



HVTECK AL 3/C 175NLEPR TS PVC AIA PVC 15kV 100% CSA

3 Conductor, 175 Mils No Lead Ethylene Propylene Rubber (NL-EPR), 100% Insulation Level, Tape Shield, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

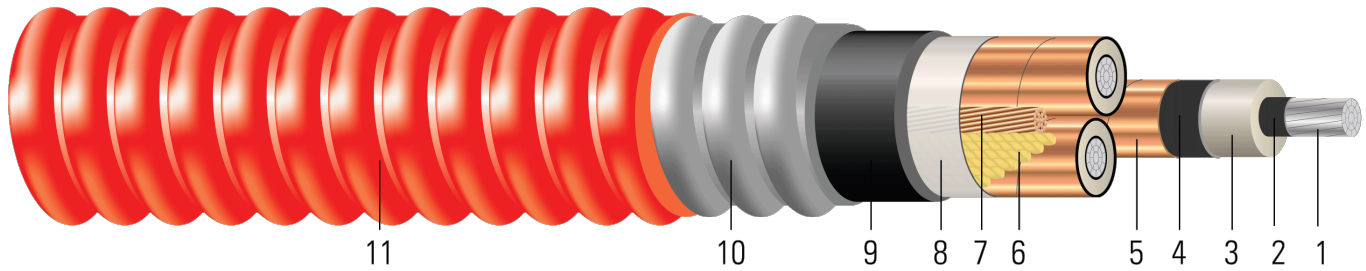


Image not to scale. See Table 1 for dimensions.

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 No Lead Ethylene Propylene Rubber (NL-EPR) 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. **Filler:** Interstices filled with non-hydroscoping/non-wicking fillers
7. **Grounding Conductor:** Class B compressed stranded bare copper ground per ASTM B3 and ASTM B8
8. **Binder:** Polypropylene tape
9. **Inner Jacket:** PVC inner jacket
10. **Armour:** Aluminum Interlocked Armour (AIA)
11. **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
- 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 (Qualification Test Requirements)

SAMPLE PRINT LEGEND:

(CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CPT AL 175 NLEPR 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

| Stock Number | Cond. Size | Strand | Diameter Over Conductor | Diameter Over Insulation | Insul. Thickness | Diameter Over Insulation Shield | Ground Size | Inner Jacket Thickness | Dia. Over Armour | Overall Jacket Thickness | Approx. OD | Approx. Weight |
|---------------------|---------------|--------|-------------------------|--------------------------|------------------|---------------------------------|-------------|------------------------|------------------|--------------------------|------------|----------------|
| | AWG/ Kcmil | No. | inch | inch | mil | inch | AWG | mil | inch | mil | inch | lb/1000ft |
| TBA | 2 | 7 | 0.268 | 0.656 | 175 | 0.716 | 8 | 110 | 2.166 | 60 | 2.286 | 1998 |
| TBA | 1 | 19 | 0.298 | 0.686 | 175 | 0.746 | 6 | 110 | 2.231 | 60 | 2.351 | 2141 |
| TBA | 1/0 | 19 | 0.336 | 0.724 | 175 | 0.784 | 6 | 110 | 2.313 | 75 | 2.463 | 2382 |
| TBA | 2/0 | 19 | 0.376 | 0.764 | 175 | 0.824 | 6 | 110 | 2.399 | 75 | 2.549 | 2574 |
| TBA | 3/0 | 19 | 0.422 | 0.810 | 175 | 0.870 | 6 | 110 | 2.498 | 75 | 2.648 | 2807 |
| 578144 [^] | 4/0 | 18 | 0.474 | 0.863 | 175 | 0.923 | 6 | 110 | 2.607 | 60 | 2.727 | 3356 |
| 578135 [^] | 250 | 35 | 0.520 | 0.916 | 175 | 0.976 | 4 | 110 | 2.721 | 60 | 2.841 | 3856 |
| TBA | 350 | 37 | 0.615 | 1.011 | 175 | 1.071 | 4 | 110 | 2.933 | 75 | 3.083 | 3944 |
| TBA | 500 | 37 | 0.735 | 1.131 | 175 | 1.191 | 3 | 125 | 3.222 | 85 | 3.392 | 4911 |
| 578149 [^] | 750 | 58 | 0.908 | 1.326 | 175 | 1.406 | 2 | 125 | 3.700 | 70 | 3.840 | 6668 |

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 @ 6 Cycles | 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 | 16.0 | 1194 | 0.267 | 0.336 | 0.043 | 0.045 | 0.711 + j0.465 | 0.336 + j0.045 | 2249 | 135 | 157 |
| 1 | 16.5 | 1506 | 0.211 | 0.266 | 0.040 | 0.043 | 0.642 + j0.448 | 0.266 + j0.042 | 2342 | 154 | 178 |
| 1/0 | 17.2 | 1900 | 0.168 | 0.211 | 0.037 | 0.042 | 0.586 + j0.429 | 0.211 + j0.040 | 2459 | 176 | 202 |
| 2/0 | 17.8 | 2395 | 0.133 | 0.167 | 0.030 | 0.040 | 0.542 + j0.410 | 0.167 + j0.039 | 2584 | 204 | 229 |
| 3/0 | 18.5 | 3020 | 0.105 | 0.133 | 0.030 | 0.039 | 0.506 + j0.390 | 0.133 + j0.037 | 2726 | 234 | 260 |
| 4/0 | 19.1 | 3808 | 0.084 | 0.105 | 0.029 | 0.037 | 0.475 + j0.369 | 0.105 + j0.036 | 2887 | 268 | 294 |
| 250 | 19.9 | 4500 | 0.071 | 0.090 | 0.027 | 0.037 | 0.457 + j0.348 | 0.090 + j0.035 | 3054 | 296 | 323 |
| 350 | 21.6 | 6300 | 0.050 | 0.065 | 0.020 | 0.030 | 0.425 + j0.316 | 0.065 + j0.033 | 3349 | 363 | 386 |
| 500 | 23.7 | 9000 | 0.035 | 0.046 | 0.020 | 0.030 | 0.395 + j0.280 | 0.046 + j0.032 | 3721 | 447 | 465 |
| 750 | 26.9 | 13500 | 0.024 | 0.033 | 0.018 | 0.032 | 0.364 + j0.236 | 0.034 + j0.030 | 4288 | 566 | 563 |

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

* CEC ampacities are based on:

3/C in air copper and aluminum: D17N

3/C direct buried copper and aluminum: D17E

Table 3 – Weights and Measurements (Metric)

| Stock Number | Cond. Size | Strand | Diameter Over Conductor | Diameter Over Insulation | Insul. Thickness | Diameter Over Insulation Shield | Ground Size | Inner Jacket Thickness | Dia. Over Armour | Overall Jacket Thickness | Approx. OD | Approx. Weight |
|---------------------|------------|--------|-------------------------|--------------------------|------------------|---------------------------------|-------------|------------------------|------------------|--------------------------|------------|----------------|
| | AWG/Kcmil | No. | mm | mm | mm | mm | AWG | mm | mm | mm | mm | kg/km |
| TBA | 2 | 7 | 6.81 | 16.66 | 4.44 | 18.19 | 8 | 2.79 | 55.02 | 1.52 | 58.06 | 2973 |
| TBA | 1 | 19 | 7.57 | 17.42 | 4.44 | 18.95 | 6 | 2.79 | 56.67 | 1.52 | 59.72 | 3186 |
| TBA | 1/0 | 19 | 8.53 | 18.39 | 4.44 | 19.91 | 6 | 2.79 | 58.75 | 1.91 | 62.56 | 3545 |
| TBA | 2/0 | 19 | 9.55 | 19.41 | 4.44 | 20.93 | 6 | 2.79 | 60.93 | 1.91 | 64.74 | 3831 |
| TBA | 3/0 | 19 | 10.72 | 20.57 | 4.44 | 22.10 | 6 | 2.79 | 63.45 | 1.91 | 67.26 | 4177 |
| 578144 [^] | 4/0 | 18 | 12.04 | 21.92 | 4.44 | 23.44 | 6 | 2.79 | 66.22 | 1.52 | 69.27 | 4994 |
| 578135 [^] | 250 | 35 | 13.21 | 23.27 | 4.44 | 24.79 | 4 | 2.79 | 69.11 | 1.52 | 72.16 | 5738 |
| TBA | 350 | 37 | 15.62 | 25.68 | 4.44 | 27.20 | 4 | 2.79 | 74.50 | 1.91 | 78.31 | 5869 |
| TBA | 500 | 37 | 18.67 | 28.73 | 4.44 | 30.25 | 3 | 3.18 | 81.84 | 2.16 | 86.16 | 7308 |
| 578149 [^] | 750 | 58 | 23.06 | 33.68 | 4.44 | 35.71 | 2 | 3.18 | 93.98 | 1.78 | 97.54 | 9923 |

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 @ 6 Cycles | 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 | 406.40 | 5313 | 0.8760 | 1.10 | 0.0131 | 0.1476 | 0.711 + j0.465 | 0.336 + j0.045 | 2249 | 135 | 157 |
| 1 | 419.10 | 6702 | 0.6923 | 0.87 | 0.0122 | 0.1411 | 0.642 + j0.448 | 0.266 + j0.042 | 2342 | 154 | 178 |
| 1/0 | 436.88 | 8455 | 0.5512 | 0.69 | 0.0113 | 0.1378 | 0.586 + j0.429 | 0.211 + j0.040 | 2459 | 176 | 202 |
| 2/0 | 452.12 | 10658 | 0.4364 | 0.55 | 0.0091 | 0.1312 | 0.542 + j0.410 | 0.167 + j0.039 | 2584 | 204 | 229 |
| 3/0 | 469.90 | 13439 | 0.3445 | 0.44 | 0.0091 | 0.1280 | 0.506 + j0.390 | 0.133 + j0.037 | 2726 | 234 | 260 |
| 4/0 | 485.14 | 16946 | 0.2756 | 0.34 | 0.0088 | 0.1214 | 0.475 + j0.369 | 0.105 + j0.036 | 2887 | 268 | 294 |
| 250 | 505.46 | 20025 | 0.2329 | 0.30 | 0.0082 | 0.1214 | 0.457 + j0.348 | 0.090 + j0.035 | 3054 | 296 | 323 |
| 350 | 548.64 | 28035 | 0.1640 | 0.21 | 0.0061 | 0.0984 | 0.425 + j0.316 | 0.065 + j0.033 | 3349 | 363 | 386 |
| 500 | 601.98 | 40050 | 0.1148 | 0.15 | 0.0061 | 0.0984 | 0.395 + j0.280 | 0.046 + j0.032 | 3721 | 447 | 465 |
| 750 | 683.26 | 60075 | 0.0787 | 0.11 | 0.0055 | 0.1050 | 0.364 + j0.236 | 0.034 + j0.030 | 4288 | 566 | 563 |

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

* CEC ampacities are based on:

3/C in air copper and aluminum: D17N

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