Pro-Trace® HF-CSS PE30 / PE45 Tracer Wire

Fact Sheet

Part# 744XX.XXXX (X = Variable Information)

Pro-Trace HF-CCS (High-Flex Copper Clad Steel) is used for tracer wire applications to conductively locate buried utility lines for the gas, water, sewer, telecommunication, and electrical markets. (It) has a low 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. Special annealing processes are performed during the cladding process giving HF-CCS the flexibility, memory and feel of copper, but 43% higher in strength which means less breaks than regular copper wire.

Description:

- Equal to copper in signal-tracing performance
- For installation in open-trench, plow-in, or inside conduit using 1 wire
- Available guages: 8AWG I 10AWG I 12AWG I 16AWG I 18AWG
- Available reel sizes: 500' I 1,000' I 2,500' I 5,000'
- Available insulation thickness: 30 mil (30v) HDPE I 45 mil (600v) HDPE
- Insulation colors: Red I Yellow I Orange I Green I Blue I Purple I White I Black I Brown
- RoHS Compliant and works with connectors you already use
- All insulation spark tested @5000 VAC (30 mil) and @7500 VAC (45 mil)

Standards & Refrences:

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

- ASTM B910 / B190M: Standard Specification for Annealed Copper-Clad Steel Wire
- ASTM B170: Standard 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	HF-CCS (High-Flex Copper Clad Steel)					
Conductor Temper	Annealed					
Steel Grade	AISI 1006					
Copper Grade	UNS C10200					
Break Strength (lbs)	70	111	177	282	448	713
Elongation (ASTM B869)	≥ 15.0 %					
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