



TRIDENT
SOLUTIONS

Innovation - Protection - Identification

Copper PE30 / PE45 Solid or Stranded Tracer Wire Fact Sheet

PE30 Part# 740XXXXX (X = Variable Information)

PE45 Part# 741XXXXX (X = Variable Information)



COPPER PE30 / PE45 is used for tracer wire systems to conductively locate buried utility lines for the gas, water, sewer, telecommunication, and electrical markets. It is made from oxygen free copper cathode formed into copper rod. Copper rod is pulled thru a series of drawing dies to achieve conductor diameter. Conductor then undergoes a heat treating process (annealing), resulting in soft annealed copper. The process above is what determines properties like break load and flexibility. The next process is extrusion of the insulation; high-density, high molecular weight polyethylene (HMW-HDPE). HDPE is considered the best tracer wire insulation due to cost, smoothness, and abrasion protection. The final process is processing insulated wire onto reels.

DESCRIPTION:

- Equal to copper in signal-tracing performance using only one wire
- For Direct Burial
- Available gauges: 8 AWG | 10 AWG | 12 AWG | 14 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:

Copper PE30/PE45 meets or exceeds all applicable UL Standards, ASTM specifications, 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 D1248: Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable.

CONDUCTOR (Physical, Mechanical and Electrical Properties)				
	14AWG	12AWG	10AWG	8AWG
Conductor Type	Copper			
Conductor Temper	Soft-Drawn			
Break Strength (lbs)	124	197	313	479
Elongation	3.0 %	5.0 %	5.0 %	5.0 %
Copper Thickness Solid (Dia.)	0.0641"	0.0808"	0.1019"	0.1285"
Copper Thickness Stranded (Dia.)	0.0726"	0.0915"	0.1155"	0.1458"
Product Weight Solid (Lbs Per 1,000')	16.0	24.0	37.0	62.0
Product Weight Stranded (Lbs Per 1,000')	17.0	25.0	39.0	64.0
Nominal DC Resistance (ohms)	2.525	1.588	0.999	0.628

INSULATION (Physical, Mechanical and Electrical Properties)		
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	ASTM D746	0 failures @ -76°C
Melting Temperature	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 @ 23°C	ASTM D257	> 1 x 10 ¹⁵ ohm-cm