

3M™ Medium-Wall Heat Shrink Tubing IMCSN

Data Sheet

November 2017

Product Description 3M™ Medium-Wall Heat Shrink Tubing IMCSN is designed to provide reliable performance for electrical splices, connections, and terminations, as well as mechanical and environmental protection. 3M IMCSN tubing is fabricated from cross-linked polyolefin. The tubing is highly split resistant, and fast-shrinking to provide rapid installation. The tubing comes standard with a factory-applied adhesive/sealant.

Agency Approvals & Self Certifications For RoHS information, please visit www.3M.com/ROHS

Product Features

- Fast and easy installation.
- Resists puncture and abrasion damage.
- Complete environmental protection.
- Versatile, a minimum number of sizes cover the entire range of applications.
- Shrink ratio 3:1.
- Resist acids and alkalis.
- Bonds to a wide variety of substrates.
- Reliable and proven.
- UV resistant.

Applications

- Primary electrical insulation for solid dielectric wire and cable rated to 1000 volts.
- For indoor, outdoor or overhead use.
- Direct buried or submersible.
- Insulating secondary splices.
- Physical protection and moisture sealing of high-voltage air insulated connectors and lugs, such as lug connections to bus bars.
- Relocation of service.
- Dig-in repairs.

Product Selection Selecting 3M IMCSN tubing is easy and straightforward. The largest tubing that provides a tight fit when fully recovered will produce the maximum wall thickness. Final wall thickness is proportional to the degree of tubing recovery.

3M™ Medium-Wall Heat Shrink Tubing IMCSN

Characteristics and Test Data

Property	Requirements*	Test Results
Continuous Operating Temperature Range	-55°C to 110°C	-55°C to 110°C
Color	Black	Black
Longitudinal Change	+ 1%, - 10%	Pass
Low Temperature Flexibility (4 hours @ -55°C)	No Cracking	Pass
Heat Shock (4 hours @ 255°C)	No Cracking, Flowing or Dripping	Pass
2% Secant Modulus	25,000 psi max.	14,000 psi
Color Stability (24 hours @ 175°C)	Remain Stable	Pass
Tensile Strength	1,200 psi min.	2,400 psi
Ultimate Elongation	200% min.	475%
Dielectric Strength (V/mil)	200 min.	500
Volume Resistivity (ohm-cm)	1 0 ¹³ min.	1 0 ¹⁴

*Based on MIL-I-23053/15A Class 2

Fluid Resistance / MIL-I-23053

- Minimum tensile strength, 750 psi.
- Minimum dielectric strength, 200 V/mil.
- Twenty-four hours at 25°C.

Fluids	Tensile Strength	Dielectric Strength
Hydraulic Fluid	Pass	Pass
JP-4 Fuel	Pass	Pass
Lube Oil	Pass	Pass
5% NaCl Solution	Pass	Pass
Deicing Fluid	Pass	Pass

Engineering / Architectural Specifications

The tubing must be usable both indoors and outdoors, in overhead, direct-buried, or submerged applications on cables rated up to 1000 volts. It is not adversely affected by moisture, mild acids and alkalies, fuels, oils, ozone, or ultraviolet light. It must be compatible with and adhere to all types of cable jackets, including rubber, plastic, or lead. It must conform to the requirements of UL 486 D and sections 3.4 and 4.3 of ANSI C119.1 1986.

3M™ Medium-Wall Heat Shrink Tubing IMCSN

3M™ IMCSN Selection Guide

Product Number	Cable Size Range	Minimum Expanded/ Maximum Recovered I.D.	Cable O.D. Use Range Maximum - Minimum
IMCSN-0400-48A	12 - 6 AWG (4 - 10 mm ²)	0.40 / 0.15" (10,2 / 3,8 mm)	0.35 - 0.15" (8,8 - 3,8 mm)
IMCSN-0800-48A	8 - 3 AWG (10 - 25 mm ²)	0.80 / 0.22" (20,3 / 5,6 mm)	0.70 - 0.22" (18 - 5,6 mm)
IMCSN-1100-48A	2 - 2/0 AWG (35 - 60 mm ²)	1.10 / 0.37" (27,9 / 9,4 mm)	0.95 - 0.37" (24 - 9,4 mm)
IMCSN-1300-48A	1 - 4/0 AWG (50 - 100 mm ²)	1.30 / 0.43" (33,0 / 10,9 mm)	1.10 - 0.43" (28 - 10,8 mm)
IMCSN-1500-48A	1/0 - 250 kcmil (60 - 120 mm ²)	1.50 / 0.50" (38,1 / 12,7 mm)	1.30 - 0.50" (33 - 12,1 mm)
IMCSN-1700-48A	4/0 - 400 kcmil (120 - 200 mm ²)	1.70 / 0.60" (43,2 / 15,2 mm)	1.45 - 0.60" (37 - 15,2 mm)
IMCSN-2000-48A	300 - 500 kcmil (185 - 250 mm ²)	2.00 / 0.75" (50,8 / 19,1 mm)	1.75 - 0.75" (44,5 - 19,0 mm)
IMCSN-3000-48A	600 - 1250 kcmil (325 - 625 mm ²)	3.00 / 1.00" (76,2 / 25,4 mm)	2.50 - 1.00" (63,5 - 25,4 mm)
IMCSN-4300-48A	1000 - 2500 kcmil (625 - 1000 mm ²)	4.30 / 1.50" (109,2 / 38,1 mm)	3.60 - 1.50" (91,5 - 38,1 mm)

Note: 3M IMCSN tubing is supplied in 48-inch lengths with adhesive. Uncoated products available on special order.

Performance Tests • Meets MIL-I-23053/15A Class 2.

Property	Requirement*	Test Results
Corrosion (16 hours @ 121°C) - Copper Mirror - Copper Contact	No corrosion No corrosion or pitting	Pass Pass
Flammability (Five 15-second Bunsen burner applications)	Nonburning	Pass
Water Absorption (24 hours @ 25°C)	0.5% Maximum weight increases	0.02%
Heat Aging (7 days @ 175°C) - Ultimate Elongation - Tensile Strength	100% Minimum 1000 psi Minimum	225% 1820 psi
Fungus Resistance	Non-nutrient	Pass
Shelf Life	Storage @ 40°C for 2 years With maintenance of dimensions	Pass

*Based on MIL-I-23053/15A Class 2

3M™ Medium-Wall Heat Shrink Tubing IMCSN

Maintenance 3M™ Medium-Wall Heat Shrink Tubing IMCSN is not impaired by freezing or overheating due to ambient temperature found in storage or shipping. Normal storage and stock rotation are recommended.

Installation Techniques Exact instructions are available on a separate sheet. The following is a summary of instructions:

1. Thoroughly clean and prepare cable.
2. Cut 3M IMCSN tubing to required size, per instructions.
3. Slide 3M IMCSN tubing onto cable.
4. Install connector, if applicable.
5. Center tubing.



6. Shrink tubing from center.



7. Heat until tubing is completely shrunk and adhesive/sealant (if applicable) is squeezed from ends.

Availability 3M IMCSN tubing is available from your electrical distributor.

3M™ Medium-Wall Heat Shrink Tubing IMCSN

3M is a trademark of 3M Company.

Important Notice

All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Any statements related to the product, which are not contained in 3M's current publications, or any contrary statements contained on your purchase order, shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M.

Warranty; Limited Remedy; Limited Liability

This product will be free from defects in material and manufacture at the time of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. **Except where prohibited by law, 3M will not be liable for any direct, indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.**

**Electrical Markets Division**

6801 River Place Blvd.
Austin, TX 78726-9000
800.245.3573
FAX: 800.245.0329
www.3M.com/electrical

Please recycle
© 3M 2017 All rights reserved
78-9237-0172-2 Rev B