

SD-CU TWU-UF

(SOFT-DRAWN COPPER)

Copper Tracer Wire • Oxygen Free Copper • Dead Soft Annealed Copper Conductor • Corrosion Resistant Polyvinyl Chloride (PVC) Insulation • Moisture, Chemical, Acid, and Oil Resistant • Impact, Crush, and Abrasion Resistant RoHS Compliant • Direct Burial Rated • 600 Volts • Made in the USA • UL Listed



Applications and Information

- **SD-CU TWU-UF** conductors are used for tracer wire applications not exceeding 30 Volts. Tracer wire is used to conductively locate buried utility lines for the gas, water, sewer, telecommunication, and electrical markets. Wire can be used in 600 Volts applications including electrical and golf course sprinkler systems.
- **SD-CU TWU-UF** utilizes a PVC insulation specifically formulated to provide oxidative stability, toughness, abrasion, crush, chemical, acid, oil, and moisture resistance. It provides superior long term aging performance while providing excellent environmental and thermal stress-cracking resistance.
- **SD-CU TWU-UF** is suitable for use in direct burial applications at temperatures not to exceed -20°C or 60°C.
- **SD-CU TWU-UF** is RoHS Compliant and manufactured in the USA.

Standards and References

SD-CU TWU-UF tracer wire meets or exceeds all applicable ASTM standards and requirements of the National Electrical Code.

- ASTM B-3: Standard Specification for Soft or Annealed Copper Wire.
- ASTM B170: Standard Specification for Oxygen-Free Electrolytic Copper.
- ASTM D1238: Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer.

Construction

SD-CU TWU-UF copper conductors are annealed copper (soft-drawn), insulated with a polyvinyl chloride (PVC) insulation. PVC provide oxidative stability, toughness, abrasion, crush, chemical, acid, oil, and moisture resistance. It provides superior long term aging performance and excellent environmental and thermal stress-cracking resistance. PVC provides superior strength against underground elements that help prevent accidental breaks caused by rocks in shifting soil and other conditions.

Specification Example

Tracer wire shall be a 12 AWG solid, SD-CU TWU-UF. Tracer wire shall consist of a soft-drawn, oxygen free copper conductor with a minimum break load of 197 lbf (38,500 psi). Conductor shall be extruded with a PVC insulation, and colored to meet the APWA color code of the buried utility line. Tracer wire shall be rated for direct burial use and RoHS compliant. Tracer wire shall be 12 AWG SOLID SD-CU TWU-UF as manufactured by Pro-Line Safety Products and made in the USA. If tracer wire connectors are necessary, contractor shall use a PRO-TRACE® TW Connector (Part No: 73901) rated for direct burial use filled with silicone sealant to prevent corrosion at connection points.

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TABLE 1: CONDUCTOR (Physical, Mechanical and Electrical Properties)

PROPERTY	14 AWG	12 AWG	10 AWG	8 AWG	6 AWG
Conductor Type	Copper	Copper	Copper	Copper	Copper
Conductor Temper	Soft-Drawn	Soft-Drawn	Soft-Drawn	Soft-Drawn	Soft-Drawn
Maximum Break Load	124 lbs	197 lbs	313 lbs	479 lbs	762 lbs
Maximum Tensile Strength	38,500 psi	38,500 psi	38,500 psi	37,000 psi	37,000 psi
Elongation	25.0%	25.0%	25.0%	30.0%	30.0%
Nominal DC Resistance	2.525 ohms	1.588 ohms	0.999 ohms	0.628	0.403 ohms

TABLE 2: INSULATION (Physical, Mechanical and Electrical Properties)

TEST DESCRIPTION	ASTM STANDARD	TYPICAL VALUES
Density @ 23°C	ASTM D792	0.945 g/cm ³
Melt Flow Rate	ASTM D1238	0.8 g/10 min
Tensile Strength	ASTM D638	3,400 psi
Tensile Strength Retention	ASTM D638	90% after 48 hours @ 100°C
Tensile Elongation	ASTM D638	500%
Tensile Elongation Retention	ASTM D638	90% after 48 hours @ 100°C
Environmental Stress Cracking	ASTM D1693	0 failures @ 48 hours
Thermal Stress Cracking	ASTM D2951	0 failures @ 96 hours
Brittleness Temperature / Failures	ASTM D746	0 failures @ -76° C
Melting Point	ASTM D3418	130°C
Oxidative Induction Time	ASTM D3895	170 min @ 200°C
Dielectric Constant	ASTM D1531	2.32 @ 1 MHz
Dissipation Factor	ASTM D1531	0.00006 @ 1 MHz
DC Volume Resistivity Test @ 23°C	ASTM D257	> 1 x 10 ¹⁵ ohm-cm

PRODUCT PART NO.	CONDUCTOR		MAXIMUM BREAK LOAD	MAXIMUM TENSILE STRENGTH	HDPE INSULATION THICKNESS	NOMINAL O.D.	APPROX. WEIGHT PER 1,000 FT		STANDARD PACKAGES
	AWG SIZE	STRANDS					COPPER WEIGHT	FINISHED WEIGHT	
WEIGHTS, MEASUREMENTS AND PACKAGING									
76003XXXX	14 AWG	SOLID	124 lbs	38,500 psi	0.060"	0.185"	12.400	28.00	500/1000/2500
76004XXXX	12 AWG	SOLID	197 lbs	38,500 psi	0.060"	0.201"	19.800	37.00	500/1000/2500
76005XXXX	10 AWG	SOLID	313 lbs	38,500 psi	0.060"	0.222"	31.500	51.00	500/1000/2500
76006XXXX	8 AWG	SOLID	479 lbs	37,000 psi	0.060"	0.249"	50.000	76.00	500/1000/2500
76008XXXX	14 AWG	7-STRAND	124 lbs	38,500 psi	0.060"	0.193"	12.67	29.00	CALL for INFO
76010XXXX	12 AWG	7-STRAND	197 lbs	38,500 psi	0.060"	0.212"	20.30	38.00	CALL for INFO
76012XXXX	10 AWG	7-STRAND	313 lbs	38,500 psi	0.060"	0.236"	31.50	52.00	CALL for INFO
76014XXXX	8 AWG	7-STRAND	479 lbs	37,000 psi	0.060"	0.266"	51.00	77.00	CALL for INFO
76016XXXX	6 AWG	7-STRAND	762 lbs	37,000 psi	0.080"	0.344"	81.00	120.00	CALL for INFO

INSULATION COLOR & REEL SIZE			
COLOR	500' REEL	1000' REEL	2500' REEL
BLACK	0132	0141	0147
BLUE	0232	0241	0247
GREEN	0532	0541	0547
ORANGE	0632	0641	0647
PURPLE	0832	0841	0847
RED	0932	0941	0947
WHITE	1132	1141	1147
YELLOW	1232	1241	1247

SOME COLORS AND SIZES MAY BE SUBJECT TO MINS



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PRO-LINE SAFETY PRODUCTS COMPANY
 1099 ATLANTIC DRIVE, UNIT 1 • WEST CHICAGO, IL 60185
 TOLL FREE: 800.554.3424

