



# HVTECK CU 3/C 175TRXLPE TS PVC AIA PVC 15kV 100% CSA

3 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

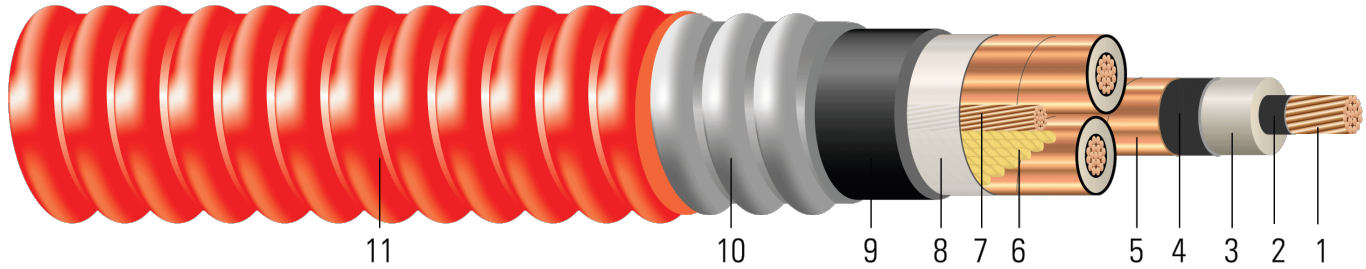


Image not to scale. See Table 1 for dimensions.

## 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. **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:** 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
- 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] 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 | Ground Size | Inner Jacket Thickness | Dia. Over Armour | Overall Jacket Thickness | Approx. OD | Copper Weight | Approx. Weight |
|--------------|------------|--------|-------------------------|--------------------------|------------------|---------------------------------|-------------|------------------------|------------------|--------------------------|------------|---------------|----------------|
|              | AWG/Kcmil  | No.    | inch                    | inch                     | mil              | inch                            | AWG         | mil                    | inch             | mil                      | inch       | lb/1000ft     | lb/1000ft      |
| TBA          | 2          | 7      | 0.282                   | 0.670                    | 175              | 0.730                           | 6           | 110                    | 2.196            | 60                       | 2.316      | 745           | 2533           |
| TBA          | 1          | 19     | 0.322                   | 0.710                    | 175              | 0.770                           | 6           | 110                    | 2.282            | 75                       | 2.432      | 909           | 2879           |
| 673239       | 1/0        | 19     | 0.361                   | 0.750                    | 175              | 0.810                           | 6           | 110                    | 2.363            | 75                       | 2.513      | 1271          | 3255           |
| TBA          | 2/0        | 19     | 0.405                   | 0.793                    | 175              | 0.853                           | 6           | 110                    | 2.462            | 75                       | 2.612      | 1375          | 3580           |
| TBA          | 3/0        | 19     | 0.456                   | 0.844                    | 175              | 0.904                           | 4           | 110                    | 2.572            | 75                       | 2.722      | 1751          | 4102           |
| TBA          | 4/0        | 19     | 0.512                   | 0.900                    | 175              | 0.960                           | 4           | 110                    | 2.693            | 75                       | 2.843      | 2163          | 4675           |
| TBA          | 250        | 37     | 0.558                   | 0.954                    | 175              | 1.014                           | 4           | 110                    | 2.809            | 75                       | 2.959      | 2526          | 5203           |
| TBA          | 350        | 37     | 0.661                   | 1.057                    | 175              | 1.117                           | 3           | 110                    | 3.032            | 85                       | 3.202      | 3502          | 6548           |
| TBA          | 500        | 37     | 0.789                   | 1.185                    | 175              | 1.245                           | 3           | 125                    | 3.338            | 85                       | 3.508      | 4911          | 8445           |
| TBA          | 750        | 61     | 0.968                   | 1.374                    | 175              | 1.434                           | 2           | 125                    | 3.747            | 85                       | 3.917      | 7301          | 11465          |

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          | 16.2               | 1592             | 0.162                | 0.204                | 0.054                       | 0.044                      | 0.579 + j0.459          | 0.204 + j0.045              | 2292                                   | 172                            | 201                                     |
| 1          | 17.0               | 2008             | 0.128                | 0.162                | 0.049                       | 0.042                      | 0.538 + j0.438          | 0.162 + j0.043              | 2416                                   | 197                            | 228                                     |
| 1/0        | 17.6               | 2534             | 0.102                | 0.128                | 0.046                       | 0.041                      | 0.503 + j0.419          | 0.128 + j0.041              | 2537                                   | 225                            | 257                                     |
| 2/0        | 18.3               | 3194             | 0.081                | 0.102                | 0.042                       | 0.039                      | 0.476 + j0.399          | 0.102 + j0.040              | 2673                                   | 260                            | 292                                     |
| 3/0        | 19.1               | 4027             | 0.064                | 0.081                | 0.039                       | 0.038                      | 0.452 + j0.378          | 0.081 + j0.038              | 2831                                   | 297                            | 330                                     |
| 4/0        | 19.9               | 5078             | 0.051                | 0.065                | 0.035                       | 0.037                      | 0.433 + j0.356          | 0.065 + j0.037              | 3005                                   | 342                            | 372                                     |
| 250        | 20.7               | 6000             | 0.043                | 0.056                | 0.030                       | 0.036                      | 0.420 + j0.336          | 0.056 + j0.036              | 3172                                   | 376                            | 410                                     |
| 350        | 22.4               | 8400             | 0.030                | 0.041                | 0.030                       | 0.030                      | 0.397 + j0.303          | 0.410 + j0.034              | 3491                                   | 460                            | 487                                     |
| 500        | 24.6               | 12000            | 0.020                | 0.030                | 0.030                       | 0.030                      | 0.374 + j0.267          | 0.030 + j0.033              | 3888                                   | 556                            | 573                                     |
| 750        | 27.4               | 18000            | 0.014                | 0.020                | 0.020                       | 0.030                      | 0.348 + j0.225          | 0.024 + j0.031              | 4473                                   | 678                            | 668                                     |

\* 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)**

| Stock Number | 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 | Copper Weight | Approx. Weight |
|--------------|------------|--------|-------------------------|--------------------------|------------------|---------------------------------|-------------|------------------------|------------------|--------------------------|------------|---------------|----------------|
|              | AWG/Kcmil  | No.    | mm                      | mm                       | mm               | mm                              | AWG         | mm                     | mm               | mm                       | mm         | kg/km         | kg/km          |
| TBA          | 2          | 7      | 7.16                    | 17.02                    | 4.44             | 18.54                           | 6           | 2.79                   | 55.78            | 1.52                     | 58.83      | 1109          | 3770           |
| TBA          | 1          | 19     | 8.18                    | 18.03                    | 4.44             | 19.56                           | 6           | 2.79                   | 57.96            | 1.91                     | 61.77      | 1353          | 4284           |
| 673239       | 1/0        | 19     | 9.17                    | 19.05                    | 4.44             | 20.57                           | 6           | 2.79                   | 60.02            | 1.91                     | 63.83      | 1891          | 4844           |
| TBA          | 2/0        | 19     | 10.29                   | 20.14                    | 4.44             | 21.67                           | 6           | 2.79                   | 62.53            | 1.91                     | 66.34      | 2046          | 5328           |
| TBA          | 3/0        | 19     | 11.58                   | 21.44                    | 4.44             | 22.96                           | 4           | 2.79                   | 65.33            | 1.91                     | 69.14      | 2606          | 6104           |
| TBA          | 4/0        | 19     | 13.00                   | 22.86                    | 4.44             | 24.38                           | 4           | 2.79                   | 68.40            | 1.91                     | 72.21      | 3219          | 6957           |
| TBA          | 250        | 37     | 14.17                   | 24.23                    | 4.44             | 25.76                           | 4           | 2.79                   | 71.35            | 1.91                     | 75.16      | 3759          | 7743           |
| TBA          | 350        | 37     | 16.79                   | 26.85                    | 4.44             | 28.37                           | 3           | 2.79                   | 77.01            | 2.16                     | 81.33      | 5212          | 9744           |
| TBA          | 500        | 37     | 20.04                   | 30.10                    | 4.44             | 31.62                           | 3           | 3.18                   | 84.79            | 2.16                     | 89.10      | 7308          | 12568          |
| TBA          | 750        | 61     | 24.59                   | 34.90                    | 4.44             | 36.42                           | 2           | 3.18                   | 95.17            | 2.16                     | 99.49      | 10865         | 17062          |

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          | 411.48             | 7084             | 0.5315               | 0.67                 | 0.0165                      | 0.1444                     | 0.579 + j0.459          | 0.204 + j0.045              | 2292                                   | 172                            | 201                                     |
| 1          | 431.80             | 8936             | 0.4199               | 0.53                 | 0.0149                      | 0.1378                     | 0.538 + j0.438          | 0.162 + j0.043              | 2416                                   | 197                            | 228                                     |
| 1/0        | 447.04             | 11276            | 0.3346               | 0.42                 | 0.0140                      | 0.1345                     | 0.503 + j0.419          | 0.128 + j0.041              | 2537                                   | 225                            | 257                                     |
| 2/0        | 464.82             | 14213            | 0.2657               | 0.33                 | 0.0128                      | 0.1280                     | 0.476 + j0.399          | 0.102 + j0.040              | 2673                                   | 260                            | 292                                     |
| 3/0        | 485.14             | 17920            | 0.2100               | 0.27                 | 0.0119                      | 0.1247                     | 0.452 + j0.378          | 0.081 + j0.038              | 2831                                   | 297                            | 330                                     |
| 4/0        | 505.46             | 22597            | 0.1673               | 0.21                 | 0.0107                      | 0.1214                     | 0.433 + j0.356          | 0.065 + j0.037              | 3005                                   | 342                            | 372                                     |
| 250        | 525.78             | 26700            | 0.1411               | 0.18                 | 0.0091                      | 0.1181                     | 0.420 + j0.336          | 0.056 + j0.036              | 3172                                   | 376                            | 410                                     |
| 350        | 568.96             | 37380            | 0.0984               | 0.13                 | 0.0091                      | 0.0984                     | 0.397 + j0.303          | 0.410 + j0.034              | 3491                                   | 460                            | 487                                     |
| 500        | 624.84             | 53400            | 0.0656               | 0.10                 | 0.0091                      | 0.0984                     | 0.374 + j0.267          | 0.030 + j0.033              | 3888                                   | 556                            | 573                                     |
| 750        | 695.96             | 80100            | 0.0459               | 0.07                 | 0.0061                      | 0.0984                     | 0.348 + j0.225          | 0.024 + j0.031              | 4473                                   | 678                            | 668                                     |

\* 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

