



# Cold Shrink™ Connector Insulators

## 8420 Series



### Data Sheet

#### 1. Product Description

3M™ Cold Shrink™ Connector Insulators 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 contains no chlorides or sulfurs. Six diameter sizes will cover a range of 1000 volt cable from 10 AWG through 1000 kcmil, copper and aluminum conductors.

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 Tape or Scotch™ 70 Silicone Tape.

#### 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.

Improved, tougher rubber formulation to withstand backfilling.

Water-resistant. Meets the water seal requirements of ANSI C119.1.

No mastic or tape required to seal.

Resists fungus.

Resists acids and alkalis.

Resists ozone.

#### 2. Applications

Primary electrical insulation for all solid dielectric (rubber and plastic) insulated wire and cable splicing rated to 1000 volts.

Direct burial or submersible.

For indoor, outdoor.

Physical protection and moisture sealing for high-voltage, 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).

#### A. Typical Physical and Electrical Properties

##### EPR (Ethylene Propylene Rubber)

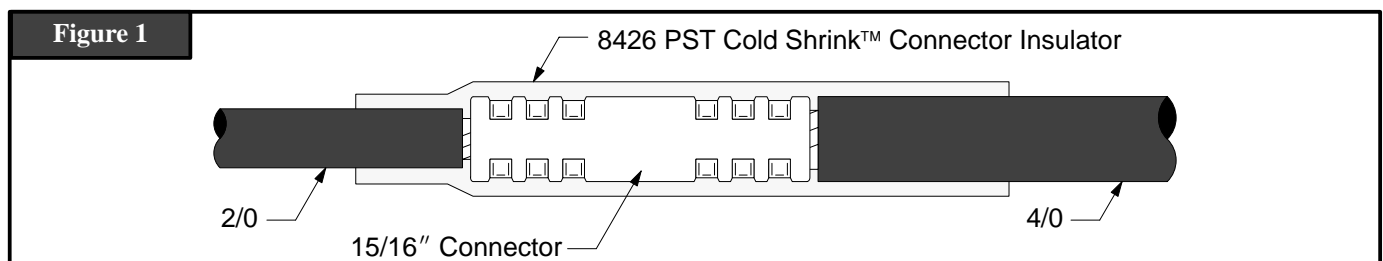
##### Physical Properties

Test Method	Typical Value*
• Color	Black
• 300% Modulus (ASTM D 412-75)	480 psi (3,3 MPa)
• Ultimate Tensile (ASTM D 412-75) Original	1400 psi (9,6 MPa)
• Ultimate Elongation (ASTM D 412-75) Original	750%
• Die C Tear (ASTM D 624C-73) Original	150 pli (26,3 KN/m)
• Fungus Resistance (ASTM G-21) 28 days exposure	No Growth
• Moisture Absorption 7 days 90 °C (194 °F) H <sub>2</sub> O	wt. gain 1.8%

##### Electrical Properties

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

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



## B. Cold Shrink™ Selection Table

Product Number	Conductor Sizes AWG & Kcmil	Product Diameter Range (minimum – maximum)* inches (mm)	Relaxed Tube Length inches (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.

## 3. Maintenance

3M Cold Shrink™ Connector Insulator Assemblies are stable under normal storage conditions. They are not impaired by freezing or overheating due

to the ambient temperatures found in storage or shipping. Normal storage and stock rotation are recommended. 3M

Cold Shrink™ removable core material is polypropylene and recyclable with other  waste.

'3M', 'Cold Shrink' and 'Scotch' 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  
80-6108-5330-3