



# HVTECK AL 3/C 345TRXLPE TS PVC AIA PVC 28kV 133% CSA

3 Conductor, 345 Mils Tree Retardant Cross Linked Polyethylene, 133% Insulation Level, Tape Shield, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

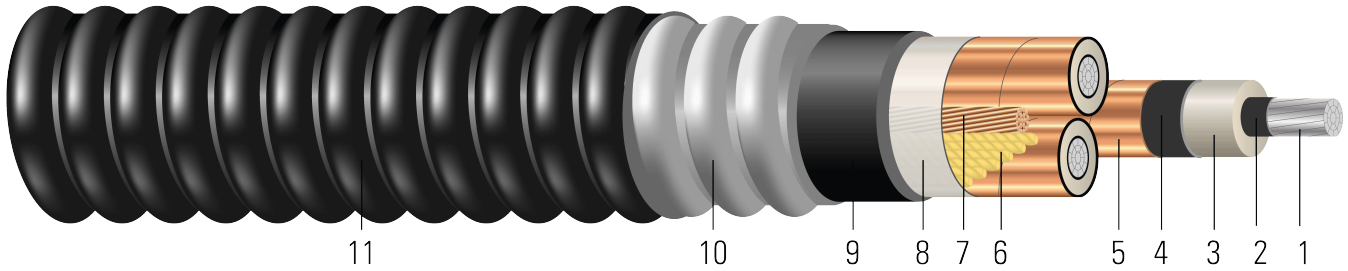


Image not to scale. See Table 1 for dimensions.

## 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:** 345 Mils Tree Retardant Cross Linked Polyethylene 133% insulation level
4. **Insulation Shield:** Strippable semi-conducting cross-linked copolymer
5. **Copper Tape Shield:** Helicallly 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:** Black Polyvinyl Chloride (PVC) Jacket

## APPLICATIONS AND FEATURES:

Southwire's 28kV 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 345 TRXLPE AIA 28kV 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      |
| 1             | 19     | 0.298                   | 1.026                    | 345              | 1.086                           | 6           | 110                    | 2.965            | 75                       | 3.115      | 3599           |
| 1/0           | 19     | 0.336                   | 1.064                    | 345              | 1.124                           | 6           | 110                    | 3.047            | 85                       | 3.217      | 3871           |
| 2/0           | 19     | 0.376                   | 1.104                    | 345              | 1.164                           | 6           | 125                    | 3.163            | 85                       | 3.333      | 4197           |
| 3/0           | 19     | 0.422                   | 1.150                    | 345              | 1.210                           | 6           | 125                    | 3.263            | 85                       | 3.433      | 4483           |
| 4/0           | 19     | 0.474                   | 1.202                    | 345              | 1.262                           | 6           | 125                    | 3.375            | 85                       | 3.545      | 4815           |
| 250           | 37     | 0.520                   | 1.256                    | 345              | 1.316                           | 4           | 125                    | 3.492            | 85                       | 3.662      | 5168           |
| 350           | 37     | 0.615                   | 1.351                    | 345              | 1.411                           | 4           | 125                    | 3.697            | 85                       | 3.867      | 5841           |

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/<br>Kcmil | inch               | lb               | Ω/1000ft             | Ω/1000ft             | MΩ*1000ft                   | Ω/1000ft                   | Ω/1000ft                | Ω/1000ft                    | Amp                                    | Amp                            | Amp                                     |
| 1             | 21.8               | 1506             | 0.211                | 0.266                | 0.079                       | 0.052                      | 0.624 + j0.328          | 0.266 + j0.05               | 3395                                   | 158                            | 177                                     |
| 1/0           | 22.5               | 1900             | 0.168                | 0.211                | 0.074                       | 0.050                      | 0.566 + j0.315          | 0.211 + j0.048              | 3513                                   | 181                            | 200                                     |
| 2/0           | 23.3               | 2395             | 0.133                | 0.167                | 0.069                       | 0.048                      | 0.518 + j0.302          | 0.167 + j0.047              | 3637                                   | 208                            | 228                                     |
| 3/0           | 24.0               | 3020             | 0.105                | 0.133                | 0.065                       | 0.046                      | 0.548 + j0.288          | 0.133 + j0.045              | 3779                                   | 239                            | 258                                     |
| 4/0           | 24.8               | 3808             | 0.084                | 0.105                | 0.060                       | 0.045                      | 0.447 + j0.274          | 0.105 + j0.043              | 3941                                   | 273                            | 292                                     |
| 250           | 25.6               | 4500             | 0.071                | 0.090                | 0.057                       | 0.043                      | 0.427 + j0.260          | 0.090 + j0.042              | 4108                                   | 302                            | 321                                     |
| 350           | 27.1               | 6300             | 0.050                | 0.065                | 0.050                       | 0.041                      | 0.392 + j0.238          | 0.066 + j0.040              | 4402                                   | 368                            | 385                                     |





\* 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/<br>Kcmil | No.    | mm                      | mm                       | mm               | mm                              | AWG         | mm                     | mm               | mm                       | mm         | kg/km          |
| 1             | 19     | 7.57                    | 26.06                    | 8.76             | 27.58                           | 6           | 2.79                   | 75.31            | 1.91                     | 79.12      | 5356           |
| 1/0           | 19     | 8.53                    | 27.03                    | 8.76             | 28.55                           | 6           | 2.79                   | 77.39            | 2.16                     | 81.71      | 5761           |
| 2/0           | 19     | 9.55                    | 28.04                    | 8.76             | 29.57                           | 6           | 3.18                   | 80.34            | 2.16                     | 84.66      | 6246           |
| 3/0           | 19     | 10.72                   | 29.21                    | 8.76             | 30.73                           | 6           | 3.18                   | 82.88            | 2.16                     | 87.20      | 6671           |
| 4/0           | 19     | 12.04                   | 30.53                    | 8.76             | 32.05                           | 6           | 3.18                   | 85.73            | 2.16                     | 90.04      | 7166           |
| 250           | 37     | 13.21                   | 31.90                    | 8.76             | 33.43                           | 4           | 3.18                   | 88.70            | 2.16                     | 93.01      | 7691           |
| 350           | 37     | 15.62                   | 34.32                    | 8.76             | 35.84                           | 4           | 3.18                   | 93.90            | 2.16                     | 98.22      | 8692           |

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                                     |
| 1             | 553.72             | 6702             | 0.6923               | 0.87                 | 0.0241                      | 0.1706                     | 0.624 + j0.328          | 0.266 + j0.05               | 3395                                   | 158                            | 177                                     |
| 1/0           | 571.50             | 8455             | 0.5512               | 0.69                 | 0.0226                      | 0.1640                     | 0.566 + j0.315          | 0.211 + j0.048              | 3513                                   | 181                            | 200                                     |
| 2/0           | 591.82             | 10658            | 0.4364               | 0.55                 | 0.0210                      | 0.1575                     | 0.518 + j0.302          | 0.167 + j0.047              | 3637                                   | 208                            | 228                                     |
| 3/0           | 609.60             | 13439            | 0.3445               | 0.44                 | 0.0198                      | 0.1509                     | 0.548 + j0.288          | 0.133 + j0.045              | 3779                                   | 239                            | 258                                     |
| 4/0           | 629.92             | 16946            | 0.2756               | 0.34                 | 0.0183                      | 0.1476                     | 0.447 + j0.274          | 0.105 + j0.043              | 3941                                   | 273                            | 292                                     |
| 250           | 650.24             | 20025            | 0.2329               | 0.30                 | 0.0174                      | 0.1411                     | 0.427 + j0.260          | 0.090 + j0.042              | 4108                                   | 302                            | 321                                     |
| 350           | 688.34             | 28035            | 0.1640               | 0.21                 | 0.0152                      | 0.1345                     | 0.392 + j0.238          | 0.066 + j0.040              | 4402                                   | 368                            | 385                                     |

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

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