46kV CU 100% TRXLPE One-Third Neutral LLDPE

Single Conductor, 445 Mils Tree Retardant Cross Linked Polyethylene, 100% Insulation Level, One-third Concentric Neutral, 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. **Concentric Neutral:** Helically applied soft drawn bare copper one-third concentric neutral
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-94-649 Standard for Concentric Neutral Cables Rated 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

Table 1 – Weights and Measurements

Cond. Size	Diameter Over Conductor	Diameter Over Insulation	Insul. Thickness	Diameter Over Insulation Shield	Concentric Neutral	Neutral DC Resistance 25°C	Jacket Thickness	Approx. OD	Approx. Weight	Min Bending Radius	Max Pull Tension
AWG/ Kcmil	inch	inch	mil	inch	No. x AWG	Ω /1000ft	mil	inch	lb / 1000ft	inch	lb
4/0 (19)	0.512	1.440	445	1.550	18x14	0.146	75	1.828	2028	14.6	1692
250 (37)	0.558	1.494	445	1.604	21x14	0.125	75	1.882	2244	15.1	2000
350 (37)	0.661	1.597	445	1.737	29x14	0.090	75	2.015	2810	16.1	2800
500 (37)	0.789	1.725	445	1.865	26x12	0.063	75	2.177	3558	17.4	4000
750 (61)	0.968	1.914	445	2.054	25x10	0.041	75	2.408	4829	19.3	6000
1000 (61)	1.117	2.063	445	2.223	32x10	0.032	75	2.577	6026	20.6	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	Allowable Ampacity in Duct 90°C
AWG/ Kcmil	Ω/1000ft	Ω/1000ft	MΩ*1000ft	Ω/1000ft	A/1000ft	W/1000ft	Ω/1000ft	Ω/1000ft	Amp	Amp
4/0 (19)	0.051	0.065	0.070	0.051	0.218	5.79	0.119 + j0.728	0.065 + j0.051	6277	300
250 (37)	0.043	0.056	0.067	0.050	0.229	6.08	0.110 + j0.725	0.056 + j0.050	7323	
350 (37)	0.031	0.041	0.060	0.047	0.255	6.77	0.095 + j0.718	0.041 + j0.047	10113	400
500 (37)	0.022	0.030	0.053	0.045	0.288	7.65	0.084 + j0.710	0.030 + j0.045	14406	470
750 (61)	0.014	0.023	0.046	0.043	0.330	8.76	0.077 + j0.700	0.023 + j0.043	22019	560
1000 (61)	0.011	0.019	0.041	0.041	0.367	9.75	0.073 + j0.694	0.019 + j0.041	28184	

*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	Concentric Neutral	Neutral DC Resistance 25°C	Jacket Thickness	Approx. OD	Approx. Weight	Min Bending Radius	Max Pull Tension
AWG/ Kcmil	mm	mm	mm	mm	No. x AWG	Ω/km	mm	mm	kg/km	mm	newton
4/0 (19)	13.00	36.58	11.30	39.37	18x14	0.48	1.91	46.43	3018	370.84	7529
250 (37)	14.17	37.95	11.30	40.74	21x14	0.41	1.91	47.80	3339	383.54	8900
350 (37)	16.79	40.56	11.30	44.12	29x14	0.30	1.91	51.18	4182	408.94	12460
500 (37)	20.04	43.82	11.30	47.37	26x12	0.21	1.91	55.30	5295	441.96	17800
750 (61)	24.59	48.62	11.30	52.17	25x10	0.13	1.91	61.16	7186	490.22	26700
1000 (61)	28.37	52.40	11.30	56.46	32x10	0.10	1.91	65.46	8968	523.24	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

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	Allowable Ampacity in Duct 90°C
AWG/ Kcmil	Ω/km	Ω/km	MΩ*km	Ω/km	A/km	W/km	Ω/1000ft	Ω/1000ft	Amp	Amp
4/0 (19)	0.1673	0.21	0.0213	0.1673	0.715	18.9961	0.119 + j0.728	0.065 + j0.051	6277	300
250 (37)	0.1411	0.18	0.0204	0.1640	0.751	19.9475	0.110 + j0.725	0.056 + j0.050	7323	
350 (37)	0.1017	0.13	0.0183	0.1542	0.837	22.2113	0.095 + j0.718	0.041 + j0.047	10113	400
500 (37)	0.0722	0.10	0.0162	0.1476	0.945	25.0984	0.084 + j0.710	0.030 + j0.045	14406	470
750 (61)	0.0459	0.08	0.0140	0.1411	1.083	28.7402	0.077 + j0.700	0.023 + j0.043	22019	560
1000 (61)	0.0361	0.06	0.0125	0.1345	1.204	31.9882	0.073 + j0.694	0.019 + j0.041	28184	

*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.

CN Calculator