Authorized Distributor CONNECT

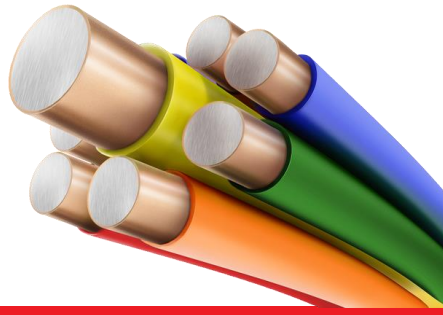
HIGH STRENGTH – 1430
CCS TRACER WIRE

APPLICATION

Copper-clad steel (CCS) tracer wire. Install with underground plastic utility pipes, wires, and cables to ensure future location. Best choice for open cut/trenching/plowing applications when ground above the utilities can be disturbed and there are no buildings, roadways, or other obstructions in the way.



1430*-HS-500 – 500' spool
1430*-HS-1000 – 1000' spool
1430*-HS-2500 – 2500' spool
(* denotes color, pg. 2)



FEATURES AND BENEFITS

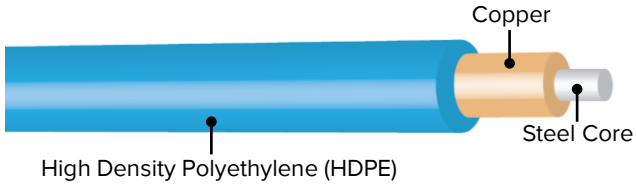
- 30 mil HDPE insulation
- 282 lb break load
- 2 times the breaking strength of solid copper
- 11% lighter than solid copper means reduced freight expenses
- Copper-clad steel (CCS) wire combines the strength of fully annealed high-carbon steel with the conductivity and corrosion resistance of solid copper
- Bonded metals mean no separating, no corrosion, and no theft appeal
- More stable pricing than solid copper
- Provided exclusively by Copperhead Industries
- Rated for direct bury
- Color-coded to meet American Public Works (APWA) standards for utility identification

Product Description

#14 AWG (0.0641" diameter) fully annealed, high carbon 1055 grade steel, high strength solid copper-clad steel conductor (HS-CCS) rated at 30 volts, insulated with a 30 mil, high-density, high molecular weight polyethylene (HDPE) insulation rated for direct burial use at 30 volts.

APWA UNIFORM COLOR CODE

- ELECTRIC
- GAS
- COMMUNICATION
- POTABLE WATER
- SEWER
- RECLAIMED WATER



SPECIFICATIONS

PART #: 1430*-HS-**
14 (AWG), 30 (insulation mil), * (indicates insulation color: Y=Yellow, B=Blue, G=Green, N=Orange, P=Purple, R=Red, BN=Brown, K=Black, W=White), HS (High Strength), ** (indicates spool size: 500, 1000 or 2500 foot lengths)

MADE IN USA
Copperhead® copper-clad steel tracer wire is 100% made in the USA.

PRODUCT DESCRIPTION
Tracer wire shall be a #14 AWG (0.0641" diameter) fully annealed, high carbon 1055 grade steel, high strength solid copper-clad steel conductor (HS-CCS) rated at 30 volts, insulated with 30 mil, high-density, high molecular weight polyethylene (HDPE) insulation rated for direct burial use at 30 volts. HS-CCS conductor must be at 21% conductivity for locate purposes. Break load of 282 lbs. HDPE insulation shall be RoHS compliant and utilize virgin grade material. Insulation color shall meet the APWA color code standard for identification of buried utilities. Manufacturers supplying copper-clad steel tracer wire must have available detailed performance data including 5 years of underground testing in terms of durability related to damage of protective insulation and effects of potential corrosion of the specific copper-clad steel used. Origin of copper-clad steel manufacturer is required and steel core must be manufactured in the United States. If manufacturer has not completed 5-year corrosion testing, a 5-year warranty must be provided. Tracer wire shall be Copperhead® High Strength HS-CCS HDPE 30 mil and made in the USA.

PRINT LINE
Physical, permanent markings: surface legend print on insulation to repeat at minimum interval of every two linear feet. Ink colors will include Black ink for Yellow, Blue, Red, Orange, Purple, Brown, White, and Green insulation, and White ink for Black insulation. **COPPERHEAD * 14 AWG-SOLID HS-CCS TRACER WIRE * 30 MIL HDPE 30 VOLT * DIRECT BURIAL ONLY**

SPOOL LABEL
Wound wire on a compact spool made of plastic or wood.

COPPERHEAD INDUSTRIES
1430*-HS-**
14 AWG-Solid CCS Tracer Wire
30 Mil HDPE 30 Volt
Direct Burial Only
copperheadwire.com

CONDUCTOR
This specification describes the properties of the conductor to be used in the fabrication of High Strength tracer wire.

Material Description: Copperhead® copper-clad steel wire as manufactured by Copperweld® is composed of a steel core with a uniform and continuous copper cladding thoroughly bonded to the steel throughout. Wire must conform to ASTM B1010 and ASTM B910 / B910M.

- **Cladding**: The steel and copper interface must have a metallurgical bond achieved through a high heat and pressure bonding process. Established process for porosity-free material.
- **Steel:** High strength with 0.54 carbon or greater. Verified to meet required mechanical properties.
- **Copper:** UNS-C10200; OF Copper according to ASTM B-170 (latest revision). High conductivity, oxygen free copper to achieve optimal signal performance.

Surface Condition: Wire surface shall be free of any defects, including flakes, grooves, pits, and voids. Wire surface shall be smooth, bright and shiny, and free of excessive copper dust and residual drawing lubricants.

Physical, Mechanical, and Electrical Properties: The wire shall conform to the properties listed in Table 1.

#12 CCS High Carbon 1055 Grade Steel 21% Conductivity	CCS Conductor
Conductor Size	14 AWG
Conductor Type	Copper-Clad Steel (CCS)
Temper	Dead Soft Annealed (DSA)
Average Break Load	282 lbs.
Minimum Tensile Strength	67,000 psi
Minimum Elongation	15%
Nominal Copper Thickness (% of Diameter)	3%
Nominal Copper Weight	13%
Nominal DC Resistance (ohms/1000 ft.)	12.027

Table 1: Physical, Mechanical, and Electrical Properties **Diameter tolerances: ± 1%*

INSULATION

This specification describes the properties of the material to be used in the insulating of High Strength tracer wire.

Material Description: Insulation is comprised of a co-polymer high molecular weight natural high density polyethylene (HDPE) designed specifically for high-speed copper wire insulating. It contains the required levels and types of primary antioxidant and metal deactivator additives to satisfy most Wire and Cable industry requirements. HDPE material will be produced with an excellent balance of surface smoothness, processing ease, tensile and elongation properties, abrasion toughness, environmental stress crack, thermal stress crack resistance, and electrical consistency. Insulation must conform to ASTM D1248.

Physical, Mechanical, and Electrical Properties: The wire shall conform to the properties listed in Table 2.

High Density Polyethylene Insulator	Value
Density (ASTM D 792)	0.943 g/cc
Bulk Density (ASTM D 1895)	0.58 g/cc
Melt Index (ASTM D 1238/E)	0.70 dg/min
Tensile-Yield (ASTM D 638)	4300 psi
Tensile-Ultimate (ASTM D 638)	2900 psi
Tensile-Elongation (ASTM D 638)	850%
Flexural Modulus (ASTM D 790/1)	120,000 psi
Hardness (ASTM D 2240)	63 Shore D
Environmental Stress-Crack (ASTM D 1693/B)	F_{20} > 48 h
Thermal Stress-Crack (ASTM D 2951)	F_0 > 1000 h
Brittleness Temperature (ASTM D 746)	< -95° F
Melting Point (DSC) (ASTM D 3417)	262° F
Softening Point (Vicat) (ASTM D 1525)	250° F
Oxidative Induction Time (ASTM D 3895)	> 50 min. @ 200° C
Dielectric Constant (ASTM D 1531)	2.34 @ 1MHz
Dissipation Factor (ASTM D 1531)	0.00007 @ 1 MHz
Volume Resistivity (ASTM D 257)	5 x 10^{17} ohm-cm
Dielectric Strength (ASTM D 3755)	1000 volts @ 20 mils

Table 2: Physical, Mechanical, and Electrical Properties

QUALITY ASSURANCE

- Copperhead products are manufactured under a quality control system that ensures products are free of defects and meet performance requirements.
- Copperhead provides best-in-class customer service. We promise to put forth our best efforts for our customers and to treat everyone we encounter with courtesy and respect.