

# 3M™ Cold Shrink Connector Insulators 8420 Series

Data Sheet

October 2015

## Product Description

3M Cold Shrink Connector Insulators 8420 Series are open-ended, tubular, rubber sleeves which are factory expanded and assembled onto a removable core. The core is removed after the tube has been positioned for installation over an inline connection, terminal lug, etc., allowing the tube to shrink and form a water-resistant seal. The insulating tube is made of EPDM rubber which does not contain chlorides or sulfur. Six diameter sizes will cover a range of cable up to 1000 volts for copper and aluminum conductors from 10 AWG through 1000 kcmil.

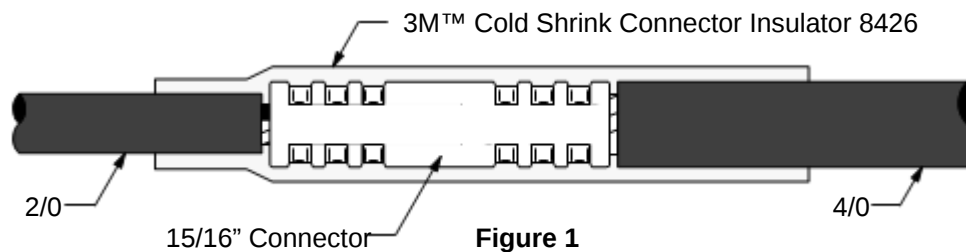
To extend the useful life of this product in applications which are continuously exposed to high levels of ultra-violet radiation, overwrap with Scotch® Super 33+™ Vinyl Electrical Tape or Scotch® Self-Fusing Silicone Rubber Electrical Tape 70.

## Features

- Simple installation; requires no tools
- Accommodates a wide range of cable sizes
- No torches or heat required
- Good thermal stability
- Seals tight; retains its resiliency and pressure even after prolonged years of aging and exposure
- Excellent wet electrical properties
- Tough rubber formulation withstands backfilling
- Water-resistant; Meets the water seal requirements of ANSI C119.1
- No mastic or tape required to seal
- Resists acids and alkalis; resists ozone
- Operating temperature range: -40°F to 194°F (-40°C to 90°C)

## Applications

- Primary electrical insulation for all solid dielectric (rubber and plastic) insulated wire and cable splicing rated up to 1000 volts
- Direct burial and submersible
- For indoor and outdoor use
- Physical protection and moisture sealing for air-insulated connectors and lugs such as spacer cable and lug connections to bus bar
- Insulation of secondary splices, copper or aluminum conductors
- Relocation of service
- Dig-in repairs
- Sheath repairs
- Environmental sealing for communication and other non-electrical applications
- Insulation of inline conductor transition connectors (see Figure 1)



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## Typical Physical and Electrical Properties

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.

### EPDM Rubber

| Physical Properties (Test Method)                                    | Typical Value<br>US units (metric) |
|----------------------------------------------------------------------|------------------------------------|
| <b>Color</b>                                                         | Black                              |
| <b>300% Modulus</b><br>(ASTM D 412-75)                               | 480 psi<br>(3,3 MPa)               |
| <b>Ultimate Tensile</b><br>(ASTM D 412-75) Original                  | 1400 psi<br>(9,6 MPa)              |
| <b>Ultimate Elongation</b><br>(ASTM D 412-75) Original               | 750%                               |
| <b>Die C Tear</b><br>(ASTM D 624C-73) Original                       | 150 pli<br>(26,3 KN/m)             |
| <b>Moisture Absorption</b><br>7 days 90 °C (194 °F) H <sub>2</sub> O | wt. gain<br>1.8%                   |

| Electrical Properties (Test Method)                                 | Typical Value<br>US units (metric) |
|---------------------------------------------------------------------|------------------------------------|
| <b>Dielectric Strength</b><br>(ASTM D 149-75) Original<br>@ 1,78 mm | 365 v/mil<br>(14,3 Mv/m)           |
| <b>7 days in H<sub>2</sub>O at<br/>90 °C (194 °F)</b>               | 282 v/mil<br>(11,1 Mv/m)           |

## 3M™ Cold Shrink Connector Insulator Selection Table

| Product Number | Conductor Sizes<br>AWG & Kcmil | Product Diameter Range (Minimum –<br>Maximum)* Inches (mm) | Relaxed Tube Length Inches<br>(mm) |
|----------------|--------------------------------|------------------------------------------------------------|------------------------------------|
| 8423-6         | 6 – 4                          | 0.31 – 0.56 (7,80 – 14,3)                                  | 6.0 (152)                          |
| 8424-8         | 10 – 1/0**                     | 0.10 – 0.82 (2,54 – 20,9)                                  | 8.0 (203)                          |
| 8425-8         | 2 – 1/0                        | 0.40 – 0.82 (10,1 – 20,9)                                  | 8.0 (203)                          |
| 8426-9         | 2/0 – 250                      | 0.55 – 1.18 (13,9 – 30,1)                                  | 9.0 (229)                          |
| 8426-11        | 2/0 – 250                      | 0.55 – 1.18 (13,9 – 30,1)                                  | 11.0 (279)                         |
| 8427-6***      | —                              | 0.67 – 1.38 (16,8 – 35,1)                                  | 6.0 (152)                          |
| 8427-12        | 250 – 400                      | 0.67 – 1.38 (16,8 – 35,1)                                  | 12.0 (305)                         |
| 8427-16        | 250 – 400                      | 0.67 – 1.38 (16,8 – 35,1)                                  | 16.0 (406)                         |
| 8428-6***      | —                              | 0.95 – 1.94 (24,0 – 49,3)                                  | 6.0 (152)                          |
| 8428-12        | 450 – 800                      | 0.95 – 1.94 (24,0 – 49,3)                                  | 12.0 (305)                         |
| 8428-18        | 450 – 800                      | 0.95 – 1.94 (24,0 – 49,3)                                  | 18.0 (457)                         |
| 8429-6***      | —                              | 1.27 – 2.67 (32,2 – 67,8)                                  | 6.0 (152)                          |
| 8429-9****     | 900 – 1000                     | 1.27 – 2.67 (32,2 – 67,8)                                  | 9.0 (229)                          |
| 8429-12        | 900 – 1000                     | 1.27 – 2.67 (32,2 – 67,8)                                  | 12.0 (305)                         |
| 8429-18        | 900 – 1000                     | 1.27 – 2.67 (32,2 – 67,8)                                  | 18.0 (457)                         |
| 8430-9***      | —                              | 1.68 – 3.69 (42,6 – 93,7)                                  | 9.0 (229)                          |
| 8430-18        | 1250 – 2000                    | 1.68 – 3.69 (42,6 – 93,7)                                  | 18.0 (457)                         |

### NOTES:

\* Minimum = Seal Diameter    Maximum = Connector Clearance Dimension

\*\* Product contains range-extending adapters (Without adapters, 8424-8/8425-8 ranges are identical).

\*\*\* Primary uses: Sealing of terminal lug barrels, conduit couplings and conduit-to-cable breakouts.

\*\*\*\* Maximum connector length: 5.625" (For longer connector bodies, select 8429-12/8429-18 as needed).

**IMPORTANT:** Use wire insulation/jacket diameters and connector O.D. for final sizing confirmation.

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EHS

**CAUTION**

Working around energized systems may cause serious injury or death. Installation should be performed by personnel familiar with good safety practice in handling electrical equipment. De-energize and ground all electrical systems before installing product.

- 3M Cold Shrink Removable Core is a mixed polymer and recyclable with other waste. 
- Read all Health Hazard, Precautionary and First Aid statements found in the Safety Data Sheet (SDS) and/or product label prior to handling or use.

**Shelf Life & Storage**      3M Cold Shrink Connector Insulators 8420 Series have a 5-year shelf life from date of manufacture when stored in a humidity controlled storage (10°C/50°F to 27°C/80°F and <75% relative humidity).

**Availability**      Please contact your local distributor or call 1.800.245.3573.

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