

FCSM

Flame-Retarded, Heavy-Wall Tubing for 1/C Low-Voltage Power Cable (up to 2kV)
MSHA Approved: (P-07-KA090013)

ENERGY DIVISION

Safety Instructions

⚠ DANGER When installing electrical power system accessories, failure to follow applicable personal safety requirements and written installation instructions could result in fire or explosion and serious or fatal injuries.

⚠ DANGER To avoid risk of accidental fire or explosion when using gas torches, always check all connections for leaks before igniting the torch and follow the torch manufacturer's safety instructions.

⚠ DANGER To minimize any effect of fumes produced during installation, always provide good ventilation of confined work spaces.

⚠ DANGER As Tyco Electronics has no control over field conditions which influence product installation, it is understood that the user must take this into account and apply his own experience and expertise when installing product.

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

⚠ DANGER Power distribution and transmission products must be properly selected for the intended application. It must be installed and serviced by competent personnel who have been trained and understand proper safety procedures. These instructions are written for such personnel and are not a substitute for adequate training and experience in safety procedures.

⚠ DANGER Read and understand the contents of these instructions before installation and follow all locally approved procedures and safety practices before installing or operating this equipment

⚠ CAUTION These instructions cannot cover all details or variations in the equipment, procedures, or processes described, nor provide directions for meeting every possible contingency during installation, operation, or maintenance. When additional information is desired to satisfy a problem not covered sufficiently for the user's purpose, please contact your Tyco Electronics sales representative. These instructions are not intended to supersede or replace existing safety and operating procedures.

NOTICE Upon receipt of a product, inspect it thoroughly for damage and loss of parts incurred during shipment. If damage or loss is discovered, file a claim with the carrier immediately or contact your Tyco Electronics representative.

Suggested Installation Equipment (not supplied with kit)

- Cable preparation tools
- Tyco Electronics P63 cable preparation kit or cable manufacturer approved solvent
- Clean, lint-free cloths
- Non-conducting abrasive cloth, 120 grit or finer
- Electrician's tape
- Connector(s) and installation tools
- Tyco Electronics recommended torch

Recommended Tyco Electronics Torches

Install heat-shrinkable cable accessories with a "clean burning" torch, i.e., a propane torch that does not deposit conductive contaminants on the product.

Clean burning torches include the Tyco Electronics FH-2629, FH-2649 (uses refillable propane cylinders) and FH-2618A (uses disposable cylinder).

Adjusting the Torch

Adjust regulator and torch as required to provide an overall 12- inch bushy flame. The FH-2629 will be all blue, the other torches will have a 3- to 4-inch yellow tip. Use the yellow tip for shrinking.

Regulator Pressure

FH-2618A	Full pressure
FH-2649	25 psig
FH-2629	15 psig

General Shrinking Instructions

- Apply outer 3- to 4-inch tip of the flame to heat-shrinkable material with a rapid brushing motion
- Keep flame moving to avoid scorching
- Unless otherwise instructed, start shrinking tube at center, working flame around all sides of the tube to apply uniform heat

To determine if a tube has completely recovered, look for the following, especially on the back and underside of the tube:

1. Uniform wall thickness
2. Conformance to substrate
3. No flat spots or chill marks
4. Visible sealant flow if the tube is coated

NOTICE When installing multiple tubes, make sure that the surface of the last tube is still warm before positioning and shrinking the next tube. If installed tube has cooled, re-heat the entire surface.

Customer Service

For 24 hour customer service, call 800-327-6996.

Installation Instructions

1. Product selection

Check kit selection with cable dimensions shown in Table 1.

Use Conductor Size and coated tubing for sealed, electrical splicing.

Use Range for mechanical or environmental protection.

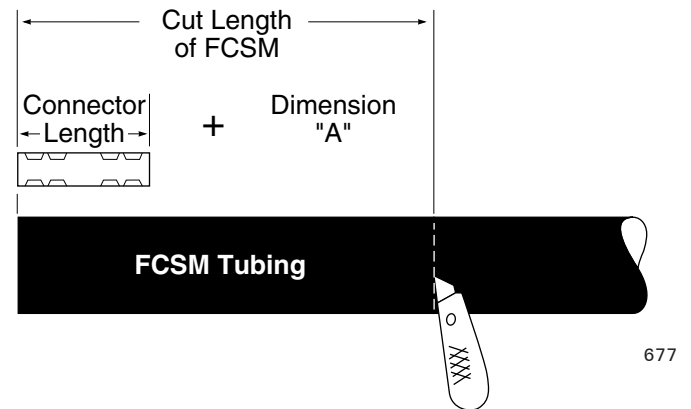
Table 1

Catalog number		Nominal Conductor Size AWG/kcmil	Use Range Min-Max
Coated, 48" Tube Length	Uncoated, Spooled		
FCSM-6/2-1200-S	FCSM-6/2-A/U	#18-#14	0.10-0.20" (3-5mm)
FCSM-9/3-1200-S	FCSM-9/3-A/U	#14-#8	0.15-0.30" (4-8mm)
FCSM-19/6-1200-S	FCSM-19/6-A/U	#6-#2	0.25-0.65" (6-17mm)
FCSM-28/9-1200-S	FCSM-28/9-A/U	#2-4/0	0.40-0.95" (10-24mm)
FCSM-38/12-1200-S	FCSM-38/12-A/U	1/0-350	0.50-1.30" (13-33mm)
FCSM-51/16-1200-S	FCSM-51/16-A/U	250-500	0.70-1.75" (18-44mm)
FCSM-68/22-1200-S	FCSM-68/22-A/U	600-1000	0.95-2.30" (24-58mm)
FCSM-90/30-1200-S	FCSM-90/30-A/U	800-1200	1.30-3.10" (33-79mm)
FCSM-120/40-1200-S	FCSM-120/40-A/U	1500-2500	1.75-4.10" (44-104mm)
FCSM-177/63-1200-S	FCSM-177/63-A/U		2.75-6.05" (70-154mm)

2. Cut coated FCSM to required length

Connector Length	Dimension A
up to 6"	4" (102mm)
6" and over	5" (127mm)

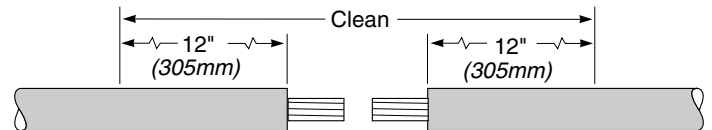
Cut the FCSM using a sharp knife or heavy scissors. Cut must be smooth, without nicks or notches.



677

3. Cutback insulation; clean cables

Using an oil-free solvent, clean the cables as shown.

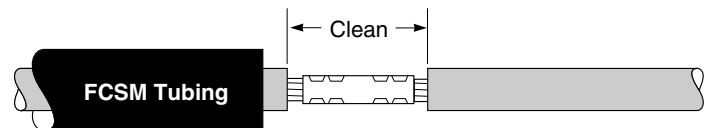


678

4. Place tube over clean cable; install connector

Protect tube from end of the conductor as it is placed over the cable end.

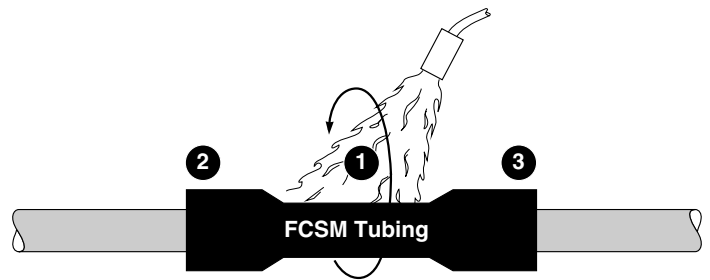
Install connector per manufacturer's instructions. After installation, clean and deburr connector.



679

5. Center tube over splice; shrink in place

Center tube over splice. Working the torch with a smooth brushing motion around the tube, begin shrinking at the center of tube (1). After center portion shrinks, work torch as before toward one end (2), then to the opposite end (3) until completely recovered.



680

6. Inspect completed splice

Properly installed tube will be smooth and conform to the connection. Adhesive will be visible at both ends.



681

NOTICE Allow to cool before moving or placing in service.

Installation is complete.

The Information contained in these installation instructions is for use only by installers trained to make electrical power installations and is intended to describe the correct method of installation for this product. However, Tyco Electronics Corporation has no control over the field conditions which influence product installation. It is the user's responsibility to determine the suitability of the installation method in the user's field conditions. Tyco Electronics' only obligations are those in Tyco Electronics' standard Conditions of Sale for this product and in no case will Tyco Electronics be liable for any other incidental, indirect or consequential damages arising from the use or misuse of the products.

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