



Pro-Trace® HS-CSS PE30 / PE45 Tracer Wire Fact Sheet

Part# 7465X.XXXX (X = Variable Information)



Pro-Trace HS-CCS (High-Strength Copper Clad Steel) is used for tracer wire systems to conductively locate buried utility lines for the gas, water, sewer, telecom, and electrical markets. It boasts a high-carbon steel core metallurgically bonded with a copper cladding that is uniform and continuous, creating a bi-metal conductor that acts as one and is corrosion resistant. HS-CCS has almost 227% the break load of copper greatly reducing damage and breaks during installation. HDPE provides superior strength against underground elements that help prevent accidental breaks caused by rocks in shifting soil conditions.

DESCRIPTION:

- Equal to copper in signal-tracing performance using only one wire
- For Open-Trench | Plow-In | Inside Conduit | Light Boring
- Available gauges: 8 AWG | 10 AWG | 12 AWG | 14 AWG | 16 AWG | 18 AWG
- Available reel sizes: 500' | 1,000' | 2,500' | 5,000'
- Available insulation thickness: 30 mil (30v) HDPE | 45 mil (600v) HDPE
- Insulation colors: Red | Yellow | Orange | Green | Blue | Purple | White | Black | Brown
- RoHS Compliant and works with connectors you already use
- All insulation spark tested @5000 VAC (30 mil) and @7500 VAC (45 mil).

STANDARDS & REFERENCES:

Pro-Trace HS-CCS meets or exceeds all applicable UL Standards, ASTM specifications, and requirements of the National Electrical Code.

- ASTM B1010/B1010M: Specification EHS Copper Clad Steel in Tracer Wire Applications
- ASTM B170: Specification for Oxygen-Free Electrolytic Copper
- ASTM D1248: Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable
- UL 2989 [not listed]: in accordance with USPSHTC Section 307.8.1, 18 AWG tracer wire for water service lines

CONDUCTOR (Physical, Mechanical and Electrical Properties)						
	18AWG	16AWG	14AWG	12AWG	10AWG	8AWG
Conductor Type	HS-CCS (High Strength Copper Clad Steel)					
Conductor Temper	Annealed					
Steel Grade	AISI 1055					
Copper Grade	UNS C10200					
Break Strength (lbs)	111	177	282	452	685	972
Elongation (ASTM B869)	≥ 8.0 %					
Copper Thickness (% of Dia.)	3.0 %					
Copper Weight (Per 1,000')	13.0 %					
Nominal DC Resistance (ohms)	30.399	19.119	12.024	7.562	4.756	2.991

INSULATION (Physical, Mechanical and Electrical Properties)		
Density @ 23°C	ASTM D1505	0.945 g/cm ³
Melt Flow Rate	ASTM D1238	0.70 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	ASTM D746	-76°C
Melting Temperature	ASTM D3418	260°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 @ 23°C	ASTM D257	> 1 x 10 ¹⁵ ohm-cm