

HVTECK AL 1/C 175TRXLPE TS PVC AIA PVC 15kV 100% CSA

Single Conductor, 175 Mils Tree Retardant Cross Linked Polyethylene, 100% Insulation Level, Tape Shield, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

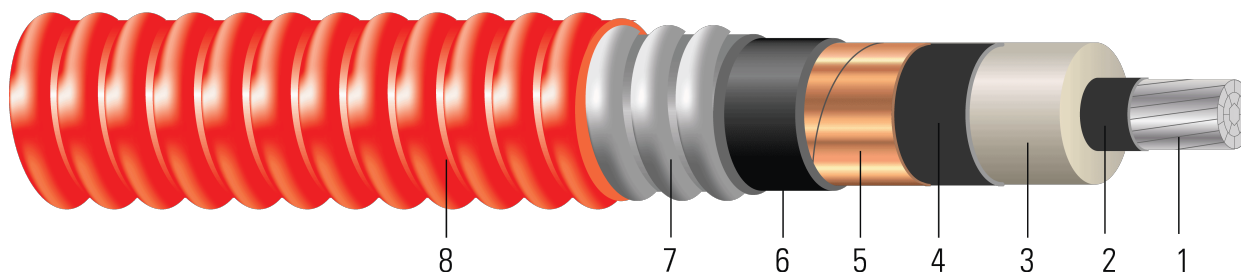


Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

1. **Conductor:** Class B compact stranded 8000 Series aluminum per ASTM B800 and ASTM B836
2. **Conductor Shield:** Semi-conducting cross-linked copolymer; A conductor separator is used for cable size larger than or equal to 500 Kcmil
3. **Insulation:** 175 Mils Tree Retardant Cross Linked Polyethylene 100% insulation level
4. **Insulation Shield:** Strippable semi-conducting cross-linked copolymer
5. **Copper Tape Shield:** Helically wrapped 5 mil copper tape with 25% overlap
6. **Inner Jacket:** PVC inner jacket
7. **Armour:** Aluminum Interlocked Armour (AIA)
8. **Overall Jacket:** Red Polyvinyl Chloride (PVC) Jacket

APPLICATIONS AND FEATURES:

Southwire's 15kV HVTECK is a CSA armoured cable for industrial and commercial medium voltage applications. Rated FT4, -40°C, Hazardous Locations (HL). These cables are capable of operating continuously at the conductor temperature not in excess of 105°C for normal operation, 140°C for emergency overload, and 250°C for short circuit conditions. Rated for 1000 lbs /FT maximum sidewall pressure. These cables feature sunlight and moisture resistance, exceptional corona resistance, resistance to most chemical soils and acids and are flame retardant.

SPECIFICATIONS:

- ASTM B801 Concentric-Lay-Stranded Conductors of 8000 Series Aluminum Alloy
- ASTM B836 Compact Rounded Stranded Aluminum Conductors
- CSA C22.2 No. 174 Cables in Hazardous Locations
- CSA C22.2 No. 2556 & No. 0.3 Wire and Cable Test Methods
- CSA C68.10 Shielded Power Cables for Commercial and Industrial Applications - 5 to 46 KV
- CSA C68.3 Shielded & Concentric Neutral Power Cable - 5 to 46 kV
- CSA LTGG [-40°C] - as per C68.10 - for Cold Bend and Impact rating
- CSA HL - for Hazardous Locations rating
- CSA SUN RES - for Sunlight Resistant rating
- ICEA S-93-639 (NEMA WC 74) 5-46 KV Shielded Power Cable
- ICEA T-29-520 Flame Test (210,000 BTU/Hr)
- IEEE 383 Flame Test (70,000 btu)
- IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test (1/0 and Larger)



- FT1 Flame Test (1,706 BTU/Hr nominal - Vertical Wire Flame Test)
- AEIC CS-8 Specification for extruded dielectric shielded power cables rated for 5 through 46KV

SAMPLE PRINT LEGEND:

(CSA) SOUTHWIRE (NESC) #P# 1/C [#AWG or #kcmil] CPT AL 175 TRXLPE AIA 15kV 100% INS LEVEL 25% TS SUN RES 105° C FT4 HL (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

Table 1 – Weights and Measurements

| Cond. Size | Strand | Diameter Over Conductor | Diameter Over Insulation | Insul. Thickness | Diameter Over Insulation Shield | Inner Jacket Thickness | Dia. Over Armour | Overall Jacket Thickness | Approx. OD | Approx. Weight |
|---------------|--------|-------------------------|--------------------------|------------------|---------------------------------|------------------------|------------------|--------------------------|------------|----------------|
| AWG/ Kcmil | No. | inch | inch | mil | inch | mil | inch | mil | inch | lb/1000ft |
| 2 | 7 | 0.268 | 0.656 | 175 | 0.716 | 80 | 1.118 | 50 | 1.218 | 691 |
| 1 | 19 | 0.298 | 0.686 | 175 | 0.746 | 80 | 1.148 | 50 | 1.248 | 732 |
| 1/0 | 19 | 0.336 | 0.724 | 175 | 0.784 | 80 | 1.186 | 50 | 1.286 | 787 |
| 2/0 | 19 | 0.376 | 0.764 | 175 | 0.824 | 80 | 1.336 | 50 | 1.436 | 858 |
| 3/0 | 19 | 0.422 | 0.810 | 175 | 0.870 | 80 | 1.382 | 50 | 1.482 | 930 |
| 4/0 | 19 | 0.474 | 0.862 | 175 | 0.922 | 80 | 1.434 | 50 | 1.534 | 1016 |
| 250 | 37 | 0.520 | 0.916 | 175 | 0.976 | 80 | 1.488 | 50 | 1.588 | 1103 |
| 350 | 37 | 0.615 | 1.011 | 175 | 1.071 | 80 | 1.583 | 60 | 1.703 | 1312 |
| 500 | 37 | 0.735 | 1.131 | 175 | 1.191 | 80 | 1.727 | 60 | 1.847 | 1596 |
| 750 | 61 | 0.908 | 1.314 | 175 | 1.374 | 80 | 1.910 | 60 | 2.030 | 2099 |
| 1000 | 61 | 1.060 | 1.466 | 175 | 1.526 | 110 | 2.122 | 60 | 2.242 | 2605 |

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

* Strand count meets minimum number per ASTM



Table 2 – Electrical and Engineering Data

| Cond. Size | Min Bending Radius | Max Pull Tension | DC Resistance @ 25°C | AC Resistance @ 90°C | Capacitive Reactance @ 60Hz | Inductive Reactance @ 60Hz | Zero Sequence Impedance* | Positive Sequence Impedance* | Phase Short Circuit Current @ 60Hz | Allowable Ampacity In Air 90°C | Allowable Ampacity Directly Buried 90°C |
|------------|--------------------|------------------|----------------------|----------------------|-----------------------------|----------------------------|--------------------------|------------------------------|------------------------------------|--------------------------------|---|
| AWG/Kcmil | inch | lb | Ω/1000ft | Ω/1000ft | MΩ/1000ft | Ω/1000ft | Ω/1000ft | Ω/1000ft | Amp | Amp | Amp |
| 2 | 8.5 | 398 | 0.267 | 0.336 | 0.060 | 0.057 | 0.697 + j0.466 | 0.337 + j0.056 | 2218 | 169 | 176 |
| 1 | 8.7 | 502 | 0.211 | 0.266 | 0.056 | 0.055 | 0.629 + j0.449 | 0.267 + j0.053 | 2311 | 194 | 198 |
| 1/0 | 9.0 | 633 | 0.168 | 0.211 | 0.052 | 0.053 | 0.574 + j0.431 | 0.212 + j0.051 | 2429 | 222 | 223 |
| 2/0 | 10.0 | 798 | 0.133 | 0.167 | 0.048 | 0.053 | 0.529 + j0.412 | 0.168 + j0.051 | 2552 | 255 | 250 |
| 3/0 | 10.3 | 1006 | 0.105 | 0.133 | 0.044 | 0.051 | 0.494 + j0.392 | 0.134 + j0.049 | 2695 | 290 | 278 |
| 4/0 | 10.7 | 1269 | 0.084 | 0.105 | 0.040 | 0.049 | 0.465 + j0.371 | 0.106 + j0.047 | 2856 | 329 | 309 |
| 250 | 11.1 | 1500 | 0.071 | 0.090 | 0.038 | 0.047 | 0.447 + j0.351 | 0.091 + j0.046 | 3024 | 370 | 347 |
| 350 | 11.9 | 2100 | 0.050 | 0.065 | 0.033 | 0.045 | 0.417 + j0.319 | 0.066 + j0.043 | 3318 | 446 | 402 |
| 500 | 12.9 | 3000 | 0.035 | 0.046 | 0.029 | 0.043 | 0.388 + j0.283 | 0.047 + j0.041 | 3689 | 533 | 451 |
| 750 | 14.2 | 4500 | 0.024 | 0.033 | 0.025 | 0.040 | 0.359 + j0.239 | 0.034 + j0.039 | 4257 | 631 | 500 |
| 1000 | 15.6 | 6000 | 0.018 | 0.026 | 0.022 | 0.039 | 0.338 + j0.21 | 0.027 + j0.038 | 4728 | 707 | 539 |

* Inductive impedance is based on non-ferrous conduit with one diameter spacing.

Table 3 – Weights and Measurements (Metric)

| Cond. Size | Strand | Diameter Over Conductor | Diameter Over Insulation | Insul. Thickness | Diameter Over Insulation Shield | Inner Jacket Thickness | Dia. Over Armour | Overall Jacket Thickness | Approx. OD | Approx. Weight |
|------------|--------|-------------------------|--------------------------|------------------|---------------------------------|------------------------|------------------|--------------------------|------------|----------------|
| AWG/Kcmil | No. | mm | mm | mm | mm | mm | mm | mm | mm | kg/km |
| 2 | 7 | 6.81 | 16.66 | 4.44 | 18.19 | 2.03 | 28.40 | 1.27 | 30.94 | 1028 |
| 1 | 19 | 7.57 | 17.42 | 4.44 | 18.95 | 2.03 | 29.16 | 1.27 | 31.70 | 1089 |
| 1/0 | 19 | 8.53 | 18.39 | 4.44 | 19.91 | 2.03 | 30.12 | 1.27 | 32.66 | 1171 |
| 2/0 | 19 | 9.55 | 19.41 | 4.44 | 20.93 | 2.03 | 33.93 | 1.27 | 36.47 | 1277 |
| 3/0 | 19 | 10.72 | 20.57 | 4.44 | 22.10 | 2.03 | 35.10 | 1.27 | 37.64 | 1384 |
| 4/0 | 19 | 12.04 | 21.89 | 4.44 | 23.42 | 2.03 | 36.42 | 1.27 | 38.96 | 1512 |
| 250 | 37 | 13.21 | 23.27 | 4.44 | 24.79 | 2.03 | 37.80 | 1.27 | 40.34 | 1641 |
| 350 | 37 | 15.62 | 25.68 | 4.44 | 27.20 | 2.03 | 40.21 | 1.52 | 43.26 | 1952 |
| 500 | 37 | 18.67 | 28.73 | 4.44 | 30.25 | 2.03 | 43.87 | 1.52 | 46.91 | 2375 |
| 750 | 61 | 23.06 | 33.38 | 4.44 | 34.90 | 2.03 | 48.51 | 1.52 | 51.56 | 3124 |
| 1000 | 61 | 26.92 | 37.24 | 4.44 | 38.76 | 2.79 | 53.90 | 1.52 | 56.95 | 3877 |

All dimensions are nominal and subject to normal manufacturing tolerances

◇ Cable marked with this symbol is a standard stock item

* Strand count meets minimum number per ASTM



Table 4 – Electrical and Engineering Data (Metric)

| Cond. Size | Min Bending Radius | Max Pull Tension | DC Resistance @ 25°C | AC Resistance @ 90°C | Capacitive Reactance @ 60Hz | Inductive Reactance @ 60Hz | Zero Sequence Impedance* | Positive Sequence Impedance* | Phase Short Circuit Current @ 60Hz | Allowable Ampacity In Air 90°C | Allowable Ampacity Directly Buried 90°C |
|------------|--------------------|------------------|----------------------|----------------------|-----------------------------|----------------------------|--------------------------|------------------------------|------------------------------------|--------------------------------|---|
| AWG/Kcmil | mm | newton | Ω/km | Ω/km | MΩ/km | Ω/km | Ω/1000ft | Ω/1000ft | Amp | Amp | Amp |
| 2 | 215.90 | 1771 | 0.8760 | 1.10 | 0.0183 | 0.1870 | 0.697 + j0.466 | 0.337 + j0.056 | 2218 | 169 | 176 |
| 1 | 220.98 | 2234 | 0.6923 | 0.87 | 0.0171 | 0.1804 | 0.629 + j0.449 | 0.267 + j0.053 | 2311 | 194 | 198 |
| 1/0 | 228.60 | 2817 | 0.5512 | 0.69 | 0.0158 | 0.1739 | 0.574 + j0.431 | 0.212 + j0.051 | 2429 | 222 | 223 |
| 2/0 | 254.00 | 3551 | 0.4364 | 0.55 | 0.0146 | 0.1739 | 0.529 + j0.412 | 0.168 + j0.051 | 2552 | 255 | 250 |
| 3/0 | 261.62 | 4477 | 0.3445 | 0.44 | 0.0134 | 0.1673 | 0.494 + j0.392 | 0.134 + j0.049 | 2695 | 290 | 278 |
| 4/0 | 271.78 | 5647 | 0.2756 | 0.34 | 0.0122 | 0.1608 | 0.465 + j0.371 | 0.106 + j0.047 | 2856 | 329 | 309 |
| 250 | 281.94 | 6675 | 0.2329 | 0.30 | 0.0116 | 0.1542 | 0.447 + j0.351 | 0.091 + j0.046 | 3024 | 370 | 347 |
| 350 | 302.26 | 9345 | 0.1640 | 0.21 | 0.0101 | 0.1476 | 0.417 + j0.319 | 0.066 + j0.043 | 3318 | 446 | 402 |
| 500 | 327.66 | 13350 | 0.1148 | 0.15 | 0.0088 | 0.1411 | 0.388 + j0.283 | 0.047 + j0.041 | 3689 | 533 | 451 |
| 750 | 360.68 | 20025 | 0.0787 | 0.11 | 0.0076 | 0.1312 | 0.359 + j0.239 | 0.034 + j0.039 | 4257 | 631 | 500 |
| 1000 | 396.24 | 26700 | 0.0591 | 0.09 | 0.0067 | 0.1280 | 0.338 + j0.21 | 0.027 + j0.038 | 4728 | 707 | 539 |

* Inductive impedance is based on non-ferrous conduit with one diameter spacing.

