINAL CONDUCTOR AREA (mm ²)	CORES	KIT REF
1.5	2	LA21
	3	LA21
	4	LA21
2.5	2	LA21
	3	LA21
	4	LA21
4	2	LA21
	3	LA21
	4	LA22
6	2	LA22
	3	LA22
	4	LA22
10	2	LA22
	3	LA22
	4	LA22
16	1	LA22
	2	LA22
	3	LA23
25	4	LA23
	1	LA22
	2	LA22
	3	LA23
35	4	LA24
	1	LA22
	2	LA23
50	3	LA24
	4	LA24
	1	LA22
	2	LA23
	3	LA24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

NOMINAL CONDUCTOR AREA (mm ²)	CORES	KIT REF
70	1	LA22
	2	LA24
	3	LA25
	4	LA25
95	1	LA22
	2	LA24
	3	LA25
120	4	LA25
	1	LA23
	2	LA25
	3	LA25
150	4	LA25
	1	LA23
	2	LA25
	3	LA26
185	4	LA26
	1	LA23
	2	LA25
	3	LA26
240	4	LA26
	1	LA24
	2	LA26
	3	LA26
300	4	LA27
	1	LA24
	2	LA26
	3	LA27
400	4	LA27
	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	Cable Diameter	
	CC	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 (mm²)	NBR OF CORES	KIT REF	CABLE DIAMETER	
			Min (mm)	Max (mm)
1.5	2	BK1	8	26
	3	BK1		
	4	BK1		
2.5	2	BK1	8	26
	3	BK1		
	4	BK1		
	4	BK2	14	32
6	2	BK2	14	32
10	2	BK2	14	32
	3	BK2		
	4	BK2		
16	1	BK2	14	32
	2	BK2		
	3	BK3	23	37
	4	BK3		
25	1	BK2	14	32
	2	BK2		
	3	BK3	23	37
	4	BK4		

NOMINAL CONDUCTOR AREA (mm²)	NBR OF CORES	KIT REF	CABLE DIAMETER	
			Min (mm)	Max (mm)
35	1	BK2	14	32
	2	BK3	23	37
	3	BK4	28	51
	4	BK4		
50	1	BK2	14	32
	2	BK3	23	37
	3	BK4	28	51
70	1	BK2	14	32
	2	BK4	28	51
95	1	BK2	14	32
	2	BK4	28	51
120	1	BK3	23	37
150	1	BK3	23	37
185	1	BK3	23	37
240	1	BK4	28	51
300	1	BK4	28	51
400	1	BK4	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 (mm²)	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		
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		
	3	91-A14	28	51
	4	91-A14		

NOMINAL CONDUCTOR AREA (mm²)	NBR OF CORES	KIT REF	CABLE DIAMETER	
			Min (mm)	Max (mm)
70	1	91-A12	14	32
	2	91-A14		
	3	91-A15		
	4	91-A15		
95	1	91-A12	14	32
	2	91-A14		
	3	91-A15		
	4	91-A15		
120	1	91-A13	23	37
	2	91-A15		
	3	91-A15		
	4	91-A15		
150	1	91-A13	23	37
	2	91-A15		
	3	91-A16		
	4	91-A16		
185	1	91-A13	23	37
	2	91-A15		
	3	91-A16		
	4	91-A16		
240	1	91-A14	28	51
	2	91-A16		
	3	91-A16		
	4	91-A17		
300	1	91-A14	28	51
	2	91-A16		
	3	91-A17		
	4	91-A17		
400	1	91-A14	28	51
	2	91-A17		
	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 (mm²)	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		
35	1	90-A2	14	32
	2	90-A3		
	3	90-A4	28	51
	4	90-A4		
50	1	90-A2	14	32
	2	90-A3		
	3	90-A4	28	51
	4	90-A4		

NOMINAL CONDUCTOR AREA (mm ²)	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		
	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.

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

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

Low Voltage Joints & Terminations

NOMINAL CONDUCTOR AREA (mm²)	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 (mm²)	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		
	4	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

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

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

- 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 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

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)
82-F1	6 - 20 (0.25 - 0.80)	Compression	1	16 (0.62)	5000	6 - 1/0
		Inline	Multi	23 (0.90) Connector Bundle	1000*	**
82-F2	20 - 30 (0.80 - 1.20)	Compression	1	21 (0.82)	5000	2/0 - 4/0
		Inline	Multi	33 (1.30) Connector Bundle	1000*	**
82-BF1	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 (mm²)	MAX CABLE OD (mm)	NBR OF CORES	NOMINAL CONDUCTOR AREA (mm²)	MAX CABLE OD (mm)		LENGTH (mm)	INNER DEPTH (mm)	
							INNER	OUTER	
2 - 4	2.5 - 4	22	2 - 4	2.5 - 4	21	91-AB 112	170	220	58
2 - 4	6 - 16	29	2 - 4	6 - 10	22	91-AB 113	225	300	75
2 - 4	16 - 35	35	2 - 4	16	25	91-AB 114	350	400	95
2 - 4	50 - 70	50	2 - 4	25 - 35	30	91-AB115	445	500	112
2 - 4	95	58	2 - 4	50	35	91-AB116	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 ² 3RD Rail Terminations	L041	24.4	98.2	228mm
161/240mm ² Inline joints or terminations	L042	15.2	61	191mm
500/630/800/1000 Inline Joint	LA11	38.1	114	457mm



NOMINAL CONDUCTOR AREA (mm ²)	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 ²)
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 ²)	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 6.0mm² Cross sectional area
- Excellent moisture sealing
- Flame retardant tubing
- Range taking connectors – no crimping tool required

NOMINAL CONDUCTOR AREA (mm ²)	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 (mm²)	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)							MAIN CABLE		BRANCH	
		2 Core	3 Core	4 Core			cc	Grammes	Litres	MIN	MAX	MIN
1.5 - 2.5	2 - 4	1.5 - 2.5	1.5 - 2.5	1.5 - 2.5	LB21	234	260	0.238	10	24	10	24
4 - 10	2 - 4	1.5 - 10	1.5 - 6	1.5 - 4	LB22	450	500	0.457	16	26	10	24
16 - 35	2 - 4	1.5 - 25	1.5 - 25	1.5 - 16	LB23	1441	1600	1.464	23	42	13	32
50 - 70	2 - 4	1.5 - 70	1.5 - 70	1.5 - 50	LB24	3784	4200	3.843	30	50	17	42
95 - 185	2 - 4	50 - 185	50 - 120	50 - 95	LB25	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	91-C11
30 - 58	17 - 42	91-B16

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 (mm²)	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

