



# HVTECK CU 3/C 320TRXLPE TS PVC AIA PVC 25kV 133% CSA

3 Conductor, 320 Mils Tree Retardant Cross Linked Polyethylene, 133% Insulation Level, Tape Shield, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

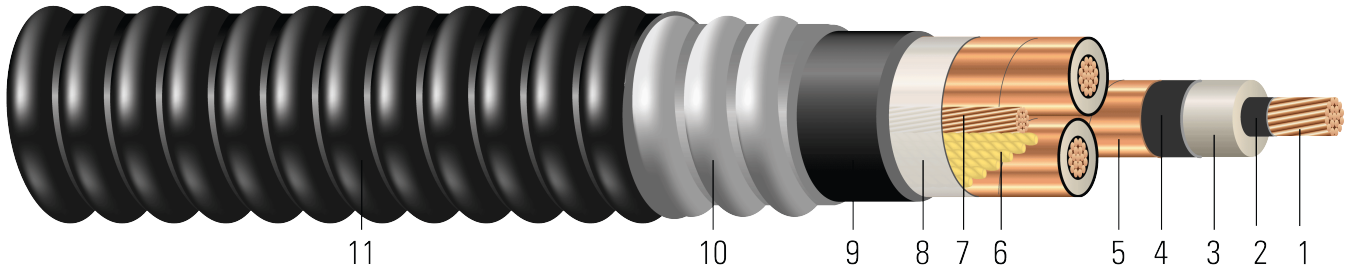


Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

1. **Conductor:** Class B compressed stranded bare copper per ASTM B3 and ASTM B8
2. **Conductor Shield:** Semi-conducting cross-linked copolymer
3. **Insulation:** 320 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. **Grounding Conductor:** Class B compressed stranded bare copper ground per ASTM B3 and ASTM B8
7. **Filler:** Non-wicking, non-hygroscopic and flame retardant polypropylene filler
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 25kV 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 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
- 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 320 TRXLPE AIA 25kV 133% 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          | 1          | 19     | 0.322                   | 1.000                    | 320              | 1.060                           | 6           | 110                    | 2.909            | 75                       | 3.059      | 927           | 4064           |
| TBA          | 1/0        | 19     | 0.361                   | 1.039                    | 320              | 1.099                           | 6           | 110                    | 2.993            | 75                       | 3.143      | 1133          | 4411           |
| 139407       | 2/0        | 19     | 0.405                   | 1.083                    | 320              | 1.143                           | 6           | 125                    | 3.134            | 85                       | 3.304      | 1605          | 5034           |
| TBA          | 3/0        | 19     | 0.456                   | 1.134                    | 320              | 1.194                           | 4           | 125                    | 3.228            | 85                       | 3.398      | 1769          | 5559           |
| 678745       | 4/0        | 19     | 0.512                   | 1.190                    | 320              | 1.250                           | 4           | 125                    | 3.363            | 85                       | 3.533      | 2411          | 6143           |
| TBA          | 250        | 37     | 0.558                   | 1.244                    | 320              | 1.304                           | 4           | 125                    | 3.466            | 85                       | 3.636      | 2543          | 6769           |
| 137995!      | 350        | 37     | 0.661                   | 1.327                    | 320              | 1.387                           | 3           | 125                    | 3.659            | 85                       | 3.829      | 3771          | 7906           |
| 138182       | 350        | 37     | 0.661                   | 1.327                    | 320              | 1.387                           | 3           | 135                    | 3.660            | 85                       | 3.830      | 3771          | 7895           |
| 678737       | 500        | 37     | 0.789                   | 1.475                    | 320              | 1.535                           | 3           | 125                    | 3.979            | 85                       | 4.149      | 5207          | 9763           |

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

! Gray Jacket Color





**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          | 21.4               | 2008             | 0.128                | 0.162                | 0.073                       | 0.050                      | 0.523 + j0.335          | 0.162 + j0.05               | 3315                                   | 202                            | 226                                     |
| 1/0        | 22.0               | 2534             | 0.102                | 0.128                | 0.068                       | 0.048                      | 0.485 + j0.322          | 0.128 + j0.048              | 3435                                   | 231                            | 256                                     |
| 2/0        | 23.1               | 3194             | 0.081                | 0.102                | 0.063                       | 0.046                      | 0.455 + j0.307          | 0.102 + j0.046              | 3572                                   | 265                            | 290                                     |
| 3/0        | 23.8               | 4027             | 0.064                | 0.081                | 0.059                       | 0.044                      | 0.430 + j0.292          | 0.081 + j0.044              | 3730                                   | 303                            | 327                                     |
| 4/0        | 24.7               | 5078             | 0.051                | 0.065                | 0.054                       | 0.043                      | 0.408 + j0.276          | 0.065 + j0.043              | 3903                                   | 348                            | 369                                     |
| 250        | 25.5               | 6000             | 0.043                | 0.056                | 0.051                       | 0.042                      | 0.394 + j0.263          | 0.056 + j0.042              | 4071                                   | 384                            | 408                                     |
| 350        | 26.8               | 8400             | 0.031                | 0.041                | 0.045                       | 0.039                      | 0.368 + j0.239          | 0.042 + j0.039              | 4390                                   | 468                            | 485                                     |
| 350        | 30.6               | 8400             | 0.030                | 0.041                | 0.046                       | 0.039                      | 0.368 + j0.239          | 0.042 + j0.039              | 4390                                   | 468                            | 485                                     |
| 500        | 29.0               | 12000            | 0.022                | 0.030                | 0.040                       | 0.037                      | 0.345 + j0.213          | 0.031 + j0.037              | 4786                                   | 565                            | 571                                     |

\* 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          | 1          | 19     | 8.18                    | 25.40                    | 8.13             | 26.92                           | 6           | 2.79                   | 73.89            | 1.91                     | 77.70      | 1380          | 6048           |
| TBA          | 1/0        | 19     | 9.17                    | 26.39                    | 8.13             | 27.91                           | 6           | 2.79                   | 76.02            | 1.91                     | 79.83      | 1686          | 6564           |
| 139407       | 2/0        | 19     | 10.29                   | 27.51                    | 8.13             | 29.03                           | 6           | 3.18                   | 79.60            | 2.16                     | 83.92      | 2389          | 7491           |
| TBA          | 3/0        | 19     | 11.58                   | 28.80                    | 8.13             | 30.33                           | 4           | 3.18                   | 81.99            | 2.16                     | 86.31      | 2633          | 8273           |
| 678745       | 4/0        | 19     | 13.00                   | 30.23                    | 8.13             | 31.75                           | 4           | 3.18                   | 85.42            | 2.16                     | 89.74      | 3588          | 9142           |
| TBA          | 250        | 37     | 14.17                   | 31.60                    | 8.13             | 33.12                           | 4           | 3.18                   | 88.04            | 2.16                     | 92.35      | 3784          | 10073          |
| 137995!      | 350        | 37     | 16.79                   | 33.71                    | 8.13             | 35.23                           | 3           | 3.18                   | 92.94            | 2.16                     | 97.26      | 5612          | 11765          |
| 138182       | 350        | 37     | 16.79                   | 33.71                    | 8.13             | 35.23                           | 3           | 3.43                   | 92.96            | 2.16                     | 97.28      | 5612          | 11749          |
| 678737       | 500        | 37     | 20.04                   | 37.47                    | 8.13             | 38.99                           | 3           | 3.18                   | 101.07           | 2.16                     | 105.38     | 7749          | 14529          |

All dimensions are nominal and subject to normal manufacturing tolerances

◇ Cable marked with this symbol is a standard stock item

! Gray Jacket Color





**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          | 543.56             | 8936             | 0.4199               | 0.53                 | 0.0223                      | 0.1640                     | 0.523 + j0.335          | 0.162 + j0.05               | 3315                                   | 202                            | 226                                     |
| 1/0        | 558.80             | 11276            | 0.3346               | 0.42                 | 0.0207                      | 0.1575                     | 0.485 + j0.322          | 0.128 + j0.048              | 3435                                   | 231                            | 256                                     |
| 2/0        | 586.74             | 14213            | 0.2657               | 0.33                 | 0.0192                      | 0.1509                     | 0.455 + j0.307          | 0.102 + j0.046              | 3572                                   | 265                            | 290                                     |
| 3/0        | 604.52             | 17920            | 0.2100               | 0.27                 | 0.0180                      | 0.1444                     | 0.430 + j0.292          | 0.081 + j0.044              | 3730                                   | 303                            | 327                                     |
| 4/0        | 627.38             | 22597            | 0.1673               | 0.21                 | 0.0165                      | 0.1411                     | 0.408 + j0.276          | 0.065 + j0.043              | 3903                                   | 348                            | 369                                     |
| 250        | 647.70             | 26700            | 0.1411               | 0.18                 | 0.0155                      | 0.1378                     | 0.394 + j0.263          | 0.056 + j0.042              | 4071                                   | 384                            | 408                                     |
| 350        | 680.72             | 37380            | 0.1017               | 0.13                 | 0.0137                      | 0.1280                     | 0.368 + j0.239          | 0.042 + j0.039              | 4390                                   | 468                            | 485                                     |
| 350        | 777.24             | 37380            | 0.0984               | 0.13                 | 0.0140                      | 0.1280                     | 0.368 + j0.239          | 0.042 + j0.039              | 4390                                   | 468                            | 485                                     |
| 500        | 736.60             | 53400            | 0.0722               | 0.10                 | 0.0122                      | 0.1214                     | 0.345 + j0.213          | 0.031 + j0.037              | 4786                                   | 565                            | 571                                     |

\* 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

