

# HVTECK CU 1/C 175TRXLPE TS PVC AIA PVC 15kV 100% CSA

Single Conductor, 175 Mils Tree Retardant Cross Linked Polyethylene, 100% Insulation Level, Tape Shield, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

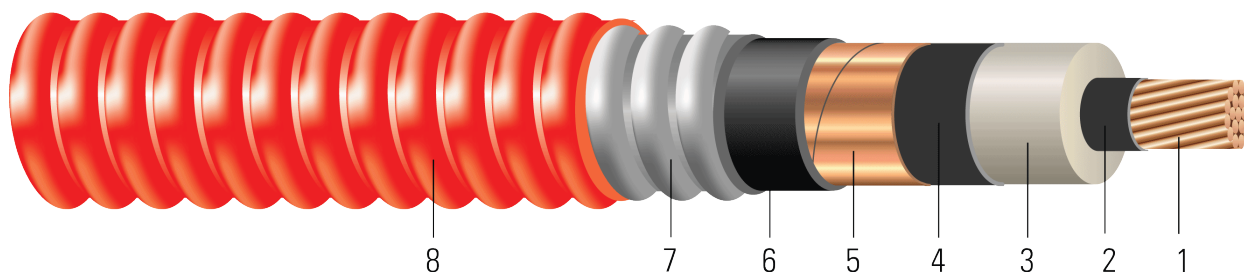


Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

1. **Conductor:** Class B compressed stranded bare copper per ASTM B3 and ASTM B8
2. **Conductor Shield:** Semi-conducting cross-linked copolymer
3. **Insulation:** 175 Mils Tree Retardant Cross Linked Polyethylene 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. **Inner Jacket:** PVC inner jacket
7. **Armour:** Aluminum Interlocked Armour (AIA)
8. **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 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)



Southwire Company, LLC | One Southwire Drive, Carrollton, GA 30119 | [www.southwire.com](http://www.southwire.com)

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- 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 175 TRXLPE 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 | Inner Jacket Thickness | Dia. Over Armour | Overall Jacket Thickness | Approx. OD | Copper Weight | Approx. Weight |
|--------------|------------|--------|-------------------------|--------------------------|------------------|---------------------------------|------------------------|------------------|--------------------------|------------|---------------|----------------|
|              | AWG/Kcmil  | No.    | inch                    | inch                     | mil              | inch                            | mil                    | inch             | mil                      | inch       | lb/1000ft     | lb/1000ft      |
| TBA          | 2          | 7      | 0.282                   | 0.670                    | 175              | 0.730                           | 80                     | 1.132            | 50                       | 1.232      | 219           | 802            |
| TBA          | 1          | 19     | 0.322                   | 0.710                    | 175              | 0.770                           | 80                     | 1.172            | 50                       | 1.272      | 273           | 888            |
| TBA          | 1/0        | 19     | 0.361                   | 0.749                    | 175              | 0.809                           | 80                     | 1.321            | 50                       | 1.421      | 341           | 998            |
| TBA          | 2/0        | 19     | 0.405                   | 0.793                    | 175              | 0.853                           | 80                     | 1.365            | 50                       | 1.465      | 427           | 1118           |
| 672009       | 3/0        | 19     | 0.456                   | 0.844                    | 175              | 0.904                           | 80                     | 1.428            | 50                       | 1.528      | 592           | 1371           |
| 668868       | 4/0        | 19     | 0.512                   | 0.900                    | 175              | 0.960                           | 80                     | 1.484            | 50                       | 1.584      | 731           | 1553           |
| TBA          | 250        | 37     | 0.558                   | 0.954                    | 175              | 1.014                           | 80                     | 1.526            | 60                       | 1.646      | 791           | 1644           |
| TBA          | 350        | 37     | 0.661                   | 1.057                    | 175              | 1.117                           | 80                     | 1.653            | 60                       | 1.773      | 1103          | 2072           |
| TBA          | 500        | 37     | 0.789                   | 1.185                    | 175              | 1.245                           | 80                     | 1.781            | 60                       | 1.901      | 1569          | 2645           |
| TBA          | 750        | 61     | 0.968                   | 1.374                    | 175              | 1.434                           | 80                     | 1.970            | 60                       | 2.090      | 2345          | 3683           |
| TBA          | 1000       | 61     | 1.117                   | 1.523                    | 175              | 1.583                           | 110                    | 2.179            | 60                       | 2.299      | 3120          | 4718           |

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                                     |
| 2          | 14.8               | 530              | 0.162                | 0.204                | 0.054                       | 0.056                      | 0.567 + j0.455          | 0.205 + j0.057              | 2292                                   | 215                            | 221                                     |
| 1          | 15.3               | 669              | 0.128                | 0.162                | 0.049                       | 0.053                      | 0.526 + j0.435          | 0.163 + j0.053              | 2416                                   | 245                            | 247                                     |
| 1/0        | 17.1               | 844              | 0.102                | 0.128                | 0.046                       | 0.053                      | 0.490 + j0.416          | 0.129 + j0.053              | 2537                                   | 278                            | 275                                     |
| 2/0        | 17.6               | 1064             | 0.081                | 0.102                | 0.042                       | 0.051                      | 0.464 + j0.397          | 0.103 + j0.051              | 2673                                   | 317                            | 306                                     |
| 3/0        | 18.3               | 1342             | 0.064                | 0.081                | 0.039                       | 0.049                      | 0.441 + j0.376          | 0.082 + j0.050              | 2831                                   | 357                            | 335                                     |
| 4/0        | 19.0               | 1692             | 0.051                | 0.065                | 0.035                       | 0.048                      | 0.423 + j0.355          | 0.066 + j0.048              | 3005                                   | 404                            | 369                                     |
| 250        | 19.8               | 2000             | 0.043                | 0.056                | 0.033                       | 0.047                      | 0.411 + j0.336          | 0.057 + j0.047              | 3172                                   | 456                            | 412                                     |
| 350        | 21.3               | 2800             | 0.031                | 0.041                | 0.029                       | 0.044                      | 0.389 + j0.303          | 0.042 + j0.044              | 3491                                   | 537                            | 456                                     |
| 500        | 22.8               | 4000             | 0.022                | 0.030                | 0.025                       | 0.042                      | 0.367 + j0.268          | 0.031 + j0.042              | 3888                                   | 616                            | 497                                     |
| 750        | 25.1               | 6000             | 0.014                | 0.023                | 0.021                       | 0.039                      | 0.343 + j0.226          | 0.024 + j0.039              | 4473                                   | 706                            | 551                                     |
| 1000       | 27.6               | 8000             | 0.011                | 0.019                | 0.019                       | 0.038                      | 0.325 + j0.199          | 0.020 + j0.038              | 4935                                   | 813                            | 596                                     |

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

Table 3 – Weights and Measurements (Metric)

| Stock Number | Cond. Size | Strand | Diameter Over Conductor | Diameter Over Insulation | Insul. Thickness | Diameter Over Insulation Shield | Inner Jacket Thickness | Dia. Over Armour | Overall Jacket Thickness | Approx. OD | Copper Weight | Approx. Weight |
|--------------|------------|--------|-------------------------|--------------------------|------------------|---------------------------------|------------------------|------------------|--------------------------|------------|---------------|----------------|
|              | AWG/Kcmil  | No.    | mm                      | mm                       | mm               | mm                              | mm                     | mm               | mm                       | mm         | kg/km         | kg/km          |
| TBA          | 2          | 7      | 7.16                    | 17.02                    | 4.44             | 18.54                           | 2.03                   | 28.75            | 1.27                     | 31.29      | 326           | 1194           |
| TBA          | 1          | 19     | 8.18                    | 18.03                    | 4.44             | 19.56                           | 2.03                   | 29.77            | 1.27                     | 32.31      | 406           | 1321           |
| TBA          | 1/0        | 19     | 9.17                    | 19.02                    | 4.44             | 20.55                           | 2.03                   | 33.55            | 1.27                     | 36.09      | 507           | 1485           |
| TBA          | 2/0        | 19     | 10.29                   | 20.14                    | 4.44             | 21.67                           | 2.03                   | 34.67            | 1.27                     | 37.21      | 635           | 1664           |
| 672009       | 3/0        | 19     | 11.58                   | 21.44                    | 4.44             | 22.96                           | 2.03                   | 36.27            | 1.27                     | 38.81      | 881           | 2040           |
| 668868       | 4/0        | 19     | 13.00                   | 22.86                    | 4.44             | 24.38                           | 2.03                   | 37.69            | 1.27                     | 40.23      | 1088          | 2311           |
| TBA          | 250        | 37     | 14.17                   | 24.23                    | 4.44             | 25.76                           | 2.03                   | 38.76            | 1.52                     | 41.81      | 1177          | 2447           |
| TBA          | 350        | 37     | 16.79                   | 26.85                    | 4.44             | 28.37                           | 2.03                   | 41.99            | 1.52                     | 45.03      | 1641          | 3083           |
| TBA          | 500        | 37     | 20.04                   | 30.10                    | 4.44             | 31.62                           | 2.03                   | 45.24            | 1.52                     | 48.29      | 2335          | 3936           |
| TBA          | 750        | 61     | 24.59                   | 34.90                    | 4.44             | 36.42                           | 2.03                   | 50.04            | 1.52                     | 53.09      | 3490          | 5481           |
| TBA          | 1000       | 61     | 28.37                   | 38.68                    | 4.44             | 40.21                           | 2.79                   | 55.35            | 1.52                     | 58.39      | 4643          | 7021           |

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                                     |
| 2          | 375.92             | 2359             | 0.5315               | 0.67                 | 0.0165                      | 0.1837                     | 0.567 + j0.455          | 0.205 + j0.057              | 2292                                   | 215                            | 221                                     |
| 1          | 388.62             | 2977             | 0.4199               | 0.53                 | 0.0149                      | 0.1739                     | 0.526 + j0.435          | 0.163 + j0.053              | 2416                                   | 245                            | 247                                     |
| 1/0        | 434.34             | 3756             | 0.3346               | 0.42                 | 0.0140                      | 0.1739                     | 0.490 + j0.416          | 0.129 + j0.053              | 2537                                   | 278                            | 275                                     |
| 2/0        | 447.04             | 4735             | 0.2657               | 0.33                 | 0.0128                      | 0.1673                     | 0.464 + j0.397          | 0.103 + j0.051              | 2673                                   | 317                            | 306                                     |
| 3/0        | 464.82             | 5972             | 0.2100               | 0.27                 | 0.0119                      | 0.1608                     | 0.441 + j0.376          | 0.082 + j0.050              | 2831                                   | 357                            | 335                                     |
| 4/0        | 482.60             | 7529             | 0.1673               | 0.21                 | 0.0107                      | 0.1575                     | 0.423 + j0.355          | 0.066 + j0.048              | 3005                                   | 404                            | 369                                     |
| 250        | 502.92             | 8900             | 0.1411               | 0.18                 | 0.0101                      | 0.1542                     | 0.411 + j0.336          | 0.057 + j0.047              | 3172                                   | 456                            | 412                                     |
| 350        | 541.02             | 12460            | 0.1017               | 0.13                 | 0.0088                      | 0.1444                     | 0.389 + j0.303          | 0.042 + j0.044              | 3491                                   | 537                            | 456                                     |
| 500        | 579.12             | 17800            | 0.0722               | 0.10                 | 0.0076                      | 0.1378                     | 0.367 + j0.268          | 0.031 + j0.042              | 3888                                   | 616                            | 497                                     |
| 750        | 637.54             | 26700            | 0.0459               | 0.08                 | 0.0064                      | 0.1280                     | 0.343 + j0.226          | 0.024 + j0.039              | 4473                                   | 706                            | 551                                     |
| 1000       | 701.04             | 35600            | 0.0361               | 0.06                 | 0.0058                      | 0.1247                     | 0.325 + j0.199          | 0.020 + j0.038              | 4935                                   | 813                            | 596                                     |

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

