



3M™ Cold Shrink Connector Insulators WF Series

Data Sheet

November 2020

Description

3M™ Cold Shrink Connector Insulators WF 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 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 sulfides. Six diameter sizes will cover a range of 1000/2000 volt cable from #4 AWG through 2000 kcmil copper conductors and #4 AWG through 1500 kcmil 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 Electrical Tape or Scotch® Self-Fusing Silicone Rubber Electrical Tape 70.

Agency Approvals & Self Certifications

*UL listed up to 600V for direct bury and submersible applications: UL486D, Sequences A,B,C,D&G



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

* WF105 does not carry UL Listing.

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.



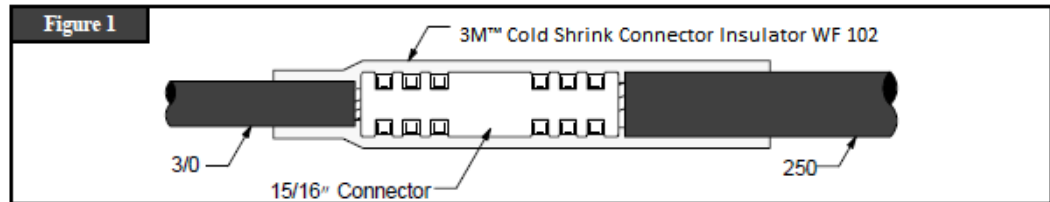
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Features

- Simple installation, requires no tools
- Accommodates a wide range of cable sizes
- 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 acids and alkalis
- Resists ozone
- UL Listed for direct bury and submersible applications (except for WF105)

Applications

- Primary electrical insulation for all solid dielectric (rubber and plastic) insulated wire and cable splicing rated to 2000 volts per 3M testing to ANSI C119.1
- Direct burial or submersible
- For indoor and outdoor applications
- Physical protection and moisture sealing for high-voltage, air-insulated connectors and lugs such as lug connections to bus bar
- Insulation of secondary splices, copper or aluminum conductors
- Relocation of service
- Dig-in and sheath repairs
- Wind farm down tower connections
- Environmental sealing for communication and other non-electrical applications
- Insulation of inline conductor transition connector (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.
Standard operating temperature range is -40 to 194°F (40 to 90°C).

EPDM Rubber

Physical Properties (Test Method)	Typical Value US units (metric)
Color	Black
300% Modulus (ASTM D 412-75)	480 psi (3,3 MPa)
Ultimate Tensile Strength (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)
Moisture Absorption 7 days 90°C (194°F) H ₂ O	wt. gain 1.8%

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

Cold Shrink Selection Table

Product Number	Conductor Sizes AWG & kcmil	Product Diameter Range (minimum – maximum)* inches (mm)	Relaxed Tube Length inches (mm)
WF100	4 - 2	0.35 – 0.56 (8,9 – 14,2 mm)	6 (152)
WF101	1 - 2/0	0.45 – 0.82 (11,4 – 20,9 mm)	8 (203)
WF102	3/0 - 250	0.62 – 1.18 (15,7 – 30,1 mm)	8 (203)
WF103	350 - 500	0.88 – 1.63 (22,4 – 41,4 mm)	10 (254)
WF104	600 – 750(Al) 600 – 1000(Cu)	1.00 – 1.94 (25,4 – 49,3 mm)	12 (305)
WF105*	1000 – 1500(Al) 1000 – 2000(Cu)	1.25 – 2.5 (31,75 – 63,5 mm)	15 (381)

* Does not carry UL Listing

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Maintenance	3M Cold Shrink Connector Insulator WF Series 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. Cold shrink removable core material is polypropylene and is recyclable with other waste.
Shelf Life & Storage	As provided in the expanded state, the WF Series have a shelf life of 5 years from date of manufacture when stored in a humidity controlled environment (10°C/50°F to 27°C/80°F and <75% relative humidity).
Availability	Please contact your local distributor; available from 3M.com/electrical [Where to Buy] or call 1-800-245-3573.

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