THE CITY OF COLUMBUS
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF POWER

SECONDARY CABLE – COPPER

For Underground Applications, 600 V Max.

Specification

TDMIS-9253

Revised 11/2019

1.0 SCOPE

This standard covers cross-linked polyethylene insulated copper cables for use as underground neutrals, secondaries, and services direct buried or in duct at 600 Volts or less.

2.0 APPLICABLE CODES AND STANDARDS

The conductor in this specification shall meet and/or exceed all requirements of the latest editions of the standards listed below. The conductor shall further meet and/or exceed those applicable standards not stated herein but referenced by the below standards.

2.1. ANSI/NEMA WC 70 – Standard for Power Cables Rated 2,000 Volts or Less for the Distribution of Electrical Energy

2.2. ASTM B3 – Standard Specification for Soft or Annealed Copper Wire

2.3. ASTM B8 – Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft

2.4. ICEA S-105-692 – Standard for 600 Volt Single Layer Thermoset Insulated Utility Underground Distribution Cables

2.5. UL 44 – Standard for Thermoset-Insulated Wires and Cables

2.6. UL 1685 – Standard for Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables

3.0 PRODUCT REQUIREMENTS

3.1. Conductor

Conductor shall be soft drawn copper, standard concentric round or compressed. Anneal per ASTM B3 and stranding per ASTM B8, class "B".

3.2. Insulation and Jacket

Conductor insulation shall be filled, cross-linked, thermosetting black polyethylene (XLPE) in accordance with ICEA Publication S-66-524, applied as a unipass insulation jacket. Insulation shall be suitable for operation with a conductor temperature of 90° C under normal conditions.

3.3. Cable Identification

Cables shall be identified by surface printing; surface ridges are not allowed. Marking shall include name of manufacturer, size of conductor, type of insulation, and date of manufacture.

Triplexed or quadruplexed cables shall have a neutral that is marked with a triple yellow extruded stripe.

3.4. Cable Ends

Cable ends shall be sealed on each individual conductor to prevent entrance of moisture during shipment and storage.

3.5. Testing

Each length of cable shall be tested in accordance with applicable requirements of ANSI/NEMA WC 70.

3.6. Standard Conductor Sizes

Conductor supplied under this standard shall be sized per the table below:

Size (AWG or MCM)	# of Cond.	Neutral Size (AWG)	Strands	Insulation Thickness (mils)	Nom. O.D. (mils)	Approx. Weight (lbs/1000')	Division ID
2 AWG	1	N/A	7	60	397	235	20096
2 AWG	3	2	7	60	397	940	19550
1/0 AWG	3	1/0	19	80	520	1,516	78837
2/0 AWG	1	N/A	19	80	557	472	19952
4/0 AWG	1	N/A	19	80	673	729	19959
350 MCM	1	N/A	37	95	854	1,191	19966
500 MCM	1	N/A	37	95	983	1,674	19969
750 MCM	1	N/A	61	110	1191	2,492	19977
1000 MCM	1	N/A	61	110	1340	3,288	19982

3.7. Packaging and Shipping

3.7.1. Packaging

Cables shall be packaged per the table below:

Size (AWG or MCM)	# of Cond.	Neutral Size (AWG)	Approx. Reel Length (ft)	Division ID
2 AWG	1	N/A	2,500	20096
2 AWG	3	2	1,000	19550
1/0 AWG	3	1/0	1,000	78837
2/0 AWG	1	N/A	2,500	19952
4/0 AWG	1	N/A	1,000	19959
350 MCM	1	N/A	1,000	19966
500 MCM	1	N/A	1,000	19969
750 MCM	1	N/A	500	19977
1000 MCM	1	N/A	500	19982

3.7.2. Cable reels

a) All reels shall conform to the requirements for class 2 reels as defined in NEMA WC 26.

b) The maximum flange diameter shall be 72”.

c) The maximum transverse length shall be 42”.

3.7.3. Cable length shall have a tolerance of -5% / +10%.

3.7.4. Shipping and Quality Assurance Requirements

To prevent damage, reels shall be securely blocked in an upright position so that they will not shift during transit. Reels shall not be stacked, nor shall other material be stacked on the reels.