



HVTECK AL 3/C 115NLEPR TS PVC AIA PVC 5kV 133% CSA

3 Conductor, 115 Mils No Lead Ethylene Propylene Rubber (NL-EPR), 133% Insulation Level, Tape Shield, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

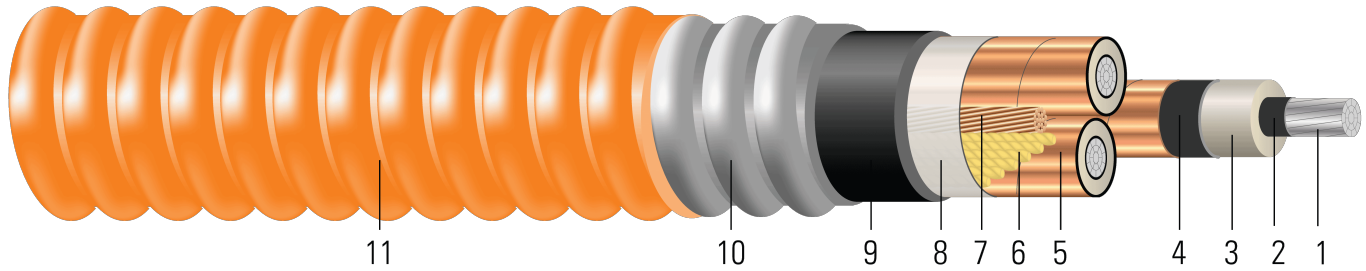


Image not to scale. See Table 1 for dimensions.

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:** 115 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 133% 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:** Orange Polyvinyl Chloride (PVC) Jacket

APPLICATIONS AND FEATURES:

Southwire's 5kV 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 115 NLEPR AIA 5kV 133% 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 | 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 |
| 2 | 7 | 0.268 | 0.536 | 115 | 0.596 | 8 | 80 | 1.847 | 60 | 1.967 | 1499 |
| 1 | 19 | 0.298 | 0.566 | 115 | 0.626 | 6 | 80 | 1.911 | 60 | 2.031 | 1625 |
| 1/0 | 19 | 0.336 | 0.604 | 115 | 0.664 | 6 | 80 | 1.993 | 60 | 2.113 | 1776 |
| 2/0 | 19 | 0.376 | 0.644 | 115 | 0.704 | 6 | 110 | 2.140 | 60 | 2.260 | 2072 |
| 3/0 | 19 | 0.422 | 0.690 | 115 | 0.750 | 6 | 110 | 2.239 | 60 | 2.359 | 2284 |
| 4/0 | 19 | 0.474 | 0.742 | 115 | 0.802 | 6 | 110 | 2.352 | 75 | 2.502 | 2613 |
| 250 | 37 | 0.520 | 0.796 | 115 | 0.856 | 4 | 110 | 2.468 | 75 | 2.618 | 2886 |
| 350 | 37 | 0.615 | 0.891 | 115 | 0.951 | 4 | 110 | 2.673 | 75 | 2.823 | 3419 |
| 500 | 37 | 0.735 | 1.011 | 115 | 1.071 | 3 | 110 | 2.933 | 75 | 3.083 | 4185 |
| 750 | 61 | 0.908 | 1.194 | 115 | 1.254 | 2 | 125 | 3.358 | 85 | 3.528 | 5606 |
| 1000 | 61 | 1.060 | 1.346 | 115 | 1.406 | 2 | 125 | 3.686 | 85 | 3.856 | 6770 |

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

TBA stock codes are estimations only and actual product may vary. Please wait until a stock code is assigned to purchase connectors and/or fittings.





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 | 13.8 | 1194 | 0.267 | 0.336 | 0.030 | 0.041 | 0.705 + j0.524 | 0.336 + j0.041 | 1877 | 135 | 157 |
| 1 | 14.2 | 1506 | 0.211 | 0.266 | 0.030 | 0.039 | 0.637 + j0.504 | 0.266 + j0.038 | 1970 | 154 | 178 |
| 1/0 | 14.8 | 1900 | 0.168 | 0.211 | 0.030 | 0.038 | 0.584 + j0.483 | 0.211 + j0.037 | 2088 | 176 | 202 |
| 2/0 | 15.8 | 2395 | 0.133 | 0.167 | 0.030 | 0.037 | 0.542 + j0.462 | 0.167 + j0.035 | 2212 | 204 | 229 |
| 3/0 | 16.5 | 3020 | 0.105 | 0.133 | 0.020 | 0.035 | 0.509 + j0.438 | 0.133 + j0.034 | 2354 | 234 | 260 |
| 4/0 | 17.5 | 3808 | 0.084 | 0.105 | 0.020 | 0.030 | 0.548 + j0.414 | 0.105 + j0.033 | 2515 | 268 | 294 |
| 250 | 18.3 | 4500 | 0.071 | 0.090 | 0.020 | 0.030 | 0.464 + j0.390 | 0.090 + j0.032 | 2683 | 296 | 323 |
| 350 | 19.8 | 6300 | 0.050 | 0.065 | 0.020 | 0.030 | 0.434 + j0.353 | 0.065 + j0.031 | 2977 | 363 | 386 |
| 500 | 21.6 | 9000 | 0.035 | 0.046 | 0.014 | 0.030 | 0.406 + j0.312 | 0.046 + j0.029 | 3349 | 447 | 465 |
| 750 | 24.7 | 13500 | 0.020 | 0.030 | 0.012 | 0.030 | 0.376 + j0.261 | 0.033 + j0.028 | 3916 | 566 | 563 |
| 1000 | 27.0 | 18000 | 0.020 | 0.030 | 0.011 | 0.030 | 0.354 + j0.227 | 0.027 + j0.027 | 4387 | 661 | 638 |

* 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)

| 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 |
| 2 | 7 | 6.81 | 13.61 | 2.92 | 15.14 | 8 | 2.03 | 46.91 | 1.52 | 49.96 | 2231 |
| 1 | 19 | 7.57 | 14.38 | 2.92 | 15.90 | 6 | 2.03 | 48.54 | 1.52 | 51.59 | 2418 |
| 1/0 | 19 | 8.53 | 15.34 | 2.92 | 16.87 | 6 | 2.03 | 50.62 | 1.52 | 53.67 | 2643 |
| 2/0 | 19 | 9.55 | 16.36 | 2.92 | 17.88 | 6 | 2.79 | 54.36 | 1.52 | 57.40 | 3083 |
| 3/0 | 19 | 10.72 | 17.53 | 2.92 | 19.05 | 6 | 2.79 | 56.87 | 1.52 | 59.92 | 3399 |
| 4/0 | 19 | 12.04 | 18.85 | 2.92 | 20.37 | 6 | 2.79 | 59.74 | 1.91 | 63.55 | 3889 |
| 250 | 37 | 13.21 | 20.22 | 2.92 | 21.74 | 4 | 2.79 | 62.69 | 1.91 | 66.50 | 4295 |
| 350 | 37 | 15.62 | 22.63 | 2.92 | 24.16 | 4 | 2.79 | 67.89 | 1.91 | 71.70 | 5088 |
| 500 | 37 | 18.67 | 25.68 | 2.92 | 27.20 | 3 | 2.79 | 74.50 | 1.91 | 78.31 | 6228 |
| 750 | 61 | 23.06 | 30.33 | 2.92 | 31.85 | 2 | 3.18 | 85.29 | 2.16 | 89.61 | 8343 |
| 1000 | 61 | 26.92 | 34.19 | 2.92 | 35.71 | 2 | 3.18 | 93.62 | 2.16 | 97.94 | 10075 |

All dimensions are nominal and subject to normal manufacturing tolerances





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* Strand count meets minimum number per ASTM

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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 | 350.52 | 5313 | 0.8760 | 1.10 | 0.0091 | 0.1345 | 0.705 + j0.524 | 0.336 + j0.041 | 1877 | 135 | 157 |
| 1 | 360.68 | 6702 | 0.6923 | 0.87 | 0.0091 | 0.1280 | 0.637 + j0.504 | 0.266 + j0.038 | 1970 | 154 | 178 |
| 1/0 | 375.92 | 8455 | 0.5512 | 0.69 | 0.0091 | 0.1247 | 0.584 + j0.483 | 0.211 + j0.037 | 2088 | 176 | 202 |
| 2/0 | 401.32 | 10658 | 0.4364 | 0.55 | 0.0091 | 0.1214 | 0.542 + j0.462 | 0.167 + j0.035 | 2212 | 204 | 229 |
| 3/0 | 419.10 | 13439 | 0.3445 | 0.44 | 0.0061 | 0.1148 | 0.509 + j0.438 | 0.133 + j0.034 | 2354 | 234 | 260 |
| 4/0 | 444.50 | 16946 | 0.2756 | 0.34 | 0.0061 | 0.0984 | 0.548 + j0.414 | 0.105 + j0.033 | 2515 | 268 | 294 |
| 250 | 464.82 | 20025 | 0.2329 | 0.30 | 0.0061 | 0.0984 | 0.464 + j0.390 | 0.090 + j0.032 | 2683 | 296 | 323 |
| 350 | 502.92 | 28035 | 0.1640 | 0.21 | 0.0061 | 0.0984 | 0.434 + j0.353 | 0.065 + j0.031 | 2977 | 363 | 386 |
| 500 | 548.64 | 40050 | 0.1148 | 0.15 | 0.0043 | 0.0984 | 0.406 + j0.312 | 0.046 + j0.029 | 3349 | 447 | 465 |
| 750 | 627.38 | 60075 | 0.0656 | 0.10 | 0.0037 | 0.0984 | 0.376 + j0.261 | 0.033 + j0.028 | 3916 | 566 | 563 |
| 1000 | 685.80 | 80100 | 0.0656 | 0.10 | 0.0034 | 0.0984 | 0.354 + j0.227 | 0.027 + j0.027 | 4387 | 661 | 638 |

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

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