# 46kV CU 100% TRXLPE LCT LLDPE

Single Conductor, 445 Mils Tree Retardant Cross Linked Polyethylene, 100% Insulation Level, Longitudinally Corrugated Tape Shield, Linear Low Density Polyethylene (LLDPE) Jacket. Silicone Free

Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

1. **Conductor:** Moisture blocked class B compressed stranded soft drawn bare copper per ASTM B3 and ASTM B8 (Conductor moisture block optional and tinned copper per ASTM B33 optional)
2. **Conductor Shield:** Conventional Semi-conducting cross-linked copolymer; Supersmooth conductor shield optional; A conductor tape is used for cable size larger than or equal to 1500 Kcmil
3. **Insulation:** 445 Mils Tree Retardant Cross Linked Polyethylene 100% insulation level
4. **Insulation Shield:** Strippable semi-conducting cross-linked copolymer
5. **Tape Shield:** 10 mils Longitudinally Corrugated Tape Shield
6. **Overall Jacket:** Linear Low Density Polyethylene (LLDPE) Jacket, black with red extruded stripes; PowerGlide® LLDPE jacket optional

## APPLICATIONS AND FEATURES:

Southwire's 46kV cables are suited for use in wet and dry areas, conduits, ducts, direct burial, sunlight, and where superior electrical properties are desired. These cables are capable of operating continuously at the conductor temperature not in excess of 90°C for normal operation. 130°C for emergency overload, and 250°C for short circuit conditions. Jacket types available that can be installed in conduit without the aid of lubrication. Rated for 1000 lbs./FT maximum sidewall pressure.

## SPECIFICATIONS:

- ASTM B3 Soft or Annealed Copper Wire
- ASTM B8 Concentric-Lay-Stranded Copper Conductors
- ASTM B33 Standard Specification for Tin-Coated Soft or Annealed Copper Wire
- ICEA S-97-682 Standard for Shielded Utility Cable Rated for 5 - 46kV
- AEIC CS-8 Specification for extruded dielectric shielded power cables rated for 5 through 46KV (Qualification Test Requirements)
- Optional CSA 68.5: -40ºC and MV 90ºC optional marking available upon request

## SAMPLE PRINT LEGEND:

SOUTHWIRE HI-DRI(R) [CONDUCTOR SIZE] [AWG or KCMIL] CU 46000 VOLTS TRXLPE INSULATION 445 MILS -- (NESC) -- SOUTHWIRE {MMM} {YYYY} NON-CONDUCTING JACKET


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## Table 1 – Weights and Measurements

| Cond. Size | Diameter Over Conductor | Diameter Over Insulation | Insul. Thickness | Diameter Over Insulation Shield | Jacket Thickness | Approx. OD | Approx. Weight | Min Bending Radius | Max Pull Tension |
|---|---|---|---|---|---|---|---|---|---|
| AWG/ Kcmil | inch | inch | mil | inch | mil | inch | lb /1000ft | inch | lb |
| 350 (37) | 0.661 | 1.597 | 445 | 1.677 | 110 | 1.997 | 2493 | 24.0 | 2800 |
| 500 (37) | 0.789 | 1.725 | 445 | 1.805 | 110 | 2.125 | 3092 | 25.5 | 4000 |
| 750 (61) | 0.968 | 1.914 | 445 | 1.994 | 110 | 2.314 | 4072 | 27.8 | 6000 |
| 1000 (61) | 1.117 | 2.063 | 445 | 2.143 | 110 | 2.463 | 5004 | 29.6 | 8000 |

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
* Pulling tension based on pulling eye directly connected to conductor

## Table 2 – Electrical and Engineering Data

| Cond. Size | DC Resistance @ 25°C | AC Resistance @ 90°C | Capacitive Reactance @ 60Hz | Inductive Reactance @ 60Hz | Charging Current | Dielectric Loss | Zero Sequence Impedance | Positive Sequence Impedance | Short Circuit Current @ 30 Cycle |
|---|---|---|---|---|---|---|---|---|---|
| AWG/ Kcmil | Ω/1000ft | Ω/1000ft | MΩ*1000ft | Ω/1000ft | A/1000ft | W/1000ft | Ω/1000ft | Ω/1000ft | Amp |
| 350 (37) | 0.031 | 0.041 | 0.060 | 0.047 | 0.255 | 6.77 | 0.095 + j0.718 | 0.041 + j0.047 | 4702 |
| 500 (37) | 0.022 | 0.030 | 0.053 | 0.044 | 0.288 | 7.65 | 0.084 + j0.711 | 0.030 + j0.045 | 5057 |
| 750 (61) | 0.014 | 0.023 | 0.046 | 0.042 | 0.330 | 8.76 | 0.077 + j0.702 | 0.023 + j0.042 | 5581 |
| 1000 (61) | 0.011 | 0.019 | 0.041 | 0.040 | 0.367 | 9.75 | 0.073 + j0.696 | 0.019 + j0.040 | 5994 |

*Ampacities for Direct Buried are based on ICEA P-117-734-2016 Single-Conductor Solid Dielectric 15-35kV. Single Circuit Flat Direct Buried Figure 3
*Ampacities for Duct are based on ICEA P-117-734-2016 for Single-Conductor Solid Dielectric 15-35kV. Single Circuit Trefoil Conduit Figure 7.
*Sequence Impedance values are based on Rho Earth Resistivity: 100 Ohm-Meter/1000ft.

## Table 3 – Weights and Measurements (Metric)

| Cond. Size | Diameter Over Conductor | Diameter Over Insulation | Insul. Thickness | Diameter Over Insulation Shield | Jacket Thickness | Approx. OD | Approx. Weight | Min Bending Radius | Max Pull Tension |
|---|---|---|---|---|---|---|---|---|---|
| AWG/ Kcmil | mm | mm | mm | mm | mm | mm | kg/km | mm | newton |
| 350 (37) | 16.79 | 40.56 | 11.30 | 42.60 | 2.79 | 50.72 | 3710 | 609.60 | 12460 |
| 500 (37) | 20.04 | 43.82 | 11.30 | 45.85 | 2.79 | 53.97 | 4601 | 647.70 | 17800 |
| 750 (61) | 24.59 | 48.62 | 11.30 | 50.65 | 2.79 | 58.78 | 6060 | 706.12 | 26700 |
| 1000 (61) | 28.37 | 52.40 | 11.30 | 54.43 | 2.79 | 62.56 | 7447 | 751.84 | 35600 |

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
* Pulling tension based on pulling eye directly connected to conductor


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## Table 4 – Electrical and Engineering Data (Metric)

| Cond. Size | DC Resistance @ 25°C | AC Resistance @ 90°C | Capacitive Reactance @ 60Hz | Inductive Reactance @ 60Hz | Charging Current | Dielectric Loss | Zero Sequence Impedance* | Positive Sequence Impedance* | Short Circuit Current @ 30 Cycle |
|---|---|---|---|---|---|---|---|---|---|
| AWG/ Kcmil | Ω/km | Ω/km | MΩ*km | Ω/km | A/km | W/km | Ω/1000ft | Ω/1000ft | Amp |
| 350 (37) | 0.1017 | 0.13 | 0.0183 | 0.1542 | 0.837 | 22.2113 | 0.095 + j0.718 | 0.041 + j0.047 | 4702 |
| 500 (37) | 0.0722 | 0.10 | 0.0162 | 0.1444 | 0.945 | 25.0984 | 0.084 + j0.711 | 0.030 + j0.045 | 5057 |
| 750 (61) | 0.0459 | 0.08 | 0.0140 | 0.1378 | 1.083 | 28.7402 | 0.077 + j0.702 | 0.023 + j0.042 | 5581 |
| 1000 (61) | 0.0361 | 0.06 | 0.0125 | 0.1312 | 1.204 | 31.9882 | 0.073 + j0.696 | 0.019 + j0.040 | 5994 |

*Ampacities for Direct Buried are based on ICEA P-117-734-2016 Single-Conductor Solid Dielectric 15-35kV. Single Circuit Flat Direct Buried Figure 3
*Ampacities for Duct are based on ICEA P-117-734-2016 for Single-Conductor Solid Dielectric 15-35kV. Single Circuit Trefoil Conduit Figure 7.
*Sequence Impedance values are based on Rho Earth Resistivity: 100 Ohm-Meter/1000ft.