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

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

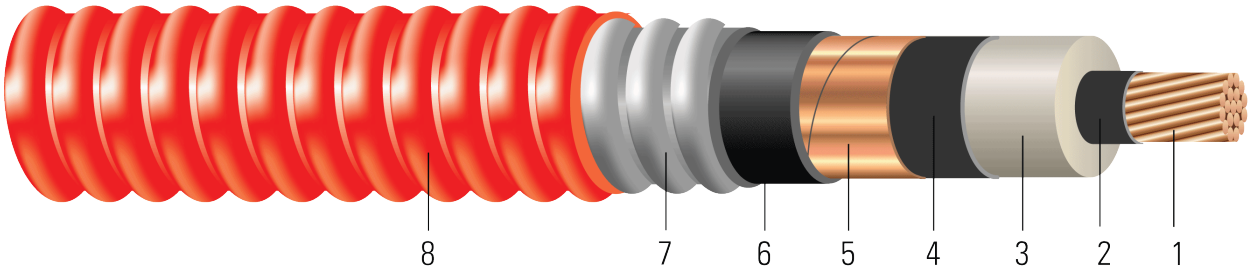



Image not to scale. See Table 1 for dimensions.

## 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:** 220 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. **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)



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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 220 TRXLPE AIA 15kV 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 | 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 | 0.760 | 220 | 0.820 | 80 | 1.332 | 50 | 1.432 | 220 | 909 |
| TBA | 1 | 19 | 0.322 | 0.800 | 220 | 0.860 | 80 | 1.372 | 50 | 1.472 | 275 | 999 |
| TBA | 1/0 | 19 | 0.361 | 0.839 | 220 | 0.899 | 80 | 1.411 | 50 | 1.511 | 343 | 1099 |
| 670965 | 2/0 | 19 | 0.405 | 0.884 | 220 | 0.944 | 80 | 1.468 | 50 | 1.568 | 488 | 1322 |
| TBA | 3/0 | 19 | 0.456 | 0.934 | 220 | 0.994 | 80 | 1.506 | 60 | 1.626 | 538 | 1409 |
| 672441^ | 4/0 | 19 | 0.512 | 0.990 | 220 | 1.050 | 80 | 1.574 | 60 | 1.694 | 738 | 1687 |
| TBA | 250 | 37 | 0.558 | 1.044 | 220 | 1.104 | 80 | 1.616 | 60 | 1.736 | 793 | 1764 |
| 671319 | 350 | 37 | 0.661 | 1.147 | 220 | 1.207 | 80 | 1.731 | 60 | 1.851 | 1177 | 2267 |
| 672047 | 500 | 37 | 0.789 | 1.275 | 220 | 1.335 | 80 | 1.859 | 60 | 1.979 | 1649 | 2849 |
| 641194 | 750 | 61 | 0.968 | 1.464 | 220 | 1.524 | 110 | 2.108 | 60 | 2.228 | 2435 | 3920 |
| 672046 | 1000 | 61 | 1.117 | 1.613 | 220 | 1.673 | 110 | 2.257 | 75 | 2.407 | 3218 | 4910 |
| 672445^ | 1000 | 61 | 1.117 | 1.613 | 220 | 1.673 | 110 | 2.257 | 75 | 2.407 | 3218 | 4900 |
| TBA | 1250 | 91 | 1.250 | 1.750 | 220 | 1.810 | 110 | 2.406 | 75 | 2.556 | 3895 | 5886 |
| TBA | 1500 | 91 | 1.370 | 1.870 | 220 | 1.930 | 110 | 2.526 | 75 | 2.676 | 4670 | 6788 |
| TBA | 2000 | 127 | 1.583 | 2.083 | 220 | 2.143 | 110 | 2.739 | 75 | 2.889 | 6218 | 8563 |

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


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## 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 | 17.2 | 530 | 0.162 | 0.204 | 0.062 | 0.059 | 0.566 + j0.418 | 0.205 + j0.060 | 2571 | 215 | 221 |
| 1 | 17.7 | 669 | 0.128 | 0.162 | 0.058 | 0.057 | 0.524 + j0.400 | 0.163 + j0.057 | 2695 | 245 | 247 |
| 1/0 | 18.1 | 844 | 0.102 | 0.128 | 0.053 | 0.055 | 0.488 + j0.383 | 0.129 + j0.055 | 2816 | 278 | 275 |
| 2/0 | 18.8 | 1064 | 0.081 | 0.102 | 0.050 | 0.053 | 0.461 + j0.366 | 0.103 + j0.053 | 2952 | 317 | 306 |
| 3/0 | 19.5 | 1342 | 0.064 | 0.081 | 0.046 | 0.051 | 0.437 + j0.347 | 0.082 + j0.051 | 3110 | 357 | 335 |
| 4/0 | 20.3 | 1692 | 0.051 | 0.065 | 0.042 | 0.049 | 0.417 + j0.328 | 0.066 + j0.049 | 3284 | 404 | 369 |
| 250 | 20.8 | 2000 | 0.043 | 0.056 | 0.039 | 0.048 | 0.405 + j0.311 | 0.057 + j0.048 | 3451 | 456 | 412 |
| 350 | 22.2 | 2800 | 0.031 | 0.041 | 0.035 | 0.045 | 0.381 + j0.281 | 0.042 + j0.045 | 3770 | 537 | 456 |
| 500 | 23.7 | 4000 | 0.022 | 0.030 | 0.030 | 0.043 | 0.359 + j0.250 | 0.031 + j0.043 | 4167 | 616 | 497 |
| 750 | 26.7 | 6000 | 0.014 | 0.023 | 0.026 | 0.041 | 0.334 + j0.211 | 0.024 + j0.041 | 4752 | 706 | 551 |
| 1000 | 28.9 | 8000 | 0.011 | 0.019 | 0.023 | 0.039 | 0.316 + j0.187 | 0.020 + j0.039 | 5214 | 813 | 596 |
| 1000 | 28.9 | 8000 | 0.011 | 0.019 | 0.023 | 0.039 | 0.316 + j0.187 | 0.020 + j0.039 | 5214 | 813 | 596 |
| 1250 | 30.7 | 10000 | 0.009 | 0.018 | 0.021 | 0.038 | 0.303 + j0.168 | 0.019 + j0.038 | 5638 | | |
| 1500 | 32.1 | 12000 | 0.007 | 0.017 | 0.019 | 0.037 | 0.291 + j0.154 | 0.018 + j0.037 | 6010 | | |
| 2000 | 34.7 | 16000 | 0.005 | 0.017 | 0.017 | 0.036 | 0.274 + j0.132 | 0.019 + j0.035 | 6670 | | |

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


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## 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 | 19.30 | 5.59 | 20.83 | 2.03 | 33.83 | 1.27 | 36.37 | 327 | 1353 |
| TBA | 1 | 19 | 8.18 | 20.32 | 5.59 | 21.84 | 2.03 | 34.85 | 1.27 | 37.39 | 409 | 1487 |
| TBA | 1/0 | 19 | 9.17 | 21.31 | 5.59 | 22.83 | 2.03 | 35.84 | 1.27 | 38.38 | 510 | 1635 |
| 670965 | 2/0 | 19 | 10.29 | 22.45 | 5.59 | 23.98 | 2.03 | 37.29 | 1.27 | 39.83 | 726 | 1967 |
| TBA | 3/0 | 19 | 11.58 | 23.72 | 5.59 | 25.25 | 2.03 | 38.25 | 1.52 | 41.30 | 801 | 2097 |
| 672441^ | 4/0 | 19 | 13.00 | 25.15 | 5.59 | 26.67 | 2.03 | 39.98 | 1.52 | 43.03 | 1098 | 2511 |
| TBA | 250 | 37 | 14.17 | 26.52 | 5.59 | 28.04 | 2.03 | 41.05 | 1.52 | 44.09 | 1180 | 2625 |
| 671319 | 350 | 37 | 16.79 | 29.13 | 5.59 | 30.66 | 2.03 | 43.97 | 1.52 | 47.02 | 1752 | 3374 |
| 672047 | 500 | 37 | 20.04 | 32.39 | 5.59 | 33.91 | 2.03 | 47.22 | 1.52 | 50.27 | 2454 | 4240 |
| 641194 | 750 | 61 | 24.59 | 37.19 | 5.59 | 38.71 | 2.79 | 53.54 | 1.52 | 56.59 | 3624 | 5834 |
| 672046 | 1000 | 61 | 28.37 | 40.97 | 5.59 | 42.49 | 2.79 | 57.33 | 1.91 | 61.14 | 4789 | 7307 |
| 672445^ | 1000 | 61 | 28.37 | 40.97 | 5.59 | 42.49 | 2.79 | 57.33 | 1.91 | 61.14 | 4789 | 7292 |
| TBA | 1250 | 91 | 31.75 | 44.45 | 5.59 | 45.97 | 2.79 | 61.11 | 1.91 | 64.92 | 5796 | 8759 |
| TBA | 1500 | 91 | 34.80 | 47.50 | 5.59 | 49.02 | 2.79 | 64.16 | 1.91 | 67.97 | 6950 | 10102 |
| TBA | 2000 | 127 | 40.21 | 52.91 | 5.59 | 54.43 | 2.79 | 69.57 | 1.91 | 73.38 | 9253 | 12743 |

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


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## 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 | 436.88 | 2359 | 0.5315 | 0.67 | 0.0189 | 0.1936 | 0.566 + j0.418 | 0.205 + j0.060 | 2571 | 215 | 221 |
| 1 | 449.58 | 2977 | 0.4199 | 0.53 | 0.0177 | 0.1870 | 0.524 + j0.400 | 0.163 + j0.057 | 2695 | 245 | 247 |
| 1/0 | 459.74 | 3756 | 0.3346 | 0.42 | 0.0162 | 0.1804 | 0.488 + j0.383 | 0.129 + j0.055 | 2816 | 278 | 275 |
| 2/0 | 477.52 | 4735 | 0.2657 | 0.33 | 0.0152 | 0.1739 | 0.461 + j0.366 | 0.103 + j0.053 | 2952 | 317 | 306 |
| 3/0 | 495.30 | 5972 | 0.2100 | 0.27 | 0.0140 | 0.1673 | 0.437 + j0.347 | 0.082 + j0.051 | 3110 | 357 | 335 |
| 4/0 | 515.62 | 7529 | 0.1673 | 0.21 | 0.0128 | 0.1608 | 0.417 + j0.328 | 0.066 + j0.049 | 3284 | 404 | 369 |
| 250 | 528.32 | 8900 | 0.1411 | 0.18 | 0.0119 | 0.1575 | 0.405 + j0.311 | 0.057 + j0.048 | 3451 | 456 | 412 |
| 350 | 563.88 | 12460 | 0.1017 | 0.13 | 0.0107 | 0.1476 | 0.381 + j0.281 | 0.042 + j0.045 | 3770 | 537 | 456 |
| 500 | 601.98 | 17800 | 0.0722 | 0.10 | 0.0091 | 0.1411 | 0.359 + j0.250 | 0.031 + j0.043 | 4167 | 616 | 497 |
| 750 | 678.18 | 26700 | 0.0459 | 0.08 | 0.0079 | 0.1345 | 0.334 + j0.211 | 0.024 + j0.041 | 4752 | 706 | 551 |
| 1000 | 734.06 | 35600 | 0.0361 | 0.06 | 0.0070 | 0.1280 | 0.316 + j0.187 | 0.020 + j0.039 | 5214 | 813 | 596 |
| 1000 | 734.06 | 35600 | 0.0361 | 0.06 | 0.0070 | 0.1280 | 0.316 + j0.187 | 0.020 + j0.039 | 5214 | 813 | 596 |
| 1250 | 779.78 | 44500 | 0.0295 | 0.06 | 0.0064 | 0.1247 | 0.303 + j0.168 | 0.019 + j0.038 | 5638 | | |
| 1500 | 815.34 | 53400 | 0.0230 | 0.06 | 0.0058 | 0.1214 | 0.291 + j0.154 | 0.018 + j0.037 | 6010 | | |
| 2000 | 881.38 | 71200 | 0.0164 | 0.06 | 0.0052 | 0.1181 | 0.274 + j0.132 | 0.019 + j0.035 | 6670 | | |

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