

# PRO-TRACE® HDD-CCS PE45/PE50 TRACER-WIRE

Tracer Wire • Horizontal Directional Drilling Copper Clad Steel (HDD-CCS) • 21% IACS Conductivity • Corrosion Resistant High-Density, High Molecular Weight Polyethylene (HMWPE-HDPE) Insulation • Moisture, Chemical, and Oil Resistant Impact, Crush, and Abrasion Resistant • RoHS Compliant • Direct Burial Rated • 30 Volts • Buy American / AIS Compliant

**“PRO-TRACE® HDD-CCS -- OneSHOT, OnePULL, OneWIRE -- EVERYTIME!”**



## Applications and Information

- **PRO-TRACE® HDD-CCS PE45** is also referred to as Extra High-Strength (EHS-CCS).
- **PRO-TRACE® HDD-CCS PE45** conductor is equal to copper in signal tracing performance for tracer wire applications not exceeding 600 Volts. Tracer wire is used to conductively locate buried utility lines for the gas, water, sewer, telecommunication, and electrical markets.
- **PRO-TRACE® HDD-CCS PE45** has almost **700%** the break load of copper, which allows 1 wire to be installed in critical installations like directional boring and pipe bursting.
- **PRO-TRACE® HDD-CCS PE50** is our 4 AWG stranded wire with the most extreme break load available and designed for pipe bursting and the most challenging of bore shots.
- Considerably lower in cost and great price stability compared to copper.
- RoHS Compliant and works with connectors you already use.

## Standards and References

**PRO-TRACE® HDD-CCS PE45** meets or exceeds all applicable UL Standards, ASTM specifications, and requirements of the National Electrical Code. Buy American / AIS Compliant.

- 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

## Construction

**PRO-TRACE® HDD-CCS PE45** is an extra high-strength, copper clad steel tracer wire. 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. The high break load allows only 1 conductor to be used in any tracer wire application while providing the perfect balance between break load, ductility, and decreasing brittleness. It is the best performing tracer wire on the market.

**PRO-TRACE® HDD-CCS PE45** is protected with a 45 mil, high-density, high molecular weight polyethylene (HDPE) insulation. HDPE provides an excellent balance of surface smoothness, processing ease and electrical consistency. HDPE insulation provides superior strength against underground elements that help prevent accidental breaks caused by rocks in shifting soil conditions.

## Specification Example

Tracer wire for directional boring installation shall be a 12 AWG solid, PRO-TRACE HDD-CCS PE45. Conductor shall be hard-drawn, 21% IACS, copper-clad steel, utilizing a AISI 1055 high carbon steel core with minimum break load of 1,330 lbs (required to meet break load). Conductor shall be extruded with a 45 mil, high density, high molecular weight polyethylene (HMW-HDPE) pursuant to ASTM D1248. Tracer wire shall be rated for direct burial use at 600 volts and RoHS compliant. Tracer wire shall be PRO-TRACE HDD-CCS PE45 as manufactured by **Pro-Line Safety Products**.

Specification Updated: 8.3.2022 (HDD-CCS Tracer Spec)

PRO-TRACE® is a registered trademark of Pro-Line Safety Products Co.

[www.prolinesafety.com](http://www.prolinesafety.com)

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

PROPERTY	14 AWG	12 AWG	10 AWG	9 AWG	8 AWG	4 AWG STR
Conductor Type	EHS-CCS	EHS-CCS	EHS-CCS	EHS-CCS	EHS-CCS	EHS-CCS
Conductor Temper	Hard-Drawn	Hard-Drawn	Hard-Drawn	Hard-Drawn	Hard-Drawn	Hard-Drawn
Steel Grade	AISI 1055	AISI 1055	AISI 1055	AISI 1045	AISI 1055	AISI 1055
Copper Grade	UNS C10200	UNS C10200	UNS C10200	UNS C10200	UNS C10200	UNS C10200
Break Strength	725 lbs	1,330 lbs	1,940 lbs	1,495 lbs	2,785 lbs	4,705 lbs
Elongation (ASTM B869)	≥ 1.0%	≥ 1.0%	≥ 1.0%	≥ 1.0%	≥ 1.0%	≥ 1.5%
Copper Thickness (% of Diameter)	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Copper Weight (Per 1,000')	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%
Nominal DC Resistance	12.024 ohms	7.562 ohms	4.756 ohms	3.772 ohms	2.991 ohms	1.277 ohms

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

PRO-TRACE® -- 12 AWG SOLID HDD-CCS -- 45 MIL HDPE -- 600V -- DIRECT BURIAL TRACER WIRE -- DIRECTIONAL DRILLING -- CAUTION GAS LINE BELOW *DATE & TRACE* SEQ FT		
Density @ 23°C	ASTM D1505	0.945 g/cm <sup>3</sup>
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 <sup>15</sup> ohm-cm

**TABLE 3: ORDERING INFORMATION (Weights, Measurements, and Packaging)**

PRODUCT PART NO.	AWG SIZE / PRODUCT DESCRIPTION	BREAK STRENGTH (lbs)	CONDUCTOR O.D. (Nominal)	FINISHED O.D. (Nominal)	INSULATION THICKNESS (Nominal)	PRODUCT WEIGHT LBS/1000'	STANDARD LENGTHS
<b>PRO-TRACE® HDD-CCS PE45 TRACER WIRE (45 mil/600V) -- DIRECTIONAL DRILLING / BORING</b>							
74641.XXXX	14 AWG HDD-CCS PE45	725 lbs	0.0641"	0.154"	0.045"	17.5	500', 1000', 2500', 5000'
74642.XXXX	12 AWG HDD-CCS PE45	1,330 lbs	0.0808"	0.171"	0.045"	26.0	500', 1000', 2500', 5000'
74643.XXXX	10 AWG HDD-CCS PE45	1,940 lbs	0.1019"	0.192"	0.045"	37.0	500', 1000', 2500', 5000'
74649.XXXX	9 AWG HDD-CCS PE45	1,495 lbs	0.1143"	0.205"	0.045"	45.0	500', 1000', 2500', 5000'
74644.XXXX	8 AWG HDD-CCS PE45	2,785 lbs	0.1285"	0.219"	0.045"	55.0	500', 1000', 2500', 5000'
<b>(STRANDED) PRO-TRACE® HDD-CCS PE50 TRACER WIRE (50 mil/600V) -- PIPE BURSTING / CRITICAL BORES</b>							
74646.XXXX	4 AWG STR HDD-CCS PE50	4,700 lbs	0.213"	0.313"	0.050"	110.0	500', 1000', 2500', 5000'

(.XXXX) INSULATION COLOR AND REEL SIZE									
PART# (.XXXX)	BLACK	BLUE	BROWN	GREEN	ORANGE	PURPLE	RED	WHITE	YELLOW
500' REEL	0132	0232	0332	0532	0632	0832	0932	1132	1232
1000' REEL	0141	0241	0341	0541	0641	0841	0941	1141	1241
2500' REEL	0147	0247	0347	0547	0647	0847	0947	1147	1247
5000' REEL	0153	0253	0353	0553	0653	0853	0953	1153	1453

\*Custom lengths are available upon request \*\*Some sizes, colors, and lengths may be subject to mins

(APWA) UNIFORM COLOR CODE
POTABLE WATER
SEWER & DRAINAGE
RECLAIMED WATER
GAS & PETROLEUM
COMMUNICATION
ELECTRIC & POWER



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**PRO-LINE**  
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