# HVTECK CU 3/C 220NLEPR TS PVC AIA PVC 15kV 133% CSA

3 Conductor, 220 Mils No Lead Ethylene Propylene Rubber (NL-EPR), 133% Insulation Level, Tape Shield, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

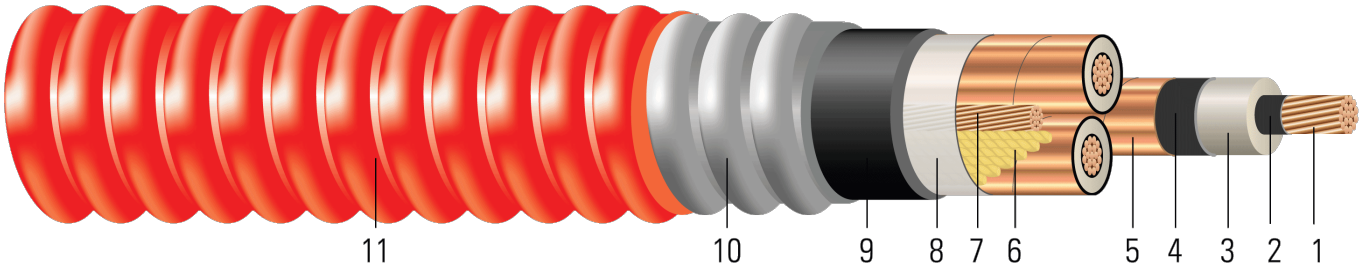



Image not to scale. See Table 1 for dimensions.

## 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 No Lead Ethylene Propylene Rubber (NL-EPR) 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. **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). (Optional galvanized steel armour GSIA available upon request)
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)



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- 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 220 NLEPR 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 | Ground | Inner Jacket Thickness | Dia. Over Armour | Overall Jacket Thickness | Approx. OD | Copper Weight | Approx. Weight | Conduit Size* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AWG/ Kcmil | No. | inch | inch | mil | inch | No. x AWG | mil | inch | mil | inch | lb/ 1000ft | lb/ 1000ft | inch |
| 576232 | 2 | 7 | 0.283 | 0.761 | 220 | 0.821 | 1x6 | 110 | 2.387 | 75 | 2.537 | 919 | 3048 | 3 |
| 648836^ | 1 | 19 | 0.322 | 0.8 | 220 | 0.86 | 1x6 | 110 | 2.471 | 75 | 2.621 | 1101 | 3346 | 3.5 |
| 581918 | 1/0 | 19 | 0.362 | 0.84 | 220 | 0.9 | 1x4 | 110 | 2.464 | 75 | 2.614 | 1352 | 4465 | 3.5 |
| TBA | 1/0 | 19 | 0.362 | 0.84 | 220 | 0.9 | 1x6 | 110 | 2.5 | 75 | 2.65 | 1294 | 3035 | 3.5 |
| 576227 | 2/0 | 19 | 0.405 | 0.884 | 220 | 0.944 | 1x4 | 110 | 2.653 | 75 | 2.803 | 1620 | 4104 | 3.5 |
| 583354^ | 2/0 | 19 | 0.405 | 0.884 | 220 | 0.944 | 1x4 | 110 | 2.653 | 75 | 2.803 | 1620 | 4092 | 3.5 |
| TBA | 3/0 | 19 | 0.456 | 0.934 | 220 | 0.994 | 1x4 | 110 | 2.703 | 75 | 2.853 | 1947 | 3899 | 3.5 |
| 576167 | 4/0 | 19 | 0.512 | 0.99 | 220 | 1.05 | 1x3 | 110 | 2.882 | 75 | 3.032 | 2417 | 5236 | 4 |
| 576228 | 250 | 37 | 0.558 | 1.044 | 220 | 1.124 | 1x2 | 110 | 3.042 | 85 | 3.212 | 2837 | 5978 | 4 |
| 576229 | 350 | 37 | 0.661 | 1.127 | 220 | 1.187 | 1x2 | 125 | 3.228 | 85 | 3.398 | 3787 | 7260 | 4.5 |
| 583355^ | 500 | 37 | 0.789 | 1.252 | 220 | 1.312 | 1x1 | 125 | 3.498 | 85 | 3.668 | 5274 | 9155 | 5 |
| 584149 | 500 | 37 | 0.789 | 1.252 | 220 | 1.312 | 1x1 | 125 | 3.498 | 85 | 3.668 | 5274 | 10580 | 5 |
| 672302† | 500 | 37 | 0.789 | 1.252 | 220 | 1.312 | 1x1 | 125 | 3.498 | 85 | 3.668 | 5796 | 9677 | 5 |
| 576230 | 500 | 37 | 0.789 | 1.252 | 220 | 1.312 | 1x1 | 125 | 3.498 | 85 | 3.668 | 5274 | 9172 | 5 |
| 665338^ | 750 | 61 | 0.968 | 1.464 | 220 | 1.524 | 1x2 | 125 | 3.956 | 85 | 4.126 | 7609 | 12195 | 5.5 |
| 581926 | 750 | 61 | 0.968 | 1.464 | 220 | 1.524 | 1x2/0 | 125 | 3.956 | 85 | 4.126 | 7817 | 12407 | 5.5 |
| 459198 | 750 | 61 | 0.968 | 1.464 | 220 | 1.524 | 1x2 | 125 | 3.956 | 85 | 4.126 | 7586 | 12192 | 5.5 |

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
^ Black outer jacket
† 3-#1awg grounds equal to 50% of the phase conductor
TBA stock codes are estimations only and actual product may vary. Please wait until a stock code is assigned to purchase connectors and/or fittings.


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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 | 17.8 | 1592 | 0.162 | 0.221 | 0.045 | 0.031 | 0.591+j0.465 | 0.221+j0.048 | 2575 | 172 | 201 |
| 1 | 18.3 | 2008 | 0.128 | 0.175 | 0.042 | 0.029 | 0.546+j0.447 | 0.175+j0.045 | 2696 | 197 | 228 |
| 1/0 | 18.3 | 2534 | 0.102 | 0.139 | 0.039 | 0.027 | 0.510+j0.429 | 0.139+j0.043 | 2820 | 225 | 257 |
| 1/0 | 18.6 | 2534 | 0.102 | 0.139 | 0.039 | 0.027 | 0.510+j0.429 | 0.139+j0.043 | 2820 | 225 | 257 |
| 2/0 | 19.6 | 3194 | 0.082 | 0.112 | 0.036 | 0.025 | 0.482+j0.411 | 0.112+j0.042 | 2956 | 260 | 292 |
| 2/0 | 19.6 | 3194 | 0.082 | 0.112 | 0.036 | 0.025 | 0.482+j0.411 | 0.112+j0.042 | 2956 | 260 | 292 |
| 3/0 | 20 | 4027 | 0.064 | 0.087 | 0.033 | 0.024 | 0.456+j0.392 | 0.087+j0.040 | 3111 | 297 | 330 |
| 4/0 | 21.2 | 5078 | 0.051 | 0.07 | 0.031 | 0.022 | 0.436+j0.372 | 0.070+j0.039 | 3284 | 342 | 372 |
| 250 | 22.5 | 6000 | 0.043 | 0.059 | 0.029 | 0.022 | 0.421+j0.348 | 0.059+j0.038 | 3514 | 376 | 410 |
| 350 | 23.8 | 8400 | 0.031 | 0.043 | 0.024 | 0.019 | 0.402+j0.328 | 0.043+j0.036 | 3709 | 460 | 487 |
| 500 | 25.7 | 12000 | 0.021 | 0.03 | 0.021 | 0.018 | 0.379+j0.294 | 0.030+j0.034 | 4096 | 556 | 573 |
| 500 | 25.7 | 12000 | 0.021 | 0.03 | 0.021 | 0.018 | 0.379+j0.294 | 0.030+j0.034 | 4096 | 556 | 573 |
| 500 | 25.7 | 12000 | 0.021 | 0.03 | 0.021 | 0.018 | 0.379+j0.294 | 0.030+j0.034 | 4096 | 556 | 573 |
| 500 | 25.7 | 12000 | 0.021 | 0.03 | 0.021 | 0.018 | 0.379+j0.294 | 0.030+j0.034 | 4096 | 556 | 573 |
| 750 | 28.9 | 18000 | 0.014 | 0.021 | 0.019 | 0.016 | 0.353+j0.247 | 0.021+j0.032 | 4753 | 678 | 668 |
| 750 | 28.9 | 18000 | 0.014 | 0.021 | 0.019 | 0.016 | 0.353+j0.247 | 0.021+j0.032 | 4753 | 678 | 668 |
| 750 | 28.9 | 18000 | 0.014 | 0.021 | 0.019 | 0.016 | 0.353+j0.247 | 0.021+j0.032 | 4753 | 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


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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 | Ground | Inner Jacket Thickness | Dia. Over Armour | Overall Jacket Thickness | Approx. OD | Copper Weight | Approx. Weight | Conduit Size* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AWG/ Kcmil | No. | mm | mm | mm | mm | No. x AWG | mm | mm | mm | mm | kg/km | kg/km | inch |
| 576232 | 2 | 7 | 7.19 | 19.33 | 5.59 | 20.85 | 1x6 | 2.79 | 60.63 | 1.91 | 64.44 | 1368 | 4536 | 3 |
| 648836^ | 1 | 19 | 8.18 | 20.32 | 5.59 | 21.84 | 1x6 | 2.79 | 62.76 | 1.91 | 66.57 | 1638 | 4979 | 3.5 |
| 581918 | 1/0 | 19 | 9.19 | 21.34 | 5.59 | 22.86 | 1x4 | 2.79 | 62.59 | 1.91 | 66.40 | 2012 | 6645 | 3.5 |
| TBA | 1/0 | 19 | 9.19 | 21.34 | 5.59 | 22.86 | 1x6 | 2.79 | 63.50 | 1.91 | 67.31 | 1926 | 4517 | 3.5 |
| 576227 | 2/0 | 19 | 10.29 | 22.45 | 5.59 | 23.98 | 1x4 | 2.79 | 67.39 | 1.91 | 71.20 | 2411 | 6107 | 3.5 |
| 583354^ | 2/0 | 19 | 10.29 | 22.45 | 5.59 | 23.98 | 1x4 | 2.79 | 67.39 | 1.91 | 71.20 | 2411 | 6090 | 3.5 |
| TBA | 3/0 | 19 | 11.58 | 23.72 | 5.59 | 25.25 | 1x4 | 2.79 | 68.66 | 1.91 | 72.47 | 2897 | 5802 | 3.5 |
| 576167 | 4/0 | 19 | 13.00 | 25.15 | 5.59 | 26.67 | 1x3 | 2.79 | 73.20 | 1.91 | 77.01 | 3597 | 7792 | 4 |
| 576228 | 250 | 37 | 14.17 | 26.52 | 5.59 | 28.55 | 1x2 | 2.79 | 77.27 | 2.16 | 81.58 | 4222 | 8896 | 4 |
| 576229 | 350 | 37 | 16.79 | 28.63 | 5.59 | 30.15 | 1x2 | 3.18 | 81.99 | 2.16 | 86.31 | 5636 | 10804 | 4.5 |
| 583355^ | 500 | 37 | 20.04 | 31.80 | 5.59 | 33.32 | 1x1 | 3.18 | 88.85 | 2.16 | 93.17 | 7849 | 13624 | 5 |
| 584149 | 500 | 37 | 20.04 | 31.80 | 5.59 | 33.32 | 1x1 | 3.18 | 88.85 | 2.16 | 93.17 | 7849 | 15745 | 5 |
| 672302† | 500 | 37 | 20.04 | 31.80 | 5.59 | 33.32 | 1x1 | 3.18 | 88.85 | 2.16 | 93.17 | 8625 | 14401 | 5 |
| 576230 | 500 | 37 | 20.04 | 31.80 | 5.59 | 33.32 | 1x1 | 3.18 | 88.85 | 2.16 | 93.17 | 7849 | 13649 | 5 |
| 665338^ | 750 | 61 | 24.59 | 37.19 | 5.59 | 38.71 | 1x2 | 3.18 | 100.48 | 2.16 | 104.80 | 11323 | 18148 | 5.5 |
| 581926 | 750 | 61 | 24.59 | 37.19 | 5.59 | 38.71 | 1x2/0 | 3.18 | 100.48 | 2.16 | 104.80 | 11633 | 18464 | 5.5 |
| 459198 | 750 | 61 | 24.59 | 37.19 | 5.59 | 38.71 | 1x2 | 3.18 | 100.48 | 2.16 | 104.80 | 11289 | 18144 | 5.5 |

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
^ Black outer jacket
† 3-#1awg grounds equal to 50% of the phase conductor
TBA stock codes are estimations only and actual product may vary. Please wait until a stock code is assigned to purchase connectors and/or fittings.


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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 | 452.12 | 7084 | 0.5315 | 0.73 | 0.0137 | 0.1017 | 0.591+j0.465 | 0.221+j0.048 | 2575 | 172 | 201 |
| 1 | 464.82 | 8936 | 0.4199 | 0.57 | 0.0128 | 0.0951 | 0.546+j0.447 | 0.175+j0.045 | 2696 | 197 | 228 |
| 1/0 | 464.82 | 11276 | 0.3346 | 0.46 | 0.0119 | 0.0886 | 0.510+j0.429 | 0.139+j0.043 | 2820 | 225 | 257 |
| 1/0 | 472.44 | 11276 | 0.3346 | 0.46 | 0.0119 | 0.0886 | 0.510+j0.429 | 0.139+j0.043 | 2820 | 225 | 257 |
| 2/0 | 497.84 | 14213 | 0.2690 | 0.37 | 0.0110 | 0.0820 | 0.482+j0.411 | 0.112+j0.042 | 2956 | 260 | 292 |
| 2/0 | 497.84 | 14213 | 0.2690 | 0.37 | 0.0110 | 0.0820 | 0.482+j0.411 | 0.112+j0.042 | 2956 | 260 | 292 |
| 3/0 | 508.00 | 17920 | 0.2100 | 0.29 | 0.0101 | 0.0787 | 0.456+j0.392 | 0.087+j0.040 | 3111 | 297 | 330 |
| 4/0 | 538.48 | 22597 | 0.1673 | 0.23 | 0.0094 | 0.0722 | 0.436+j0.372 | 0.070+j0.039 | 3284 | 342 | 372 |
| 250 | 571.50 | 26700 | 0.1411 | 0.19 | 0.0088 | 0.0722 | 0.421+j0.348 | 0.059+j0.038 | 3514 | 376 | 410 |
| 350 | 604.52 | 37380 | 0.1017 | 0.14 | 0.0073 | 0.0623 | 0.402+j0.328 | 0.043+j0.036 | 3709 | 460 | 487 |
| 500 | 652.78 | 53400 | 0.0689 | 0.10 | 0.0064 | 0.0591 | 0.379+j0.294 | 0.030+j0.034 | 4096 | 556 | 573 |
| 500 | 652.78 | 53400 | 0.0689 | 0.10 | 0.0064 | 0.0591 | 0.379+j0.294 | 0.030+j0.034 | 4096 | 556 | 573 |
| 500 | 652.78 | 53400 | 0.0689 | 0.10 | 0.0064 | 0.0591 | 0.379+j0.294 | 0.030+j0.034 | 4096 | 556 | 573 |
| 500 | 652.78 | 53400 | 0.0689 | 0.10 | 0.0064 | 0.0591 | 0.379+j0.294 | 0.030+j0.034 | 4096 | 556 | 573 |
| 750 | 734.06 | 80100 | 0.0459 | 0.07 | 0.0058 | 0.0525 | 0.353+j0.247 | 0.021+j0.032 | 4753 | 678 | 668 |
| 750 | 734.06 | 80100 | 0.0459 | 0.07 | 0.0058 | 0.0525 | 0.353+j0.247 | 0.021+j0.032 | 4753 | 678 | 668 |
| 750 | 734.06 | 80100 | 0.0459 | 0.07 | 0.0058 | 0.0525 | 0.353+j0.247 | 0.021+j0.032 | 4753 | 678 | 668 |

* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.
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3/C in air copper and aluminum: D17N
3/C direct buried copper and aluminum: D17E


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