

Wire, Switchboard, Cross-Linked Polyethylene-Insulated



1. Scope

This standard covers the requirements for cross-linked polyethylene-insulated, switchboard wire, also known as type SIS wire.

This standard applies to the following Seattle City Light (SCL) stock numbers:

| Stock No. | Size (AWG) |
|-----------|------------|
| 642082 | 14 |
| 642083 | 12 |
| 642084 | 10 |

2. Application

Switchboard wire is for making connections inside equipment cabinets. It is not appropriate for use in cable trays.

Switchboard wire is suitable for operation at conductor temperatures up to 90°C in wet or dry locations.

3. Industry Standards

Switchboard wire shall meet the applicable requirements of the latest revision of:

UL 44; Thermoset-Insulated Wires and Cables

ASTM B174; Standard Specification for Bunch-Stranded Copper Conductors for Electrical Conductors

RoHS; European Union Directive 2002/95/EC for Restriction of Hazardous Substances

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4. Requirements

4.1 General

Switchboard wire shall meet the requirements of UL 44 and this standard. Where conflict exists, this standard shall apply.

Switchboard wire shall be:

- Dual-rated types SIS/XHHW-2
- Rated 600 V
- Rated for 90°C, wet or dry
- Single-conductor construction
- VW-1 vertical flame test compliant
- RoHS compliant

4.2 Conductor

Conductor shall consist of tinned copper strands.

Conductor stranding shall be Class K per ASTM B174 and Table 4.2.

Table 4.2 Conductor Stranding

| Size (AWG) | Number of Strands |
|------------|-------------------|
| 14 | 41 |
| 12 | 65 |
| 10 | 104 |

4.3 Insulation/Covering

Conductor shall be insulated with cross-linked polyethylene.

Insulation thickness shall be:

- 27 mil, minimum
- 30 mil, nominal

Insulation shall strip free from the conductor.

Insulation color shall be gray.

5. Marking

Switchboard wire shall be durably and legibly marked throughout its length, at maximum intervals of 1 meter, with a marking legend.

The marking legend shall include, but not be limited to, the following information:

- Manufacturer identification
- Type letter or letters
- Conductor size
- Conductor stranding
- Voltage marking
- VW-1
- Mark of UL approval or listing

6. Testing

Switchboard wire shall be tested according to the requirements of UL 44.

Test results shall be provided upon request.

7. Packaging

Switchboard wire shall be packaged on 13-inch diameter x 10-inch traverse spools, with wire lengths as shown in Table 7 to prevent damage during shipping, handling, and inside storage.

Table 7. Wire Lengths Per Spool by Wire Size

| Wire Size (AWG) | Wire Length Per Spool (ft) |
|-----------------|----------------------------|
| 14 | 2500 |
| 12 | 2500 |
| 10 | 1250 |

Each spool shall be durably and legibly marked with:

- Manufacturer identification
- Month and year of manufacture
- Type letter or letters
- Conductor size
- Voltage rating
- Mark of UL approval
- SCL stock number

Shipping containers shall be legibly marked with:

- SCL purchase order number
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8. Issuance

Stock Unit: FT

9. Approved Manufacturers

CME Wire and Cable
General Cable
Kris-Tech Wire

10. Sources

Shipek, John; SCL Standards Supervisor and originator of 6420.51

SCL Material Standard 6420.5; "Switchboard Wire, Polyethylene Insulated" (canceled)