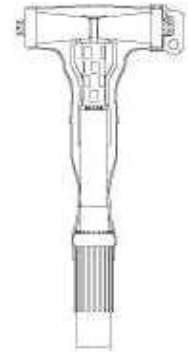


3M™ Cold Shrink T-Body Equipment Connection Kit 7706-35TC Series

600-A 35 kV Class



Data Sheet

June 2011

Description

3M™ Cold Shrink T-Body Equipment Connection Kit 7706-35TC Series, 600-A 35 kV Class, is a fully shielded 600-amp separable connector system, which meets the requirements of ANSI/IEEE Standard 386 “Separable Insulated Connector Systems.” This T-body connection kit is available for splicing, dead-ending and connecting to dead-front apparatus such as transformers, switches, and switchgear equipped with 600-amp bushings. The system has the capability for future modification by simply adding or removing modular components. By combining kits, the system can accommodate 3-Way, 4-way, parallel feed, etc. connections in various tap splicing configurations.

This T-body connection kit is designed for use on 35 kV-rated shielded cables. Kit instructions describe installation for all shielded types of solid dielectric cables with extruded semi-conductive insulation shields. The completed installation is fully shielded to provide a complete dead-front connection, which is suitable for operation in submerged or enclosed locations.

Kit Contents

A complete T-body connection kit installation requires one or more splicing kits (base kits) along with an aluminum compression connector rated for each cable being used. (For tape shield cable, a grounding kit would be required) Each base kit contains the following materials:

- 1 3M™ Cold Shrink T-body; 35 kV
- 1 Dead End Plug; AL, 35 kV
- 1 Dead End Plug Cap
- 1 Connecting Stud; AL
- 3 Tubes Red P/55 compound
- 2 Scotch® Mastic Sealing Strips 2230; 6” long
- 1 Connector Adapter
- 1 3M™ Cable Cleaning Preparation Kit CC-2
- 1 Instruction Sheet

Additional Contents for Grounding Kits

- 1 Ground Braid with Solder Block
- 1 Constant Force Spring
- 1 Copper Foil Tape Strip

Equipment Required

Tools: Torque Wrench (for measuring 55 ft – lb of torque)

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Application Range Chart

Kit Number	Primary Cable Installation O.D. Range	Max. Jacket O.D. Range	Conductor Size Range
7706-35TC-D1E-B 7706-35TC-D1EG-B	1.01" – 1.30" (25,7 – 33, mm)	1.50" (38,1 mm)	1/0 AWG
7706-35TC-D1E 7706-35TC-D1EG	1.05" – 1.75" (25,6 – 44,5 mm)	1.80" (45,7 mm)	2/0 – 350 kcmil
7706-35TC-D2E 7706-35TC-D2EG	1.31" – 2.30" (33,3 – 58,4 mm)	2.30" (58,4 mm)	350–1000 kcmil
7706-35TC-D2E-B	1.35" – 2.30" (34,2 – 58,4 mm)	2.80" (71,1 mm)	500 kcmil–1250 kcmil

Check compatibility of kit and cable for application.
Before beginning, ensure cable insulation O.D. fits within the parameters for this kit.

Features

The 3M™ Cold Shrink T-Body Equipment Connection Kit 7706-35TC Series, 600-A 35 kV Class system features include:

- **Modular Design** – allows custom tailoring for various splicing functions and configurations, such as multiple taps, sectionalizing, dead-ending, adding-on, etc.
- **Bolt-together Components** – allows dead-break disconnecting and reuse of the connecting components (connecting plug, dead-end plug, connecting stud, etc.).
- **Molded Conductive Outer Jacket** – provides for a fully shielded dead-front connection, which meets the requirements of IEEE Standard 592 “Exposed Semi-conducting Shields on High-Voltage Cable Joints and Separable Insulated Connectors.”
- **Kit Packaging** – designed for industrial use, the kits simplify the selection, ordering and stocking of appropriate system components.
- **Shield Adapter Kits** – cold shrink design for simple shield re-jacketing. Kits provide all of the components necessary for adapting the separable connector to all shielding types of common industrial power cables.
- **Voltage Test Point** – the dead-end plug provides a high impedance test point for safely checking the de-energized status of the circuit.

Applications

For connecting shielded power cables in 600-amp dead-front, dead-break installations:

- For 600-amp equipment (apparatus) connections
- For dead-end splice and tap type connections
- For shielded solid dielectric (e.g. EPR and XLPE) cables with extruded semi-conductive insulation shield
- For submerged or enclosed locations

Installation

A torque wrench and one-inch socket are used to tighten the insulating plug through the compression connector within the tee-module body, onto a de-energized 600-A bushing interface. Refer to the 3M T-body 7706-35TC Series connection kit instructions for details.

Interchangeability

All 3M T-body 7706-35TC Series connection kit dead-break connectors conform to the electrical, mechanical and dimensional requirements of ANSI/IEEE Standard 386. The connectors can be used on comparably rated bushing interface that also meets the requirements of this standard. In addition, connecting plugs, dead-end plugs, compression connectors and connecting studs may be interchangeable with those available from other major manufacturers.

3M™ Cold Shrink T-Body Equipment Connection Kit 7706-35TC Series, 600-A 35 kV Class

Data The 3M™ Cold Shrink T-Body Equipment Connection Kit 7706 35TC Series, 600-A 35 kV Class, can be used on shielded power cables with a rated operating temperature of 90°C (194°F), and an emergency overload rating of 130°C (266°F). Connections made with these kits are rated for voltages up to 35 kV and meet the requirements of ANSI/IEEE 386 for 600-amp dead-break interfaces.

Production Tests Tests are conducted in accordance with ANSI/IEEE Standard 386:

- AC 60 Hz 1-Minute Withstand - 50 kV
- Minimum Corona Voltage Level - 26 kV

Tests conducted in accordance with manufacturer's requirements:

- Physical Inspection
- Periodic Dissection
- Periodic Fluoroscopic Analysis

Grounding Splice body is in direct contact with neutrals and therefore, does not need an additional ground wire attached to shell.

Voltage Ratings & Characteristics

Description	kV
Standard Voltage Class	35
Maximum Rating Phase-to-Ground	21.1
AC 60 Hz 1-Minute Withstand	50
DC 15 Minute Withstand	103
BIL and Full Wave Crest	150
Minimum Corona Voltage Level	26

Voltage ratings and characteristics are in accordance with ANSI/IEEE Standard 386

Current Ratings & Characteristics

Description (600-A Interface)	Amperes
Continuous	600 A rms
24-Hour Overload	1000 A rms
Short Time	40,000 A rms symmetrical for 0.20 s 27,000 A rms symmetrical for 4.0 s

Voltage ratings and characteristics are in accordance with ANSI/IEEE Standard 386

Typical Splice Dimensions

Splice Assembly	Installed Length [inches (mm)]
Equipment Connection	21 (533,4 mm) Typical

Product Specifications

Splicing, dead-ending and 600-amp apparatus connecting of 35 kV class shielded power cables shall be performed in accordance with the instructions included with this connection system. The kit components must be designed according to the specifications of ANSI/IEE Standard 386 for 600-amp dead-break interfaces. The system shall be capable of making dead-end, 2-way, 3-way or multiple tap splices, and of making connections to ANSI/IEEE 386 specified 600-amp apparatus bushings.

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Engineering/ Architectural Specifications

The 3M™ Cold Shrink T-Body Equipment Connection Kit 7706-35TC Series, 600-A 35 kV Class shall be rated for continuous operation on single-conductor shielded power cables rated up to 35 kV. The system components shall be designed in accordance with the specifications listed in ANSI/IEEE Standard 386 for 600-amp dead-break interfaces. The system shall be made up of specific kits designed for splicing, tapping (adding-on), dead-ending and 600-amp equipment (apparatus) connecting. Each kit shall contain all of the components necessary for its intended application, except for the connector and shield adapter, which shall be contained in a separate adapter kit. The system shall be capable of making dead-end, 2-way, 3-way or multiple tap splices, and of making connections to ANSI/IEEE 386-specified 600-amp apparatus bushings.

Examples:

Equipment Connection

SEMI-CONDUCTING SHIELD

Precision-Molded Semi-Conducting Insulation Shield provides ground shield continuity and meets the requirements of IEEE Standard 592.

COMPRESSION CONNECTOR

Aluminum Compression Connector is sized to ensure a cool running connector with maximum current transfer.

TEE MODULE

Molded Tee Module adapts to all specified cable sizes and provides a dead-front shielded connection.

HEX HEAD

One-inch Hex Head is used to tighten the connection, and serves as capacitive test point.

CAP

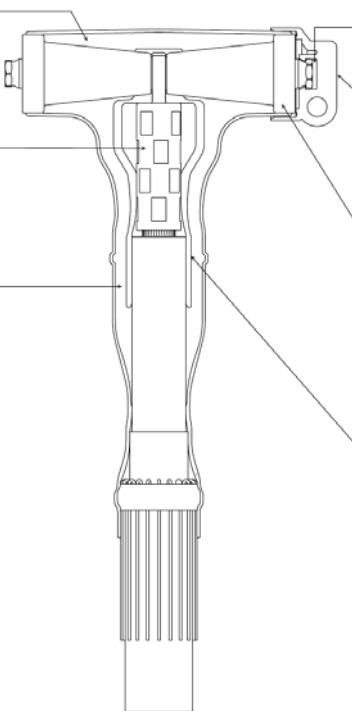
Semi-Conducting Rubber Cap fits over test point for waterproof seal and dead-front shielding.

INSULATING PLUG

Molded Epoxy Insulating Plug provides excellent electrical, thermal and mechanical reliability.

SEMI-CONDUCTING ELECTRODE

Molded Semi-Conducting Electrode provides corona-free electrostatic shielding of the compression connector.



Shelf Life & Storage

This kit has a shelf life of 3 years from date of manufacture when stored in a humidity-controlled storage (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.

3M™ Cold Shrink T-Body Equipment Connection Kit 7706-35TC Series, 600-A 35 kV Class

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