



HVTECK CU 1/C 345NLEPR TS PVC AIA PVC 28kV 133% CSA

Single Conductor, 345 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:** 345 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. **Inner Jacket:** PVC inner jacket
7. **Armour:** Aluminum Interlocked Armour (AIA)
8. **Overall Jacket:** Black Polyvinyl Chloride (PVC) Jacket

APPLICATIONS AND FEATURES:

Southwire's 28kV 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 345 NLEPR AIA 28kV 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 | 1 | 19 | 0.322 | 1.050 | 345 | 1.110 | 80 | 1.646 | 60 | 1.766 | 280 | 1376 |
| TBA | 1/0 | 19 | 0.361 | 1.089 | 345 | 1.149 | 80 | 1.685 | 60 | 1.805 | 348 | 1487 |
| TBA | 2/0 | 19 | 0.405 | 1.133 | 345 | 1.193 | 80 | 1.729 | 60 | 1.849 | 434 | 1622 |
| TBA | 3/0 | 19 | 0.456 | 1.184 | 345 | 1.244 | 80 | 1.780 | 60 | 1.900 | 543 | 1788 |
| TBA | 4/0 | 19 | 0.512 | 1.240 | 345 | 1.300 | 80 | 1.836 | 60 | 1.956 | 679 | 1985 |
| TBA | 250 | 37 | 0.558 | 1.294 | 345 | 1.354 | 80 | 1.890 | 60 | 2.010 | 798 | 2261 |
| 577263 [^] | 350 | 37 | 0.661 | 1.377 | 345 | 1.437 | 80 | 2.071 | 60 | 2.191 | 1195 | 2837 |
| TBA | 500 | 37 | 0.789 | 1.525 | 345 | 1.585 | 110 | 2.181 | 60 | 2.301 | 1576 | 3434 |
| TBA | 750 | 61 | 0.968 | 1.714 | 345 | 1.774 | 110 | 2.370 | 75 | 2.520 | 2352 | 4524 |

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

[^]Yellow outer jacket





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 | 21.2 | 669 | 0.128 | 0.162 | 0.058 | 0.061 | 0.510 + j0.322 | 0.163 + j0.061 | 3470 | 245 | 244 |
| 1/0 | 21.7 | 844 | 0.102 | 0.128 | 0.054 | 0.059 | 0.473 + j0.309 | 0.129 + j0.059 | 3590 | 278 | 272 |
| 2/0 | 22.2 | 1064 | 0.081 | 0.102 | 0.051 | 0.057 | 0.444 + j0.296 | 0.103 + j0.057 | 3727 | 316 | 303 |
| 3/0 | 22.8 | 1342 | 0.064 | 0.081 | 0.047 | 0.055 | 0.418 + j0.281 | 0.082 + j0.055 | 3885 | 356 | 333 |
| 4/0 | 23.5 | 1692 | 0.051 | 0.065 | 0.044 | 0.053 | 0.397 + j0.267 | 0.066 + j0.053 | 4058 | 403 | 367 |
| 250 | 24.1 | 2000 | 0.043 | 0.056 | 0.041 | 0.051 | 0.383 + j0.254 | 0.057 + j0.051 | 4226 | 455 | 411 |
| 350 | 26.3 | 2800 | 0.031 | 0.041 | 0.036 | 0.049 | 0.358 + j0.231 | 0.042 + j0.049 | 4545 | 537 | 459 |
| 500 | 27.6 | 4000 | 0.022 | 0.030 | 0.032 | 0.046 | 0.335 + j0.207 | 0.031 + j0.046 | 4941 | 616 | 499 |
| 750 | 30.2 | 6000 | 0.014 | 0.023 | 0.028 | 0.044 | 0.311 + j0.178 | 0.024 + j0.044 | 5527 | 716 | 557 |

* 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 | 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 | 1 | 19 | 8.18 | 26.67 | 8.76 | 28.19 | 2.03 | 41.81 | 1.52 | 44.86 | 417 | 2048 |
| TBA | 1/0 | 19 | 9.17 | 27.66 | 8.76 | 29.18 | 2.03 | 42.80 | 1.52 | 45.85 | 518 | 2213 |
| TBA | 2/0 | 19 | 10.29 | 28.78 | 8.76 | 30.30 | 2.03 | 43.92 | 1.52 | 46.96 | 646 | 2414 |
| TBA | 3/0 | 19 | 11.58 | 30.07 | 8.76 | 31.60 | 2.03 | 45.21 | 1.52 | 48.26 | 808 | 2661 |
| TBA | 4/0 | 19 | 13.00 | 31.50 | 8.76 | 33.02 | 2.03 | 46.63 | 1.52 | 49.68 | 1010 | 2954 |
| TBA | 250 | 37 | 14.17 | 32.87 | 8.76 | 34.39 | 2.03 | 48.01 | 1.52 | 51.05 | 1188 | 3365 |
| 577263 [^] | 350 | 37 | 16.79 | 34.98 | 8.76 | 36.50 | 2.03 | 52.60 | 1.52 | 55.65 | 1778 | 4222 |
| TBA | 500 | 37 | 20.04 | 38.73 | 8.76 | 40.26 | 2.79 | 55.40 | 1.52 | 58.45 | 2345 | 5110 |
| TBA | 750 | 61 | 24.59 | 43.54 | 8.76 | 45.06 | 2.79 | 60.20 | 1.91 | 64.01 | 3500 | 6732 |

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

[^]Yellow outer jacket





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 | 538.48 | 2977 | 0.4199 | 0.53 | 0.0177 | 0.2001 | 0.510 + j0.322 | 0.163 + j0.061 | 3470 | 245 | 244 |
| 1/0 | 551.18 | 3756 | 0.3346 | 0.42 | 0.0165 | 0.1936 | 0.473 + j0.309 | 0.129 + j0.059 | 3590 | 278 | 272 |
| 2/0 | 563.88 | 4735 | 0.2657 | 0.33 | 0.0155 | 0.1870 | 0.444 + j0.296 | 0.103 + j0.057 | 3727 | 316 | 303 |
| 3/0 | 579.12 | 5972 | 0.2100 | 0.27 | 0.0143 | 0.1804 | 0.418 + j0.281 | 0.082 + j0.055 | 3885 | 356 | 333 |
| 4/0 | 596.90 | 7529 | 0.1673 | 0.21 | 0.0134 | 0.1739 | 0.397 + j0.267 | 0.066 + j0.053 | 4058 | 403 | 367 |
| 250 | 612.14 | 8900 | 0.1411 | 0.18 | 0.0125 | 0.1673 | 0.383 + j0.254 | 0.057 + j0.051 | 4226 | 455 | 411 |
| 350 | 668.02 | 12460 | 0.1017 | 0.13 | 0.0110 | 0.1608 | 0.358 + j0.231 | 0.042 + j0.049 | 4545 | 537 | 459 |
| 500 | 701.04 | 17800 | 0.0722 | 0.10 | 0.0098 | 0.1509 | 0.335 + j0.207 | 0.031 + j0.046 | 4941 | 616 | 499 |
| 750 | 767.08 | 26700 | 0.0459 | 0.08 | 0.0085 | 0.1444 | 0.311 + j0.178 | 0.024 + j0.044 | 5527 | 716 | 557 |

* 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

