



## HVTECK CU 1/C 345TRXLPE CB PVC AIA PVC 35kV 100% CSA

Single Conductor, 345 Mils Tree Retardant Cross Linked Polyethylene, 100% Insulation Level, Concentric Bond, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

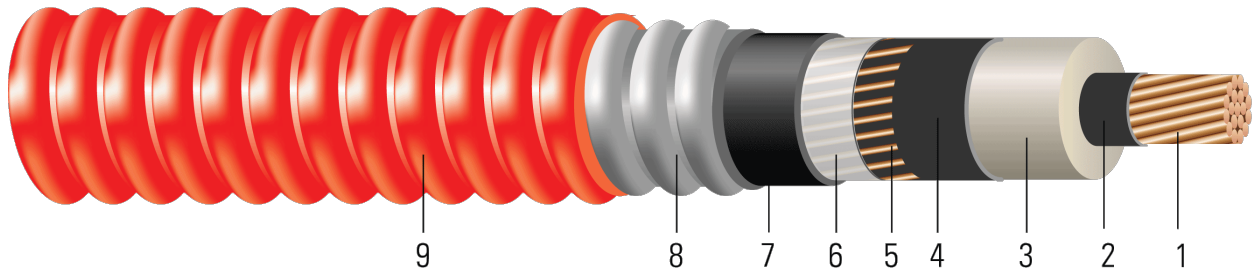


Image not to scale. See Table 1 for dimensions.

### CONSTRUCTION:

1. **Conductor:** Class B compressed stranded bare copper per ASTM B3 and ASTM B8
2. **Conductor Shield:** Semi-conducting cross-linked copolymer
3. **Insulation:** 345 Mils Tree Retardant Cross Linked Polyethylene 100% insulation level
4. **Insulation Shield:** Strippable semi-conducting cross-linked copolymer
5. **Concentric Shield:** Concentrically applied copper bond / shield wires. Complies with greater than the minimum requirement as per Table 44, CSA Standard C68.10 and Table 16A, Canadian Electrical Code Part 1
6. **Neutral Separator:** Mylar tape
7. **Inner Jacket:** PVC inner jacket
8. **Armour:** Aluminum Interlocked Armour (AIA)
9. **Overall Jacket:** Red Polyvinyl Chloride (PVC) Jacket

### APPLICATIONS AND FEATURES:

Southwire's 35kV 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 B3 Soft or Annealed Copper Wire
- ASTM B8 Concentric-Lay-Stranded Copper 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 (Qualification Test Requirements)

**SAMPLE PRINT LEGEND:**

(CSA) SOUTHWIRE (NESC) #P# 1/C [#AWG or #kcmil] CU 345 TRXLPE AIA 35kV 100% INS LEVEL CB [No. x SIZE] AWG 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 | Concentric Neutral | Inner Jacket Thickness | Dia. Over Armour | Overall Jacket Thickness | Approx. OD | Copper Weight | Approx. Weight |
|--------------|------------|--------|-------------------------|--------------------------|------------------|---------------------------------|--------------------|------------------------|------------------|--------------------------|------------|---------------|----------------|
|              | AWG/ Kcmil | No.    | inch                    | inch                     | mil              | inch                            | No. x AWG          | mil                    | inch             | mil                      | inch       | lb/ 1000ft    | lb/ 1000ft     |
| TBA          | 1/0        | 19     | 0.361                   | 1.089                    | 345              | 1.149                           | 11x14              | 80                     | 1.793            | 60                       | 1.913      | 474           | 1663           |
| TBA          | 2/0        | 19     | 0.405                   | 1.133                    | 345              | 1.193                           | 11x14              | 80                     | 1.837            | 60                       | 1.957      | 559           | 1797           |
| TBA          | 3/0        | 19     | 0.456                   | 1.184                    | 345              | 1.244                           | 13x14              | 80                     | 1.888            | 60                       | 2.008      | 694           | 2082           |
| TBA          | 4/0        | 19     | 0.512                   | 1.240                    | 345              | 1.300                           | 13x14              | 80                     | 1.944            | 60                       | 2.064      | 829           | 2281           |
| TBA          | 250        | 37     | 0.558                   | 1.294                    | 345              | 1.354                           | 17x14              | 80                     | 1.998            | 60                       | 2.118      | 1001          | 2520           |
| TBA          | 350        | 37     | 0.661                   | 1.397                    | 345              | 1.457                           | 21x14              | 110                    | 2.195            | 60                       | 2.315      | 1365          | 3149           |
| 674111       | 500        | 37     | 0.789                   | 1.525                    | 345              | 1.585                           | 26x14              | 110                    | 2.283            | 75                       | 2.433      | 1904          | 3707           |
| TBA          | 750        | 61     | 0.968                   | 1.714                    | 345              | 1.774                           | 21x12              | 110                    | 2.512            | 75                       | 2.662      | 2753          | 5012           |

All dimensions are nominal and subject to normal manufacturing tolerances  
 ◊ Cable marked with this symbol is a standard stock item  
 1 Comply with ICEA S-93-639 Appendix C for jacket thickness determination





**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                                     |
| 1/0        | 23.0               | 844              | 0.102                | 0.128                | 0.071                       | 0.060                      | 0.471 + j0.311          | 0.129 + j0.060              | 8577                                   | 278                            | 272                                     |
| 2/0        | 23.5               | 1064             | 0.081                | 0.102                | 0.066                       | 0.058                      | 0.442 + j0.298          | 0.103 + j0.058              | 8577                                   | 316                            | 303                                     |
| 3/0        | 24.1               | 1342             | 0.064                | 0.081                | 0.062                       | 0.056                      | 0.417 + j0.283          | 0.082 + j0.056              | 10137                                  | 356                            | 333                                     |
| 4/0        | 24.8               | 1692             | 0.051                | 0.065                | 0.057                       | 0.054                      | 0.396 + j0.269          | 0.066 + j0.054              | 10137                                  | 403                            | 367                                     |
| 250        | 25.4               | 2000             | 0.043                | 0.056                | 0.054                       | 0.052                      | 0.382 + j0.256          | 0.057 + j0.052              | 13256                                  | 455                            | 411                                     |
| 350        | 27.8               | 2800             | 0.031                | 0.041                | 0.048                       | 0.051                      | 0.357 + j0.234          | 0.042 + j0.051              | 16376                                  | 537                            | 459                                     |
| 500        | 29.2               | 4000             | 0.022                | 0.030                | 0.042                       | 0.048                      | 0.334 + j0.210          | 0.031 + j0.048              | 20275                                  | 616                            | 499                                     |
| 750        | 31.9               | 6000             | 0.014                | 0.023                | 0.036                       | 0.045                      | 0.310 + j0.180          | 0.024 + j0.045              | 26018                                  | 716                            | 557                                     |

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

\* CEC ampacities are based on:

3-1/C in air copper and aluminum: D17M

3-1/C direct buried copper and aluminum: D17A

**Table 3 – Weights and Measurements (Metric)**

| Stock Number | Cond. Size | Strand | Diameter Over Conductor | Diameter Over Insulation | Insul. Thickness | Diameter Over Insulation Shield | Concentric Neutral | Inner Jacket Thickness | Dia. Over Armour | Overall Jacket Thickness | Approx. OD | Copper Weight | Approx. Weight |
|--------------|------------|--------|-------------------------|--------------------------|------------------|---------------------------------|--------------------|------------------------|------------------|--------------------------|------------|---------------|----------------|
|              | AWG/Kcmil  | No.    | mm                      | mm                       | mm               | mm                              | No. x AWG          | mm                     | mm               | mm                       | mm         | kg/km         | kg/km          |
| TBA          | 1/0        | 19     | 9.17                    | 27.66                    | 8.76             | 29.18                           | 11x14              | 2.03                   | 45.54            | 1.52                     | 48.59      | 705           | 2475           |
| TBA          | 2/0        | 19     | 10.29                   | 28.78                    | 8.76             | 30.30                           | 11x14              | 2.03                   | 46.66            | 1.52                     | 49.71      | 832           | 2674           |
| TBA          | 3/0        | 19     | 11.58                   | 30.07                    | 8.76             | 31.60                           | 13x14              | 2.03                   | 47.96            | 1.52                     | 51.00      | 1033          | 3098           |
| TBA          | 4/0        | 19     | 13.00                   | 31.50                    | 8.76             | 33.02                           | 13x14              | 2.03                   | 49.38            | 1.52                     | 52.43      | 1234          | 3395           |
| TBA          | 250        | 37     | 14.17                   | 32.87                    | 8.76             | 34.39                           | 17x14              | 2.03                   | 50.75            | 1.52                     | 53.80      | 1490          | 3750           |
| TBA          | 350        | 37     | 16.79                   | 35.48                    | 8.76             | 37.01                           | 21x14              | 2.79                   | 55.75            | 1.52                     | 58.80      | 2031          | 4686           |
| 674111       | 500        | 37     | 20.04                   | 38.73                    | 8.76             | 40.26                           | 26x14              | 2.79                   | 57.99            | 1.91                     | 61.80      | 2833          | 5517           |
| TBA          | 750        | 61     | 24.59                   | 43.54                    | 8.76             | 45.06                           | 21x12              | 2.79                   | 63.80            | 1.91                     | 67.61      | 4097          | 7459           |

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

1 Comply with ICEA S-93-639 Appendix C for jacket thickness determination





**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                                     |
| 1/0        | 584.20             | 3756             | 0.3346               | 0.42                 | 0.0216                      | 0.1969                     | 0.471 + j0.311          | 0.129 + j0.060              | 8577                                   | 278                            | 272                                     |
| 2/0        | 596.90             | 4735             | 0.2657               | 0.33                 | 0.0201                      | 0.1903                     | 0.442 + j0.298          | 0.103 + j0.058              | 8577                                   | 316                            | 303                                     |
| 3/0        | 612.14             | 5972             | 0.2100               | 0.27                 | 0.0189                      | 0.1837                     | 0.417 + j0.283          | 0.082 + j0.056              | 10137                                  | 356                            | 333                                     |
| 4/0        | 629.92             | 7529             | 0.1673               | 0.21                 | 0.0174                      | 0.1772                     | 0.396 + j0.269          | 0.066 + j0.054              | 10137                                  | 403                            | 367                                     |
| 250        | 645.16             | 8900             | 0.1411               | 0.18                 | 0.0165                      | 0.1706                     | 0.382 + j0.256          | 0.057 + j0.052              | 13256                                  | 455                            | 411                                     |
| 350        | 706.12             | 12460            | 0.1017               | 0.13                 | 0.0146                      | 0.1673                     | 0.357 + j0.234          | 0.042 + j0.051              | 16376                                  | 537                            | 459                                     |
| 500        | 741.68             | 17800            | 0.0722               | 0.10                 | 0.0128                      | 0.1575                     | 0.334 + j0.210          | 0.031 + j0.048              | 20275                                  | 616                            | 499                                     |
| 750        | 810.26             | 26700            | 0.0459               | 0.08                 | 0.0110                      | 0.1476                     | 0.310 + j0.180          | 0.024 + j0.045              | 26018                                  | 716                            | 557                                     |

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

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3-1/C in air copper and aluminum: D17M

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