

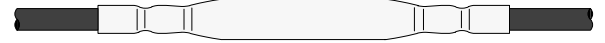


Cold Shrink™ Rubber Splicing Kits

5550 Series

For 5/8 kV Shielded or Non-Shielded Power Cable

Data Sheet



1. Product Description

3M™ 5550 Series Cold Shrink™ Rubber Splicing Kits are designed for splicing 5/8 kV shielded and non-shielded, solid dielectric, power cables. Each kit contains all the materials (except connectors) required to construct 3 single-conductor splices on tape shield, wire shield, UniShield™ or non-shielded cables. The kits are sized to fit cables with copper or aluminum conductors ranging from 6 AWG to 1000 kcmil.

The splices are designed for use with Scotchlok™ 10,000, 11,000 and 20,000 Series Inline Compression Connectors, or any UL listed inline compression connector meeting the dimensional requirements for maximum connector lengths listed in the table found in section 2B of this reference.

(UniShield® is a registered trademark of BICC Cables).

Kit Contents:

(3 splices per kit)

- 3 Cold Shrink™ Insulators
- 3 Cold Shrink™ Splice Jackets
- 3 Scotch™ 13 Electrode Wraps
- 3 rolls Scotch™ 2228 Rubber Mastic Tape (except 5553 Kit which contains 6)
- 3 rolls Scotch™ 13 Semi-Conducting Tape
- 3 Shielding Braid Sleeves
- 6 Constant Force Springs
- 3 Cleaning Pad Kits
- 1 roll Scotch™ 130C Tape
- 1 roll Scotch™ 24 Shielding Tape
- 3 Instruction Sheets

Optional Grounding Accessory:

GS Series Ground Strap Assembly for use if splices are to be individually grounded (not included with splice kit).

Features:

Complete kit: Everything included to make 3 splices (except connectors).

Cold Shrink™ Insulator and Jacket: Factory formed EPDM installs quickly and void free.

Factory formed components: No thickness measuring necessary.

Constant Force Spring: No soldering required for shield ground connections.

Shielding Braid Sleeve: Single component provides 2 functions, metallic insulation shield and ground jumper.

No special tools required for installation.

2. Applications

3M 5550 Series Cold Shrink™ Rubber Splicing Kits can be used on cables with a rated operating temperature of 90°C and an emergency overload rating of 130°C. Splices constructed from these kits are rated for 5/8 kV and meet the applicable requirements of IEEE Standard 404–1986.

To splice 5/8 kV shielded power cables:

For inline splicing.

For solid dielectric (XLP, EPR, HMPE) cables.

For 6 AWG to 1000 kcmil.

For copper or aluminum conductors.

For direct burial.

For indoor or outdoor locations.

A. Typical Physical and Electrical Properties

Cold Shrink™ Insulator and Splice Jacket EPDM Rubber

Physical Properties

Test Method	Typical Value*
• Color	Black
• 300% Modulus (ASTM D-412)	480 psi (3,3 MPa)
• Ultimate Tensile Strength (ASTM D-412)	1400 psi (9,6 MPa)
• Ultimate Elongation (ASTM D-412)	750%
• Die C Tear (ASTM D-624C)	150 pli (26,3 KN/m)

Electrical Properties

Test Method	Typical Value*
• Dielectric Strength (ASTM D-149) Original	365 V/mil (14,3 kV/mm)
7 days in H ₂ O 90°C (194°F)	282 V/mil (11,1 kV/mm)

Scotch™ 2228 Rubber Mastic Tape

Physical Properties

Test Method	Typical Value*
• Color	Black
• Thickness (ASTM D-1000) — Overall	0.065" (1,65 mm)
— EPR Backing	0.030" (0,76 mm)
— Mastic Layer	0.035" (0,89 mm)
• Adhesion to Steel (ASTM D-1000) 23°C (73°F)	15 lb/in (26,2 N/10mm)
• Water Absorption (ASTM D-570)	0.15%

Electrical Properties

Test Method	Typical Value*
• Dielectric Strength (ASTM D-1000) — Dry	500 V/mil (19,6 kV/mm)
— Wet	500 V/mil (19,6 kV/mm)

Scotch™ 13 Semi-Conducting Tape and Electrode Wrap

Physical Properties

Test Method	Typical Value*
• Color	Black

• Thickness (ASTM D-1000)	30 mils (0,76 mm)
• Tensile Strength (ASTM D-1000)	6 psi (0,04 MPa)
• Elongation (ASTM D-1000)	800%

Electrical Properties

Test Method	Typical Value*
• Volume Resistivity (3M Test Method)	10 ⁶ Ohm-cm
• Resistance (3M Test Method)	10,000 Ohm/in.

Scotch™ 130C Linerless Rubber Splicing Tape

Physical Properties

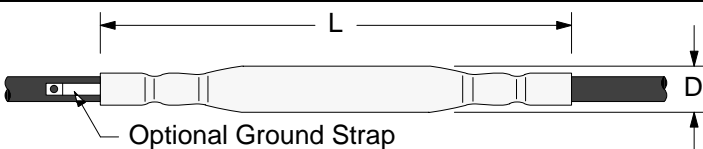
Test Method	Typical Value*
• Color	Black
• Thickness (ASTM D-4325)	30 mils (0,76 mm)
• Tensile Strength (ASTM D-4325)	250 psi (1,72 MPa)
• Ultimate Elongation (ASTM D-4325)	1000%
• Operating Temperature (ASTM D-4388)	90°C (194°F)
• Emergency Overload (ASTM D-4388)	130°C (266°F)
• Ozone Resistance (ASTM D-4388)	Passes
• Heat Resistance (ASTM D-4388)	Passes
• UV Resistance (ASTM D-4388)	Passes
• Flame Resistance IEEE Std 27-1974 ANSI C37.20C 74	Passes

Electrical Properties

Test Method	Typical Value*
• Dielectric Strength (ASTM D-4325) Original	750 V/mil (29,5 kV/mm)
(ASTM D-4325) 24 hrs in H ₂ O	750 V/mil (29,5 kV/mm)
(ASTM D-4325) 96 hrs @ 23°C 96% RH	730 V/mil (28,7 kV/mm)
• Volume Resistivity (ASTM D-4325) Original	>10 ¹⁵ ohm-cm
Aged 96 hrs @ 23°C 96% RH	>10 ¹⁴ ohm-cm
• Insulation Resistance	>10 ⁶ M ohms

* All values are averages and are not intended for specification purposes.

B. Typical Dimensions



These splice kits are designed to be used with inline compression connectors that do not exceed the following maximum lengths:

Kit Number	Dimension inches (mm)		Maximum Connector Length inches (mm)	
	L	D	Copper	Aluminum
5551	19 (483)	Connector Diameter + 1 (25 mm)	3.3 (84)	2.7 (69)
5552	21 (533)		4.3 (109)	3.7 (94)
5553	23 (584)		6.3 (160)	5.3 (135)

Table 1


C. Splice Selection Table

Kit Number	Conductor Size AWG or kcmil (mm ²)		Accessory 3M Ground Strap Assembly Kit Number (optional)
	Copper	Aluminum	
5551	6 – 4/0 (14 – 120)	6 – 3/0 (14 – 95)	GS-1
5552	4/0 – 500 (120 – 300)	4/0 – 400 (120 – 250)	GS-2
5553	500 – 1000 (300 – 500)	500 – 1000 (300 – 500)	GS-3

Table 2

3. Maintenance

Components of the 3M 5550 Series Cold Shrink™ Rubber Splicing Kits are stable under normal storage conditions. Normal stock rotation practices are recommended. The splices can be field tested using normal field cable testing procedures (reference: ANSI/IEEE Standard 400 “Guide for

Making High-Direct-Voltage Tests on Power Cable Systems in the Field” for installation and maintenance tests). 3M Cold Shrink™ removable core material is polypropylene and recyclable with other  waste.

UniShield® is a registered trademark of BICC Cables.
'3M', 'Cold Shrink', 'Scotch' and 'Scotchlok' are trademarks of 3M.

Important Notice to Purchaser:

All statements, technical information and recommendations related to the Seller's products are based on information believed to be reliable, but the accuracy or completeness thereof is not guaranteed. Before utilizing the product, the user should determine the suitability of the product for its intended use. The user assumes all risks and liability whatsoever in connection with such use.

Any statements or recommendations of the Seller which are not contained in the Seller's current publications shall have no force or effect unless contained in an agreement signed by an authorized officer of the Seller. The statements contained herein are made in

lieu of all warranties expressed or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose which warranties are hereby expressly disclaimed.

SELLER SHALL NOT BE LIABLE TO THE USER OR ANY OTHER PERSON UNDER ANY LEGAL THEORY, INCLUDING BUT NOT LIMITED TO NEGLIGENCE OR STRICT LIABILITY, FOR ANY INJURY OR FOR ANY DIRECT OR CONSEQUENTIAL DAMAGES SUSTAINED OR INCURRED BY REASON OF THE USE OF ANY OF THE SELLER'S PRODUCTS.



Electrical Products Division

6801 River Place Blvd.
Austin, TX 78726-9000
800-245-3573



Recycled paper
40% pre-consumer
10% post-consumer

Litho in USA
© 1996 3M
80-6108-5259-4



Cold Shrink™ Rubber Splicing Kits

5550 Series

For 5/8 kV Shielded or Non-Shielded Power Cable

Data Sheet



1. Product Description

3M™ 5550 Series Cold Shrink™ Rubber Splicing Kits are designed for splicing 5/8 kV shielded and non-shielded, solid dielectric, power cables. Each kit contains all the materials (except connectors) required to construct 3 single-conductor splices on tape shield, wire shield, UniShield™ or non-shielded cables. The kits are sized to fit cables with copper or aluminum conductors ranging from 6 AWG to 1000 kcmil.

The splices are designed for use with Scotchlok™ 10,000, 11,000 and 20,000 Series Inline Compression Connectors, or any UL listed inline compression connector meeting the dimensional requirements for maximum connector lengths listed in the table found in section 2B of this reference.

(UniShield® is a registered trademark of BICC Cables).

Kit Contents:

(3 splices per kit)

- 3 Cold Shrink™ Insulators
- 3 Cold Shrink™ Splice Jackets
- 3 Scotch™ 13 Electrode Wraps
- 3 rolls Scotch™ 2228 Rubber Mastic Tape (except 5553 Kit which contains 6)
- 3 rolls Scotch™ 13 Semi-Conducting Tape
- 3 Shielding Braid Sleeves
- 6 Constant Force Springs
- 3 Cleaning Pad Kits
- 1 roll Scotch™ 130C Tape
- 1 roll Scotch™ 24 Shielding Tape
- 3 Instruction Sheets

Optional Grounding Accessory:

GS Series Ground Strap Assembly for use if splices are to be individually grounded (not included with splice kit).

Features:

Complete kit: Everything included to make 3 splices (except connectors).

Cold Shrink™ Insulator and Jacket: Factory formed EPDM installs quickly and void free.

Factory formed components: No thickness measuring necessary.

Constant Force Spring: No soldering required for shield ground connections.

Shielding Braid Sleeve: Single component provides 2 functions, metallic insulation shield and ground jumper.

No special tools required for installation.

2. Applications

3M 5550 Series Cold Shrink™ Rubber Splicing Kits can be used on cables with a rated operating temperature of 90°C and an emergency overload rating of 130°C. Splices constructed from these kits are rated for 5/8 kV and meet the applicable requirements of IEEE Standard 404–1986.

To splice 5/8 kV shielded power cables:

For inline splicing.

For solid dielectric (XLP, EPR, HMPE) cables.

For 6 AWG to 1000 kcmil.

For copper or aluminum conductors.

For direct burial.

For indoor or outdoor locations.

A. Typical Physical and Electrical Properties

Cold Shrink™ Insulator and Splice Jacket EPDM Rubber

Physical Properties

Test Method	Typical Value*
• Color	Black
• 300% Modulus (ASTM D-412)	480 psi (3,3 MPa)
• Ultimate Tensile Strength (ASTM D-412)	1400 psi (9,6 MPa)
• Ultimate Elongation (ASTM D-412)	750%
• Die C Tear (ASTM D-624C)	150 pli (26,3 KN/m)

Electrical Properties

Test Method	Typical Value*
• Dielectric Strength (ASTM D-149) Original	365 V/mil (14,3 kV/mm)
7 days in H ₂ O 90°C (194°F)	282 V/mil (11,1 kV/mm)

Scotch™ 2228 Rubber Mastic Tape

Physical Properties

Test Method	Typical Value*
• Color	Black
• Thickness (ASTM D-1000) — Overall	0.065" (1,65 mm)
— EPR Backing	0.030" (0,76 mm)
— Mastic Layer	0.035" (0,89 mm)
• Adhesion to Steel (ASTM D-1000) 23°C (73°F)	15 lb/in (26,2 N/10mm)
• Water Absorption (ASTM D-570)	0.15%

Electrical Properties

Test Method	Typical Value*
• Dielectric Strength (ASTM D-1000) — Dry	500 V/mil (19,6 kV/mm)
— Wet	500 V/mil (19,6 kV/mm)

Scotch™ 13 Semi-Conducting Tape and Electrode Wrap

Physical Properties

Test Method	Typical Value*
• Color	Black

• Thickness (ASTM D-1000)	30 mils (0,76 mm)
• Tensile Strength (ASTM D-1000)	6 psi (0,04 MPa)
• Elongation (ASTM D-1000)	800%

Electrical Properties

Test Method	Typical Value*
• Volume Resistivity (3M Test Method)	10 ⁶ Ohm-cm
• Resistance (3M Test Method)	10,000 Ohm/in.

Scotch™ 130C Linerless Rubber Splicing Tape

Physical Properties

Test Method	Typical Value*
• Color	Black
• Thickness (ASTM D-4325)	30 mils (0,76 mm)
• Tensile Strength (ASTM D-4325)	250 psi (1,72 MPa)
• Ultimate Elongation (ASTM D-4325)	1000%
• Operating Temperature (ASTM D-4388)	90°C (194°F)
• Emergency Overload (ASTM D-4388)	130°C (266°F)
• Ozone Resistance (ASTM D-4388)	Passes
• Heat Resistance (ASTM D-4388)	Passes
• UV Resistance (ASTM D-4388)	Passes
• Flame Resistance IEEE Std 27-1974 ANSI C37.20C 74	Passes

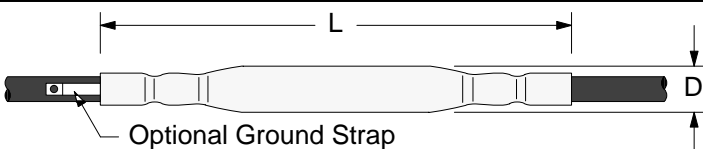
Electrical Properties

Test Method	Typical Value*
• Dielectric Strength (ASTM D-4325) Original	750 V/mil (29,5 kV/mm)
(ASTM D-4325) 24 hrs in H ₂ O	750 V/mil (29,5 kV/mm)
(ASTM D-4325) 96 hrs @ 23°C 96% RH	730 V/mil (28,7 kV/mm)
• Volume Resistivity (ASTM D-4325) Original	>10 ¹⁵ ohm-cm
Aged 96 hrs @ 23°C 96% RH	>10 ¹⁴ ohm-cm

• Insulation Resistance	>10 ⁶ M ohms
-------------------------	-------------------------

* All values are averages and are not intended for specification purposes.

B. Typical Dimensions



These splice kits are designed to be used with inline compression connectors that do not exceed the following maximum lengths:

Kit Number	Dimension inches (mm)		Maximum Connector Length inches (mm)	
	L	D	Copper	Aluminum
5551	19 (483)	Connector Diameter + 1 (25 mm)	3.3 (84)	2.7 (69)
5552	21 (533)		4.3 (109)	3.7 (94)
5553	23 (584)		6.3 (160)	5.3 (135)

Table 1


C. Splice Selection Table

Kit Number	Conductor Size AWG or kcmil (mm ²)		Accessory 3M Ground Strap Assembly Kit Number (optional)
	Copper	Aluminum	
5551	6 – 4/0 (14 – 120)	6 – 3/0 (14 – 95)	GS-1
5552	4/0 – 500 (120 – 300)	4/0 – 400 (120 – 250)	GS-2
5553	500 – 1000 (300 – 500)	500 – 1000 (300 – 500)	GS-3

Table 2

3. Maintenance

Components of the 3M 5550 Series Cold Shrink™ Rubber Splicing Kits are stable under normal storage conditions. Normal stock rotation practices are recommended. The splices can be field tested using normal field cable testing procedures (reference: ANSI/IEEE Standard 400 “Guide for

Making High-Direct-Voltage Tests on Power Cable Systems in the Field” for installation and maintenance tests). 3M Cold Shrink™ removable core material is polypropylene and recyclable with other  waste.

UniShield® is a registered trademark of BICC Cables.
'3M', 'Cold Shrink', 'Scotch' and 'Scotchlok' are trademarks of 3M.

Important Notice to Purchaser:

All statements, technical information and recommendations related to the Seller's products are based on information believed to be reliable, but the accuracy or completeness thereof is not guaranteed. Before utilizing the product, the user should determine the suitability of the product for its intended use. The user assumes all risks and liability whatsoever in connection with such use.

Any statements or recommendations of the Seller which are not contained in the Seller's current publications shall have no force or effect unless contained in an agreement signed by an authorized officer of the Seller. The statements contained herein are made in

lieu of all warranties expressed or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose which warranties are hereby expressly disclaimed.

SELLER SHALL NOT BE LIABLE TO THE USER OR ANY OTHER PERSON UNDER ANY LEGAL THEORY, INCLUDING BUT NOT LIMITED TO NEGLIGENCE OR STRICT LIABILITY, FOR ANY INJURY OR FOR ANY DIRECT OR CONSEQUENTIAL DAMAGES SUSTAINED OR INCURRED BY REASON OF THE USE OF ANY OF THE SELLER'S PRODUCTS.



Electrical Products Division

6801 River Place Blvd.
Austin, TX 78726-9000
800-245-3573



Recycled paper
40% pre-consumer
10% post-consumer

Litho in USA
© 1996 3M
80-6108-5259-4