# HVTECK CU 1/C 140TRXLPE CB PVC AIA PVC 8kV 133% CSA

Single Conductor, 140 Mils Tree Retardant Cross Linked Polyethylene, 133% Insulation Level, Concentric Bond, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

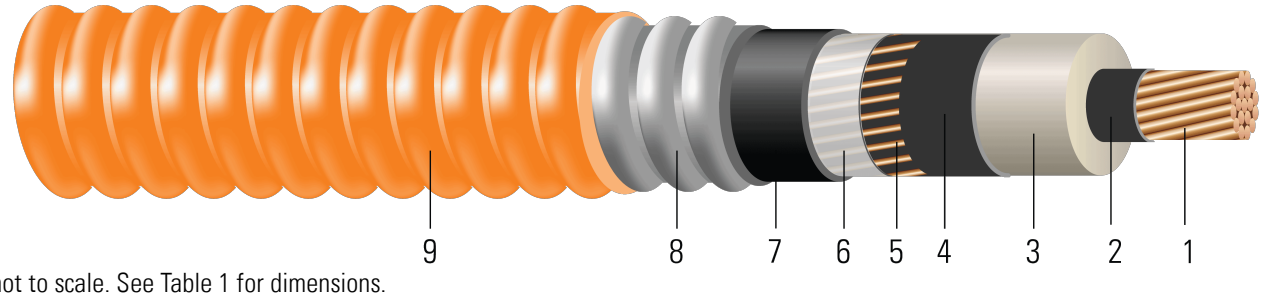



Image not to scale. See Table 1 for dimensions.

## 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:** 140 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:** Orange Polyvinyl Chloride (PVC) Jacket

## APPLICATIONS AND FEATURES:

Southwire's 8kV 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)



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- 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 140 TRXLPE AIA 8kV 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

| 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 | Conduit Size* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AWG/ Kcmil | No. | inch | inch | mil | inch | No. x AWG | mil | inch | mil | inch | lb/ 1000ft | lb/ 1000ft | inch |
| 2 | 7 | 0.283 | 0.601 | 140 | 0.661 | 5x12 | 80 | 1.321 | 50 | 1.421 | 341 | 1188 | 3.5 |
| 1 | 19 | 0.322 | 0.64 | 140 | 0.7 | 7x12 | 80 | 1.36 | 50 | 1.46 | 445 | 1331 | 3.5 |
| 1/0 | 19 | 0.362 | 0.68 | 140 | 0.74 | 7x12 | 80 | 1.4 | 50 | 1.5 | 516 | 1441 | 4 |
| 2/0 | 19 | 0.405 | 0.723 | 140 | 0.783 | 7x12 | 80 | 1.443 | 50 | 1.543 | 605 | 1573 | 4 |
| 3/0 | 19 | 0.456 | 0.774 | 140 | 0.834 | 9x12 | 80 | 1.594 | 60 | 1.714 | 750 | 1944 | 4.5 |
| 4/0 | 19 | 0.512 | 0.83 | 140 | 0.89 | 9x12 | 80 | 1.65 | 60 | 1.77 | 889 | 2145 | 4.5 |
| 250 | 37 | 0.558 | 0.884 | 140 | 0.944 | 11x12 | 80 | 1.704 | 60 | 1.824 | 1055 | 2374 | 4.5 |
| 350 | 37 | 0.661 | 0.987 | 140 | 1.047 | 13x12 | 80 | 1.807 | 60 | 1.927 | 1425 | 2858 | 5 |
| 500 | 37 | 0.789 | 1.115 | 140 | 1.175 | 17x12 | 80 | 1.935 | 60 | 2.055 | 1967 | 3541 | 5.5 |
| 750 | 61 | 0.968 | 1.304 | 140 | 1.364 | 21x12 | 110 | 2.184 | 60 | 2.304 | 2839 | 4751 | 6 |
| 1000 | 61 | 1.117 | 1.453 | 140 | 1.513 | 21x12 | 110 | 2.333 | 75 | 2.483 | 3623 | 5775 | 6.5 |

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
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 | 9.9 | 530 | 0.162 | 0.221 | 0.043 | 0.059 | 0.521+j0.196 | 0.224+j0.065 | 2770 | 215 | 221 |
| 1 | 10.2 | 669 | 0.128 | 0.175 | 0.039 | 0.056 | 0.419+j0.125 | 0.179+j0.061 | 3879 | 245 | 247 |
| 1/0 | 10.5 | 844 | 0.102 | 0.139 | 0.036 | 0.054 | 0.383+j0.123 | 0.143+j0.059 | 3879 | 278 | 275 |
| 2/0 | 10.8 | 1064 | 0.082 | 0.112 | 0.033 | 0.052 | 0.355+j0.122 | 0.116+j0.058 | 3879 | 317 | 306 |
| 3/0 | 12 | 1342 | 0.064 | 0.087 | 0.031 | 0.052 | 0.288+j0.086 | 0.092+j0.057 | 4987 | 357 | 335 |
| 4/0 | 12.4 | 1692 | 0.051 | 0.07 | 0.028 | 0.05 | 0.271+j0.085 | 0.075+j0.055 | 4987 | 404 | 369 |
| 250 | 12.8 | 2000 | 0.043 | 0.059 | 0.026 | 0.049 | 0.229+j0.065 | 0.065+j0.053 | 6095 | 456 | 412 |
| 350 | 13.5 | 2800 | 0.031 | 0.043 | 0.023 | 0.046 | 0.190+j0.051 | 0.050+j0.050 | 7203 | 537 | 456 |
| 500 | 14.4 | 4000 | 0.021 | 0.03 | 0.02 | 0.044 | 0.145+j0.037 | 0.038+j0.047 | 9420 | 616 | 497 |
| 750 | 16.1 | 6000 | 0.014 | 0.021 | 0.016 | 0.042 | 0.115+j0.028 | 0.030+j0.044 | 11636 | 706 | 551 |
| 1000 | 17.4 | 8000 | 0.011 | 0.018 | 0.015 | 0.04 | 0.112+j0.027 | 0.027+j0.042 | 11636 | 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)

| 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 | Conduit Size* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AWG/ Kcmil | No. | mm | mm | mm | mm | No. x AWG | mm | mm | mm | mm | kg/km | kg/km | inch |
| 2 | 7 | 7.19 | 15.27 | 3.56 | 16.79 | 5x12 | 2.03 | 33.55 | 1.27 | 36.09 | 507 | 1768 | 3.5 |
| 1 | 19 | 8.18 | 16.26 | 3.56 | 17.78 | 7x12 | 2.03 | 34.54 | 1.27 | 37.08 | 662 | 1981 | 3.5 |
| 1/0 | 19 | 9.19 | 17.27 | 3.56 | 18.80 | 7x12 | 2.03 | 35.56 | 1.27 | 38.10 | 768 | 2144 | 4 |
| 2/0 | 19 | 10.29 | 18.36 | 3.56 | 19.89 | 7x12 | 2.03 | 36.65 | 1.27 | 39.19 | 900 | 2341 | 4 |
| 3/0 | 19 | 11.58 | 19.66 | 3.56 | 21.18 | 9x12 | 2.03 | 40.49 | 1.52 | 43.54 | 1116 | 2893 | 4.5 |
| 4/0 | 19 | 13.00 | 21.08 | 3.56 | 22.61 | 9x12 | 2.03 | 41.91 | 1.52 | 44.96 | 1323 | 3192 | 4.5 |
| 250 | 37 | 14.17 | 22.45 | 3.56 | 23.98 | 11x12 | 2.03 | 43.28 | 1.52 | 46.33 | 1570 | 3533 | 4.5 |
| 350 | 37 | 16.79 | 25.07 | 3.56 | 26.59 | 13x12 | 2.03 | 45.90 | 1.52 | 48.95 | 2121 | 4253 | 5 |
| 500 | 37 | 20.04 | 28.32 | 3.56 | 29.85 | 17x12 | 2.03 | 49.15 | 1.52 | 52.20 | 2927 | 5270 | 5.5 |
| 750 | 61 | 24.59 | 33.12 | 3.56 | 34.65 | 21x12 | 2.79 | 55.47 | 1.52 | 58.52 | 4225 | 7070 | 6 |
| 1000 | 61 | 28.37 | 36.91 | 3.56 | 38.43 | 21x12 | 2.79 | 59.26 | 1.91 | 63.07 | 5392 | 8594 | 6.5 |

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
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 | 251.46 | 2359 | 0.5315 | 0.73 | 0.0131 | 0.1936 | 0.521+j0.196 | 0.224+j0.065 | 2770 | 215 | 221 |
| 1 | 259.08 | 2977 | 0.4199 | 0.57 | 0.0119 | 0.1837 | 0.419+j0.125 | 0.179+j0.061 | 3879 | 245 | 247 |
| 1/0 | 266.70 | 3756 | 0.3346 | 0.46 | 0.0110 | 0.1772 | 0.383+j0.123 | 0.143+j0.059 | 3879 | 278 | 275 |
| 2/0 | 274.32 | 4735 | 0.2690 | 0.37 | 0.0101 | 0.1706 | 0.355+j0.122 | 0.116+j0.058 | 3879 | 317 | 306 |
| 3/0 | 304.80 | 5972 | 0.2100 | 0.29 | 0.0094 | 0.1706 | 0.288+j0.086 | 0.092+j0.057 | 4987 | 357 | 335 |
| 4/0 | 314.96 | 7529 | 0.1673 | 0.23 | 0.0085 | 0.1640 | 0.271+j0.085 | 0.075+j0.055 | 4987 | 404 | 369 |
| 250 | 325.12 | 8900 | 0.1411 | 0.19 | 0.0079 | 0.1608 | 0.229+j0.065 | 0.065+j0.053 | 6095 | 456 | 412 |
| 350 | 342.90 | 12460 | 0.1017 | 0.14 | 0.0070 | 0.1509 | 0.190+j0.051 | 0.050+j0.050 | 7203 | 537 | 456 |
| 500 | 365.76 | 17800 | 0.0689 | 0.10 | 0.0061 | 0.1444 | 0.145+j0.037 | 0.038+j0.047 | 9420 | 616 | 497 |
| 750 | 408.94 | 26700 | 0.0459 | 0.07 | 0.0049 | 0.1378 | 0.115+j0.028 | 0.030+j0.044 | 11636 | 706 | 551 |
| 1000 | 441.96 | 35600 | 0.0361 | 0.06 | 0.0046 | 0.1312 | 0.112+j0.027 | 0.027+j0.042 | 11636 | 813 | 596 |

* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.
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3-1/C direct buried copper and aluminum: D17A


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