

## HVTECK AL 1/C 280TRXLPE CB PVC AIA PVC 28kV 100% CSA

Single Conductor, 280 Mils Tree Retardant Cross Linked Polyethylene, 100% Insulation Level, Concentric Bond, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

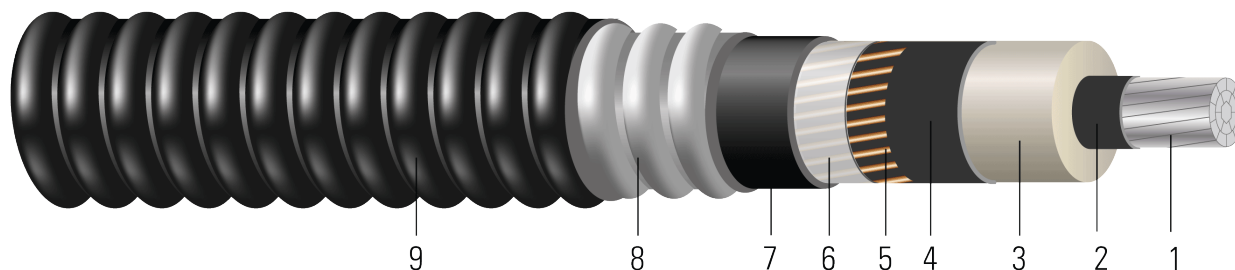


Image not to scale. See Table 1 for dimensions.

### CONSTRUCTION:

1. **Conductor:** Class B compact stranded 8000 Series aluminum per ASTM B800 and ASTM B836
2. **Conductor Shield:** Semi-conducting cross-linked copolymer; A conductor separator is used for cable size larger than or equal to 500 Kcmil
3. **Insulation:** 280 Mils Tree Retardant Cross Linked Polyethylene 100% 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:** 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 B801 Concentric-Lay-Stranded Conductors of 8000 Series Aluminum Alloy
- ASTM B836 Compact Rounded Stranded Aluminum 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:**

(CSA) SOUTHWIRE (NESC) #P# 1/C [#AWG or #kcmil] CPT AL 280 TRXLPE AIA 28kV 100% 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 | Approx. Weight |
|------------|--------|-------------------------|--------------------------|------------------|---------------------------------|--------------------|------------------------|------------------|--------------------------|------------|----------------|
| AWG/ Kcmil | No.    | inch                    | inch                     | mil              | inch                            | No. x AWG          | mil                    | inch             | mil                      | inch       | lb/1000ft      |
| 1          | 19     | 0.298                   | 0.896                    | 280              | 0.956                           | 7x14               | 80                     | 1.576            | 60                       | 1.696      | 1092           |
| 1/0        | 19     | 0.336                   | 0.934                    | 280              | 0.994                           | 7x14               | 80                     | 1.614            | 60                       | 1.734      | 1152           |
| 2/0        | 19     | 0.376                   | 0.974                    | 280              | 1.034                           | 11x14              | 80                     | 1.678            | 60                       | 1.798      | 1302           |
| 3/0        | 19     | 0.422                   | 1.020                    | 280              | 1.080                           | 11x14              | 80                     | 1.724            | 60                       | 1.844      | 1382           |
| 4/0        | 19     | 0.474                   | 1.072                    | 280              | 1.132                           | 11x14              | 80                     | 1.776            | 60                       | 1.896      | 1475           |
| 250        | 37     | 0.520                   | 1.126                    | 280              | 1.186                           | 13x14              | 80                     | 1.830            | 60                       | 1.950      | 1596           |
| 350        | 37     | 0.615                   | 1.221                    | 280              | 1.281                           | 17x14              | 80                     | 1.959            | 60                       | 2.079      | 1951           |
| 500        | 37     | 0.735                   | 1.341                    | 280              | 1.401                           | 21x14              | 110                    | 2.139            | 60                       | 2.259      | 2397           |
| 750        | 61     | 0.908                   | 1.524                    | 280              | 1.584                           | 17x12              | 110                    | 2.322            | 75                       | 2.472      | 2989           |

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

\* Strand count meets minimum number per ASTM



**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          | 20.4               | 502              | 0.211                | 0.266                | 0.070                       | 0.062                      | 0.621 + j0.369          | 0.267 + j0.060              | 5458                                   | 193                            | 194                                     |
| 1/0        | 20.8               | 633              | 0.168                | 0.211                | 0.065                       | 0.059                      | 0.565 + j0.355          | 0.212 + j0.058              | 5458                                   | 221                            | 219                                     |
| 2/0        | 21.6               | 798              | 0.133                | 0.167                | 0.061                       | 0.058                      | 0.518 + j0.340          | 0.168 + j0.056              | 8577                                   | 253                            | 246                                     |
| 3/0        | 22.1               | 1006             | 0.105                | 0.133                | 0.056                       | 0.056                      | 0.481 + j0.324          | 0.134 + j0.054              | 8577                                   | 288                            | 275                                     |
| 4/0        | 22.8               | 1269             | 0.084                | 0.105                | 0.052                       | 0.054                      | 0.450 + j0.308          | 0.106 + j0.052              | 8577                                   | 327                            | 305                                     |
| 250        | 23.4               | 1500             | 0.071                | 0.090                | 0.049                       | 0.052                      | 0.430 + j0.292          | 0.091 + j0.051              | 10137                                  | 367                            | 343                                     |
| 350        | 24.9               | 2100             | 0.050                | 0.065                | 0.044                       | 0.050                      | 0.397 + j0.267          | 0.066 + j0.048              | 13256                                  | 443                            | 399                                     |
| 500        | 27.1               | 3000             | 0.035                | 0.046                | 0.038                       | 0.047                      | 0.367 + j0.240          | 0.047 + j0.046              | 16376                                  | 529                            | 451                                     |
| 750        | 29.7               | 4500             | 0.024                | 0.033                | 0.033                       | 0.045                      | 0.337 + j0.205          | 0.034 + j0.043              | 21062                                  | 633                            | 505                                     |

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

**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 | Approx. Weight |
|------------|--------|-------------------------|--------------------------|------------------|---------------------------------|--------------------|------------------------|------------------|--------------------------|------------|----------------|
| AWG/Kcmil  | No.    | mm                      | mm                       | mm               | mm                              | No. x AWG          | mm                     | mm               | mm                       | mm         | kg/km          |
| 1          | 19     | 7.57                    | 22.76                    | 7.11             | 24.28                           | 7x14               | 2.03                   | 40.03            | 1.52                     | 43.08      | 1625           |
| 1/0        | 19     | 8.53                    | 23.72                    | 7.11             | 25.25                           | 7x14               | 2.03                   | 41.00            | 1.52                     | 44.04      | 1714           |
| 2/0        | 19     | 9.55                    | 24.74                    | 7.11             | 26.26                           | 11x14              | 2.03                   | 42.62            | 1.52                     | 45.67      | 1938           |
| 3/0        | 19     | 10.72                   | 25.91                    | 7.11             | 27.43                           | 11x14              | 2.03                   | 43.79            | 1.52                     | 46.84      | 2057           |
| 4/0        | 19     | 12.04                   | 27.23                    | 7.11             | 28.75                           | 11x14              | 2.03                   | 45.11            | 1.52                     | 48.16      | 2195           |
| 250        | 37     | 13.21                   | 28.60                    | 7.11             | 30.12                           | 13x14              | 2.03                   | 46.48            | 1.52                     | 49.53      | 2375           |
| 350        | 37     | 15.62                   | 31.01                    | 7.11             | 32.54                           | 17x14              | 2.03                   | 49.76            | 1.52                     | 52.81      | 2903           |
| 500        | 37     | 18.67                   | 34.06                    | 7.11             | 35.59                           | 21x14              | 2.79                   | 54.33            | 1.52                     | 57.38      | 3567           |
| 750        | 61     | 23.06                   | 38.71                    | 7.11             | 40.23                           | 17x12              | 2.79                   | 58.98            | 1.91                     | 62.79      | 4448           |

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

\* Strand count meets minimum number per ASTM



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          | 518.16             | 2234             | 0.6923               | 0.87                 | 0.0213                      | 0.2034                     | 0.621 + j0.369          | 0.267 + j0.060              | 5458                                   | 193                            | 194                                     |
| 1/0        | 528.32             | 2817             | 0.5512               | 0.69                 | 0.0198                      | 0.1936                     | 0.565 + j0.355          | 0.212 + j0.058              | 5458                                   | 221                            | 219                                     |
| 2/0        | 548.64             | 3551             | 0.4364               | 0.55                 | 0.0186                      | 0.1903                     | 0.518 + j0.340          | 0.168 + j0.056              | 8577                                   | 253                            | 246                                     |
| 3/0        | 561.34             | 4477             | 0.3445               | 0.44                 | 0.0171                      | 0.1837                     | 0.481 + j0.324          | 0.134 + j0.054              | 8577                                   | 288                            | 275                                     |
| 4/0        | 579.12             | 5647             | 0.2756               | 0.34                 | 0.0158                      | 0.1772                     | 0.450 + j0.308          | 0.106 + j0.052              | 8577                                   | 327                            | 305                                     |
| 250        | 594.36             | 6675             | 0.2329               | 0.30                 | 0.0149                      | 0.1706                     | 0.430 + j0.292          | 0.091 + j0.051              | 10137                                  | 367                            | 343                                     |
| 350        | 632.46             | 9345             | 0.1640               | 0.21                 | 0.0134                      | 0.1640                     | 0.397 + j0.267          | 0.066 + j0.048              | 13256                                  | 443                            | 399                                     |
| 500        | 688.34             | 13350            | 0.1148               | 0.15                 | 0.0116                      | 0.1542                     | 0.367 + j0.240          | 0.047 + j0.046              | 16376                                  | 529                            | 451                                     |
| 750        | 754.38             | 20025            | 0.0787               | 0.11                 | 0.0101                      | 0.1476                     | 0.337 + j0.205          | 0.034 + j0.043              | 21062                                  | 633                            | 505                                     |

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

