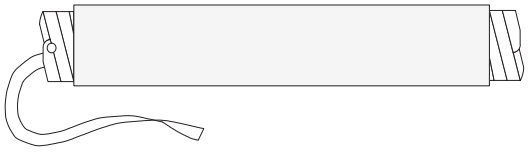
Cold Shrink™ Connector Insulators

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 alkalies.

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

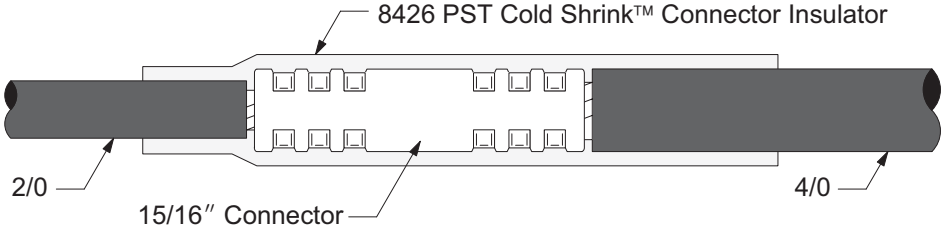
Test Method	Typical Value*
• Color	Black
• 300% Modulus (ASTM D 412–75)	480 psi (3,3 MPa)
• Ultimate Tensile (ASTM D 412–75) Original	1400 psi (9,6 MPa)
• Ultimate Elongation (ASTM D 412–75) Original	750%
• Die C Tear (ASTM D 624C–73) Original	150 pli (26,3 KN/m)
• Fungus Resistance (ASTM G–21) 28 days exposure	No Growth
• Moisture Absorption 7 days 90 °C (194 °F) H_2O	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_2O at 90 °C (194 °F)	282 v/mil (11,1 Mv/m)

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

Figure 1



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 8426–11	2/0 – 250 2/0 – 250	0.55 – 1.18 (13,9 – 30,1) 0.55 – 1.18 (13,9 – 30,1)	9.0 (229) 11.0 (279)
8427–6*** 8427–12 8427–16	— 250 – 400 250 – 400	0.67 – 1.38 (16,8 – 35,1) 0.67 – 1.38 (16,8 – 35,1) 0.67 – 1.38 (16,8 – 35,1)	6.0 (152) 12.0 (305) 16.0 (406)
8428–6*** 8428–12 8428–18	— 450 – 800 450 – 800	0.95 – 1.94 (24,0 – 49,3) 0.95 – 1.94 (24,0 – 49,3) 0.95 – 1.94 (24,0 – 49,3)	6.0 (152) 12.0 (305) 18.0 (457)
8429–6*** 8429–9**** 8429–12 8429–18	— 900 – 1000 900 – 1000 900 – 1000	1.27 – 2.67 (32,2 – 67,8) 1.27 – 2.67 (32,2 – 67,8) 1.27 – 2.67 (32,2 – 67,8) 1.27 – 2.67 (32,2 – 67,8)	6.0 (152) 9.0 (229) 12.0 (305) 18.0 (457)
8430–9*** 8430–18	— 1250 – 2000	1.68 – 3.69 (42,6 – 93,7) 1.68 – 3.69 (42,6 – 93,7)	9.0 (229) 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.