



HVTECK CU 1/C 220TRXLPE CB PVC AIA PVC 15kV 133% CSA

Single Conductor, 220 Mils Tree Retardant Cross Linked Polyethylene, 133% Insulation Level, Concentric Bond, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

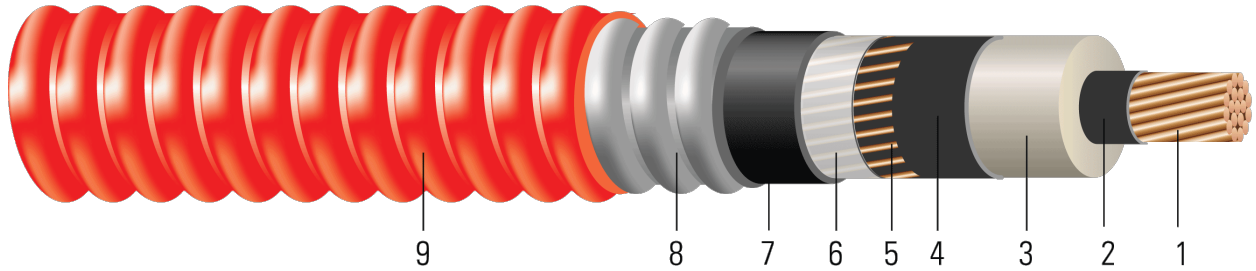


Image not to scale. See Table 1 for dimensions.

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:** 220 Mils Tree Retardant Cross Linked Polyethylene 133% 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 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)
- 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 220 TRXLPE AIA 15kV 133% 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 | 2 | 7 | 0.282 | 0.760 | 220 | 0.820 | 7x14 | 80 | 1.440 | 50 | 1.540 | 299 | 1032 |
| TBA | 1 | 19 | 0.322 | 0.800 | 220 | 0.860 | 11x14 | 80 | 1.480 | 50 | 1.580 | 407 | 1175 |
| TBA | 1/0 | 19 | 0.361 | 0.839 | 220 | 0.899 | 11x14 | 80 | 1.519 | 60 | 1.639 | 474 | 1308 |
| TBA | 2/0 | 19 | 0.405 | 0.883 | 220 | 0.943 | 11x14 | 80 | 1.563 | 60 | 1.683 | 559 | 1432 |
| TBA | 3/0 | 19 | 0.456 | 0.934 | 220 | 0.994 | 13x14 | 80 | 1.614 | 60 | 1.734 | 694 | 1612 |
| TBA | 4/0 | 19 | 0.512 | 0.990 | 220 | 1.050 | 13x14 | 80 | 1.694 | 60 | 1.814 | 829 | 1829 |
| TBA | 250 | 37 | 0.558 | 1.044 | 220 | 1.104 | 17x14 | 80 | 1.748 | 60 | 1.868 | 1001 | 2055 |
| TBA | 350 | 37 | 0.661 | 1.147 | 220 | 1.207 | 21x14 | 80 | 1.885 | 60 | 2.005 | 1365 | 2620 |
| 672982 | 500 | 37 | 0.789 | 1.275 | 220 | 1.335 | 26x14 | 80 | 1.973 | 60 | 2.093 | 1863 | 3118 |
| 668996 | 750 | 61 | 0.968 | 1.464 | 220 | 1.524 | 21x12 | 110 | 2.222 | 75 | 2.342 | 2715 | 4258 |
| TBA | 750 | 61 | 0.968 | 1.464 | 220 | 1.524 | 21x12 | 110 | 2.262 | 75 | 2.412 | 2753 | 4523 |
| 672986 | 1000 | 61 | 1.117 | 1.613 | 220 | 1.673 | 21x12 | 110 | 2.369 | 75 | 2.519 | 3527 | 5277 |

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 | 18.5 | 530 | 0.162 | 0.204 | 0.062 | 0.061 | 0.563 + j0.421 | 0.205 + j0.062 | 5458 | 215 | 221 |
| 1 | 19.0 | 669 | 0.128 | 0.162 | 0.058 | 0.058 | 0.520 + j0.402 | 0.163 + j0.058 | 8577 | 245 | 247 |
| 1/0 | 19.7 | 844 | 0.102 | 0.128 | 0.053 | 0.056 | 0.485 + j0.386 | 0.129 + j0.057 | 8577 | 278 | 275 |
| 2/0 | 20.2 | 1064 | 0.081 | 0.102 | 0.049 | 0.054 | 0.458 + j0.368 | 0.103 + j0.055 | 8577 | 317 | 306 |
| 3/0 | 20.8 | 1342 | 0.064 | 0.081 | 0.046 | 0.052 | 0.435 + j0.349 | 0.082 + j0.053 | 10137 | 357 | 335 |
| 4/0 | 21.8 | 1692 | 0.051 | 0.065 | 0.042 | 0.051 | 0.415 + j0.330 | 0.066 + j0.051 | 10137 | 404 | 369 |
| 250 | 22.4 | 2000 | 0.043 | 0.056 | 0.039 | 0.049 | 0.403 + j0.313 | 0.057 + j0.050 | 13256 | 456 | 412 |
| 350 | 24.1 | 2800 | 0.031 | 0.041 | 0.035 | 0.047 | 0.379 + j0.284 | 0.042 + j0.047 | 16376 | 537 | 456 |
| 500 | 25.1 | 4000 | 0.022 | 0.030 | 0.030 | 0.044 | 0.358 + j0.252 | 0.031 + j0.044 | 20275 | 616 | 497 |
| 750 | 28.1 | 6000 | 0.014 | 0.023 | 0.026 | 0.042 | 0.333 + j0.214 | 0.024 + j0.042 | 26018 | 706 | 551 |
| 750 | 28.9 | 6000 | 0.014 | 0.023 | 0.026 | 0.043 | 0.333 + j0.214 | 0.024 + j0.043 | 26018 | 706 | 551 |
| 1000 | 30.2 | 8000 | 0.011 | 0.019 | 0.023 | 0.040 | 0.315 + j0.189 | 0.020 + j0.040 | 26018 | 813 | 596 |

* 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 | 2 | 7 | 7.16 | 19.30 | 5.59 | 20.83 | 7x14 | 2.03 | 36.58 | 1.27 | 39.12 | 445 | 1536 |
| TBA | 1 | 19 | 8.18 | 20.32 | 5.59 | 21.84 | 11x14 | 2.03 | 37.59 | 1.27 | 40.13 | 606 | 1749 |
| TBA | 1/0 | 19 | 9.17 | 21.31 | 5.59 | 22.83 | 11x14 | 2.03 | 38.58 | 1.52 | 41.63 | 705 | 1947 |
| TBA | 2/0 | 19 | 10.29 | 22.43 | 5.59 | 23.95 | 11x14 | 2.03 | 39.70 | 1.52 | 42.75 | 832 | 2131 |
| TBA | 3/0 | 19 | 11.58 | 23.72 | 5.59 | 25.25 | 13x14 | 2.03 | 41.00 | 1.52 | 44.04 | 1033 | 2399 |
| TBA | 4/0 | 19 | 13.00 | 25.15 | 5.59 | 26.67 | 13x14 | 2.03 | 43.03 | 1.52 | 46.08 | 1234 | 2722 |
| TBA | 250 | 37 | 14.17 | 26.52 | 5.59 | 28.04 | 17x14 | 2.03 | 44.40 | 1.52 | 47.45 | 1490 | 3058 |
| TBA | 350 | 37 | 16.79 | 29.13 | 5.59 | 30.66 | 21x14 | 2.03 | 47.88 | 1.52 | 50.93 | 2031 | 3899 |
| 672982 | 500 | 37 | 20.04 | 32.39 | 5.59 | 33.91 | 26x14 | 2.03 | 50.11 | 1.52 | 53.16 | 2772 | 4640 |
| 668996 | 750 | 61 | 24.59 | 37.19 | 5.59 | 38.71 | 21x12 | 2.79 | 56.44 | 1.91 | 59.49 | 4040 | 6337 |
| TBA | 750 | 61 | 24.59 | 37.19 | 5.59 | 38.71 | 21x12 | 2.79 | 57.45 | 1.91 | 61.26 | 4097 | 6731 |
| 672986 | 1000 | 61 | 28.37 | 40.97 | 5.59 | 42.49 | 21x12 | 2.79 | 60.17 | 1.91 | 63.98 | 5249 | 7853 |

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 | 469.90 | 2359 | 0.5315 | 0.67 | 0.0189 | 0.2001 | 0.563 + j0.421 | 0.205 + j0.062 | 5458 | 215 | 221 |
| 1 | 482.60 | 2977 | 0.4199 | 0.53 | 0.0177 | 0.1903 | 0.520 + j0.402 | 0.163 + j0.058 | 8577 | 245 | 247 |
| 1/0 | 500.38 | 3756 | 0.3346 | 0.42 | 0.0162 | 0.1837 | 0.485 + j0.386 | 0.129 + j0.057 | 8577 | 278 | 275 |
| 2/0 | 513.08 | 4735 | 0.2657 | 0.33 | 0.0149 | 0.1772 | 0.458 + j0.368 | 0.103 + j0.055 | 8577 | 317 | 306 |
| 3/0 | 528.32 | 5972 | 0.2100 | 0.27 | 0.0140 | 0.1706 | 0.435 + j0.349 | 0.082 + j0.053 | 10137 | 357 | 335 |
| 4/0 | 553.72 | 7529 | 0.1673 | 0.21 | 0.0128 | 0.1673 | 0.415 + j0.330 | 0.066 + j0.051 | 10137 | 404 | 369 |
| 250 | 568.96 | 8900 | 0.1411 | 0.18 | 0.0119 | 0.1608 | 0.403 + j0.313 | 0.057 + j0.050 | 13256 | 456 | 412 |
| 350 | 612.14 | 12460 | 0.1017 | 0.13 | 0.0107 | 0.1542 | 0.379 + j0.284 | 0.042 + j0.047 | 16376 | 537 | 456 |
| 500 | 637.54 | 17800 | 0.0722 | 0.10 | 0.0091 | 0.1444 | 0.358 + j0.252 | 0.031 + j0.044 | 20275 | 616 | 497 |
| 750 | 713.74 | 26700 | 0.0459 | 0.08 | 0.0079 | 0.1378 | 0.333 + j0.214 | 0.024 + j0.042 | 26018 | 706 | 551 |
| 750 | 734.06 | 26700 | 0.0459 | 0.08 | 0.0079 | 0.1411 | 0.333 + j0.214 | 0.024 + j0.043 | 26018 | 706 | 551 |
| 1000 | 767.08 | 35600 | 0.0361 | 0.06 | 0.0070 | 0.1312 | 0.315 + j0.189 | 0.020 + j0.040 | 26018 | 813 | 596 |

* 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

