3M™ Scotchcast™ Multi-Mold Resin Splice Kits 85 Series

Data Sheet **November 2014**

Product Description

3M™ Scotchcast™ Multi-Mold Resin Splice Kits 85 Series are a group of versatile splice kits for insulating and waterproofing odd-sized and odd-shaped splices in underground applications, up to 1000 volts. Splices may be inline, wye, X, butt and dead-end splice configurations (for non-shielded cable) using split bolts, H tap or C tap compression connectors.

Six kits cover a range of cable conductor sizes from 8 AWG to 2000 kcmil.

3M™ Scotchcast™ Multi-Mold Resin Splice Kits 85 Series are comprised of a flexible film plastic mold with a built-in porous spacer web (to ensure the proper thickness of insulating compound around the connection). The plastic mold is filled with a pliable polyurethane compound, 3M™ Scotchcast™ Electrical Insulating Resin 2104.

Agency Approvals

For RoHS information, please visit www.3M.com/ROHS

Kit Contents

Each kit contains sufficient quantities of the following materials to make one (1)splice, excluding the connector(s):

- 1- flexible film plastic mold with built-in spacer web and sealing strips along the adjacent edges
- 3M™ Scotchcast™ Electrical Insulating Resin 2104 in a convenient closed mixing pouch
- 1- pressure-sensitive adhesive film sealing strip
- 1- comprehensive instruction booklet showing installation techniques for typical splice configurations, in both the horizontal and vertical positions.

Splice Features

- Versatility designed into each kit accommodates a wide range of cable sizes.
- Convenient kits simplify ordering and stocking.
- All material provided (with the exception of the connector) to insulate and waterproof one splice.
- Compound has low viscosity for fast, complete filing of splice.
- Compound has low exotherm which will not damage plastic insulated cable. (Can be used for small gauge signal/control and telecommunication cable splicing.)
- Convenient closed mixing pouch permits clean, easy resin handling.
- Wrap-around polyester film mold contains porous webbing which assures proper insulation spacing around splice and connector.
- No special tools required.

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Applications

To splice cables rated up to 1000 volts:

- For inline, wye or 4-way splicing of non-shielded cable
- For use on plastic or rubber-insulated cables
- For use in direct burial applications
- For use with underground systems:
    - Secondary distribution
    - Plant grounds
    - Parking lots
    - Airport runway lighting
    - Electric sprinkling systems
    - Sheath repair
    - Remodel wiring
    - Sealing anode leads
    - Solar farm applications
- For joining of cable reel ends
- For cable failures and dig-ins

Specifications - Product

The multi-mold cable splices must be capable of normal continuous operation at 1000 volts. The splices must consist of a flexible film plastic mold with built-in spacer web to automatically provide for cable and connector centering and proper compound coverage. The applied mold shall be filled with a flexible polyurethane electrical compound capable of continuous operation at 194°F (90°C), with an emergency overload temperature rating of 266°F (130°C). Splices must have provisions for inline, wye or 4-way splicing of non-shielded, plastic or rubber insulated cables. The splices shall be suited for direct burial applications.

Engineering/ Architectural

Splicing of cables rated at 1000 volts or less with conductor sizes ranging from 8 AWG to 2000 kcmil. Splices are to use inline compression, split bolt or H or C tap connectors shall be performed in accordance with instructions provided with 3M™ Scotchcast™ Multi-Mold Splice Kits 85-10, 85-12, 85-14, 85-16, 85-18 and 85-20.

Installation Techniques

The instructions for constructing a splice are packed in each kit. The following summarizes these instructions:

a. Scrape each cable exterior clean for a distance from connector as specified in the instructions. If cable is sheathed, pencil insulation 3/4" (19,1 mm).
b. Connection should be completed according to connector manufacture's instructions.
c. Center mold body along connector and wrap around connection. Starting at bottom of mold, seal and compress sealing putty around and between each cable to form a resin-tight seal.
d. Position splice so bottom of mold is not in contact with any surface. Mix resin and pour into mold.
e. Remove liner from film strip supplied with kit. Tape strip over mold.

Performance Test

Moisture Resistance
Thermo cycling submerged in water pressurized to simulate a 6-foot head:
85 Series splices exceed 1.0×10^6 ohms insulation resistance after ten temperature cycles at 35°F (2°C) to 75°F (24°C).

Typical Physical and Electrical Properties

For 3M™ Scotchcast™ Electrical Insulating Resin 2104

Not for specifications. Values are typical, not to be considered minimum or maximum. Properties measured at room temperature 73°F (23°C) unless otherwise stated.

Physical Property (Test Method)	**Typical Value** US units (metric)
Color	Green
Density (ASTM D792)	0.596 oz/cu.in. (1,03 g/cu.cm.)
Hardness (ASTM D2240)	70 Shore A
Tensile Strength (ASTM D412)	444 psi (3.06 MPa)
Elongation (ASTM D412)	98%
Glass Transition Temperature (ASTM E1356-03)	-94°F (-70°C)
Maximum Exotherm (100g) (ASTM D2471-99)	150°F (65°C)
Gel Time (ASTM D2471-99)	18 minutes
Moisture Absorption	0.28% wt. gain in 168 hrs.
Adhesion to Metals (lb/in^2) (3M TM456)	
Copper	411.6
Brass	285.1
Steel	558
Aluminum	207.3
Adhesion to Cable Jackets (lb/in^2) (3M TM457)	
Vinyl	101.5
Neoprene	140.6
Nylon	>25.5
XLPE	221.5

Electrical Property (Test Method)	**Typical Value**
Dielectric Strength (ASTM D149)	524 V/mil
Dielectric Constant @ 60Hz (ASTM D150)	
73°F (23°C)	4.59 pf
194°F (90°C)	6.8 pf
Dissipation Factor @ 60Hz (ASTM D150)	
73°F (23°C)	9.1%
194°F (90°C)	>200%