

# HVTECK CU 1/C 115NLEPR CB PVC AIA PVC 5kV 133% CSA

Single Conductor, 115 Mils No Lead Ethylene Propylene Rubber (NL-EPR), 133% Insulation Level, Concentric Bond, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

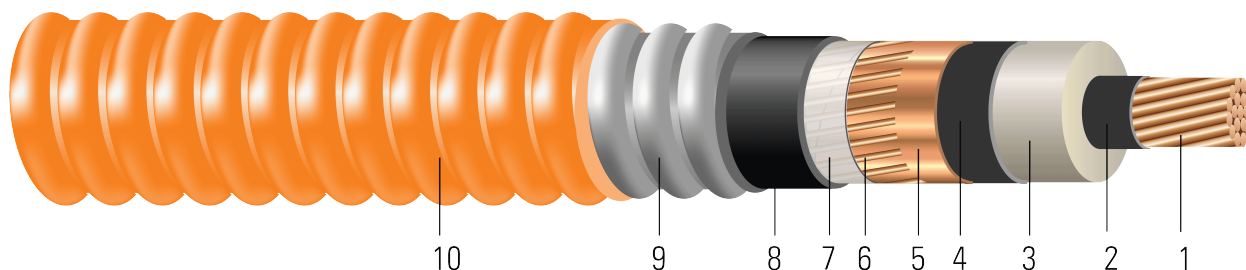


Image not to scale. See Table 1 for dimensions.

## 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:** 115 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 133% insulation level
4. **Insulation Shield:** Strippable semi-conducting cross-linked copolymer
5. **Tape Shield:** 5 mil tape shield
6. **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
7. **Neutral Separator:** Mylar tape
8. **Inner Jacket:** PVC inner jacket
9. **Armour:** Aluminum Interlocked Armour (AIA)
10. **Overall Jacket:** Orange Polyvinyl Chloride (PVC) Jacket

## APPLICATIONS AND FEATURES:

Southwire's 5kV 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 (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:**

{SQMTR} {CSA} SOUTHWIRE® POWER CABLE {NESC} 1/C XXX KCMIL CU X.XX mm (115 mils) NL-EPR AIA 5KV 133% INS LEVEL 25%TS CB XX X XX AWG SUN RES 105°C FT4 (-40°C) LTGG RoHS

**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                   | 0.550                    | 115              | 0.610                           | 7x14               | 80                     | 1.120            | 50                       | 1.220      | 299           | 812            |
| TBA          | 1          | 19     | 0.322                   | 0.590                    | 115              | 0.650                           | 11x14              | 80                     | 1.160            | 50                       | 1.260      | 407           | 947            |
| TBA          | 1/0        | 19     | 0.361                   | 0.629                    | 115              | 0.689                           | 11x14              | 80                     | 1.199            | 50                       | 1.299      | 474           | 1041           |
| TBA          | 2/0        | 19     | 0.405                   | 0.673                    | 115              | 0.733                           | 11x14              | 80                     | 1.353            | 50                       | 1.453      | 559           | 1167           |
| TBA          | 3/0        | 19     | 0.456                   | 0.724                    | 115              | 0.784                           | 13x14              | 80                     | 1.404            | 50                       | 1.504      | 694           | 1337           |
| TBA          | 4/0        | 19     | 0.512                   | 0.780                    | 115              | 0.840                           | 13x14              | 80                     | 1.460            | 50                       | 1.560      | 829           | 1510           |
| TBA          | 250        | 37     | 0.558                   | 0.834                    | 115              | 0.894                           | 17x14              | 80                     | 1.514            | 60                       | 1.634      | 1001          | 1755           |
| 588055       | 350        | 37     | 0.661                   | 0.917                    | 115              | 0.977                           | 21x14              | 80                     | 1.632            | 60                       | 1.745      | 1365          | 2313           |
| TBA          | 500        | 37     | 0.789                   | 1.065                    | 115              | 1.125                           | 26x14              | 80                     | 1.803            | 60                       | 1.923      | 1896          | 2866           |
| TBA          | 750        | 61     | 0.968                   | 1.254                    | 115              | 1.314                           | 21x12              | 80                     | 1.992            | 60                       | 2.112      | 2753          | 3968           |
| TBA          | 1000       | 61     | 1.117                   | 1.403                    | 115              | 1.463                           | 21x12              | 110                    | 2.201            | 60                       | 2.321      | 3525          | 4985           |

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          | 14.6               | 530              | 0.162                | 0.204                | 0.031                       | 0.055                      | 0.554 + j0.511          | 0.205 + j0.056              | 5458                                   | 215                            | 221                                     |
| 1          | 15.1               | 669              | 0.128                | 0.162                | 0.028                       | 0.053                      | 0.516 + j0.488          | 0.163 + j0.053              | 8577                                   | 245                            | 247                                     |
| 1/0        | 15.6               | 844              | 0.102                | 0.128                | 0.026                       | 0.051                      | 0.485 + j0.468          | 0.129 + j0.051              | 8577                                   | 278                            | 275                                     |
| 2/0        | 17.4               | 1064             | 0.081                | 0.102                | 0.024                       | 0.051                      | 0.459 + j0.446          | 0.103 + j0.051              | 8577                                   | 317                            | 306                                     |
| 3/0        | 18.0               | 1342             | 0.064                | 0.081                | 0.021                       | 0.049                      | 0.439 + j0.423          | 0.082 + j0.049              | 10137                                  | 357                            | 335                                     |
| 4/0        | 18.7               | 1692             | 0.051                | 0.065                | 0.020                       | 0.047                      | 0.424 + j0.399          | 0.066 + j0.048              | 10137                                  | 404                            | 369                                     |
| 250        | 19.6               | 2000             | 0.043                | 0.056                | 0.018                       | 0.046                      | 0.414 + j0.377          | 0.057 + j0.046              | 13256                                  | 456                            | 412                                     |
| 350        | 20.9               | 2800             | 0.031                | 0.041                | 0.015                       | 0.044                      | 0.394 + j0.340          | 0.042 + j0.044              | 16376                                  | 537                            | 456                                     |
| 500        | 23.1               | 4000             | 0.022                | 0.030                | 0.014                       | 0.042                      | 0.374 + j0.300          | 0.031 + j0.042              | 20275                                  | 616                            | 497                                     |
| 750        | 25.3               | 6000             | 0.014                | 0.023                | 0.012                       | 0.040                      | 0.352 + j0.252          | 0.024 + j0.040              | 26018                                  | 706                            | 551                                     |
| 1000       | 27.9               | 8000             | 0.011                | 0.019                | 0.010                       | 0.039                      | 0.334 + j0.221          | 0.020 + j0.038              | 26018                                  | 813                            | 596                                     |

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

**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                    | 13.97                    | 2.92             | 15.49                           | 7x14               | 2.03                   | 28.45            | 1.27                     | 30.99      | 445           | 1208           |
| TBA          | 1          | 19     | 8.18                    | 14.99                    | 2.92             | 16.51                           | 11x14              | 2.03                   | 29.46            | 1.27                     | 32.00      | 606           | 1409           |
| TBA          | 1/0        | 19     | 9.17                    | 15.98                    | 2.92             | 17.50                           | 11x14              | 2.03                   | 30.45            | 1.27                     | 32.99      | 705           | 1549           |
| TBA          | 2/0        | 19     | 10.29                   | 17.09                    | 2.92             | 18.62                           | 11x14              | 2.03                   | 34.37            | 1.27                     | 36.91      | 832           | 1737           |
| TBA          | 3/0        | 19     | 11.58                   | 18.39                    | 2.92             | 19.91                           | 13x14              | 2.03                   | 35.66            | 1.27                     | 38.20      | 1033          | 1990           |
| TBA          | 4/0        | 19     | 13.00                   | 19.81                    | 2.92             | 21.34                           | 13x14              | 2.03                   | 37.08            | 1.27                     | 39.62      | 1234          | 2247           |
| TBA          | 250        | 37     | 14.17                   | 21.18                    | 2.92             | 22.71                           | 17x14              | 2.03                   | 38.46            | 1.52                     | 41.50      | 1490          | 2612           |
| 588055       | 350        | 37     | 16.79                   | 23.29                    | 2.92             | 24.82                           | 21x14              | 2.03                   | 41.45            | 1.52                     | 44.32      | 2031          | 3442           |
| TBA          | 500        | 37     | 20.04                   | 27.05                    | 2.92             | 28.58                           | 26x14              | 2.03                   | 45.80            | 1.52                     | 48.84      | 2822          | 4265           |
| TBA          | 750        | 61     | 24.59                   | 31.85                    | 2.92             | 33.38                           | 21x12              | 2.03                   | 50.60            | 1.52                     | 53.64      | 4097          | 5905           |
| TBA          | 1000       | 61     | 28.37                   | 35.64                    | 2.92             | 37.16                           | 21x12              | 2.79                   | 55.91            | 1.52                     | 58.95      | 5246          | 7418           |

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          | 370.84             | 2359             | 0.5315               | 0.67                 | 0.0094                      | 0.1804                     | 0.554 + j0.511          | 0.205 + j0.056              | 5458                                   | 215                            | 221                                     |
| 1          | 383.54             | 2977             | 0.4199               | 0.53                 | 0.0085                      | 0.1739                     | 0.516 + j0.488          | 0.163 + j0.053              | 8577                                   | 245                            | 247                                     |
| 1/0        | 396.24             | 3756             | 0.3346               | 0.42                 | 0.0079                      | 0.1673                     | 0.485 + j0.468          | 0.129 + j0.051              | 8577                                   | 278                            | 275                                     |
| 2/0        | 441.96             | 4735             | 0.2657               | 0.33                 | 0.0073                      | 0.1673                     | 0.459 + j0.446          | 0.103 + j0.051              | 8577                                   | 317                            | 306                                     |
| 3/0        | 457.20             | 5972             | 0.2100               | 0.27                 | 0.0064                      | 0.1608                     | 0.439 + j0.423          | 0.082 + j0.049              | 10137                                  | 357                            | 335                                     |
| 4/0        | 474.98             | 7529             | 0.1673               | 0.21                 | 0.0061                      | 0.1542                     | 0.424 + j0.399          | 0.066 + j0.048              | 10137                                  | 404                            | 369                                     |
| 250        | 497.84             | 8900             | 0.1411               | 0.18                 | 0.0055                      | 0.1509                     | 0.414 + j0.377          | 0.057 + j0.046              | 13256                                  | 456                            | 412                                     |
| 350        | 530.86             | 12460            | 0.1017               | 0.13                 | 0.0046                      | 0.1444                     | 0.394 + j0.340          | 0.042 + j0.044              | 16376                                  | 537                            | 456                                     |
| 500        | 586.74             | 17800            | 0.0722               | 0.10                 | 0.0043                      | 0.1378                     | 0.374 + j0.300          | 0.031 + j0.042              | 20275                                  | 616                            | 497                                     |
| 750        | 642.62             | 26700            | 0.0459               | 0.08                 | 0.0037                      | 0.1312                     | 0.352 + j0.252          | 0.024 + j0.040              | 26018                                  | 706                            | 551                                     |
| 1000       | 708.66             | 35600            | 0.0361               | 0.06                 | 0.0030                      | 0.1280                     | 0.334 + j0.221          | 0.020 + j0.038              | 26018                                  | 813                            | 596                                     |

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

