



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

3 Conductor, 115 Mils Tree Retardant Cross Linked Polyethylene, 133% Insulation Level, Tape Shield, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

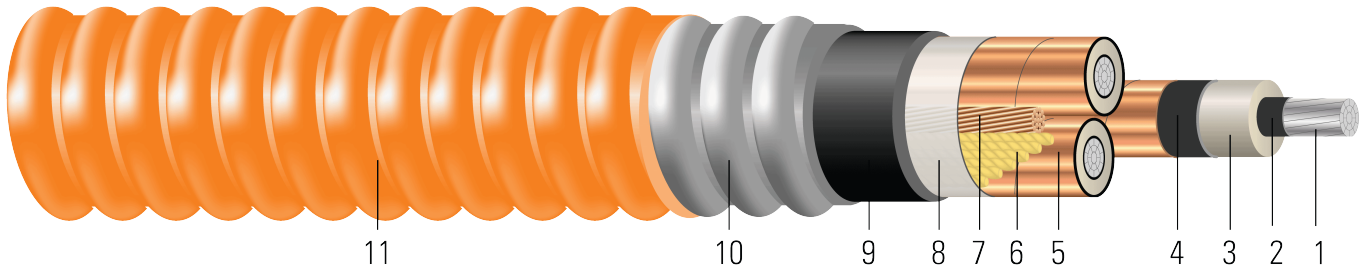


Image not to scale. See Table 1 for dimensions.

### 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 Tree Retardant Cross Linked Polyethylene 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 TRXLPE 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/<br>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





**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                | 0.042                       | 0.041                      | 0.705 + j0.524          | 0.336 + j0.041              | 1877                                   | 135                            | 157                                     |
| 1          | 14.2               | 1506             | 0.211                | 0.266                | 0.039                       | 0.039                      | 0.637 + j0.504          | 0.266 + j0.038              | 1970                                   | 154                            | 178                                     |
| 1/0        | 14.8               | 1900             | 0.168                | 0.211                | 0.036                       | 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                | 0.030                       | 0.035                      | 0.509 + j0.438          | 0.133 + j0.034              | 2354                                   | 234                            | 260                                     |
| 4/0        | 17.5               | 3808             | 0.084                | 0.105                | 0.030                       | 0.030                      | 0.548 + j0.414          | 0.105 + j0.033              | 2515                                   | 268                            | 294                                     |
| 250        | 18.3               | 4500             | 0.071                | 0.090                | 0.030                       | 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                | 0.020                       | 0.030                      | 0.406 + j0.312          | 0.046 + j0.029              | 3349                                   | 447                            | 465                                     |
| 750        | 24.7               | 13500            | 0.020                | 0.030                | 0.020                       | 0.030                      | 0.376 + j0.261          | 0.033 + j0.028              | 3916                                   | 566                            | 563                                     |
| 1000       | 27.0               | 18000            | 0.020                | 0.030                | 0.014                       | 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





◊ 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/<br>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                 | 0.0128                      | 0.1345                     | 0.705 + j0.524          | 0.336 + j0.041              | 1877                                   | 135                            | 157                                     |
| 1             | 360.68             | 6702             | 0.6923               | 0.87                 | 0.0119                      | 0.1280                     | 0.637 + j0.504          | 0.266 + j0.038              | 1970                                   | 154                            | 178                                     |
| 1/0           | 375.92             | 8455             | 0.5512               | 0.69                 | 0.0110                      | 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                 | 0.0091                      | 0.1148                     | 0.509 + j0.438          | 0.133 + j0.034              | 2354                                   | 234                            | 260                                     |
| 4/0           | 444.50             | 16946            | 0.2756               | 0.34                 | 0.0091                      | 0.0984                     | 0.548 + j0.414          | 0.105 + j0.033              | 2515                                   | 268                            | 294                                     |
| 250           | 464.82             | 20025            | 0.2329               | 0.30                 | 0.0091                      | 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                 | 0.0061                      | 0.0984                     | 0.406 + j0.312          | 0.046 + j0.029              | 3349                                   | 447                            | 465                                     |
| 750           | 627.38             | 60075            | 0.0656               | 0.10                 | 0.0061                      | 0.0984                     | 0.376 + j0.261          | 0.033 + j0.028              | 3916                                   | 566                            | 563                                     |
| 1000          | 685.80             | 80100            | 0.0656               | 0.10                 | 0.0043                      | 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.

\* CEC ampacities are based on:

3/C in air copper and aluminum: D17N

3/C direct buried copper and aluminum: D17E

