# HVTECK AL 3/C 280TRXLPE TS PVC AIA PVC 28kV 100% CSA

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

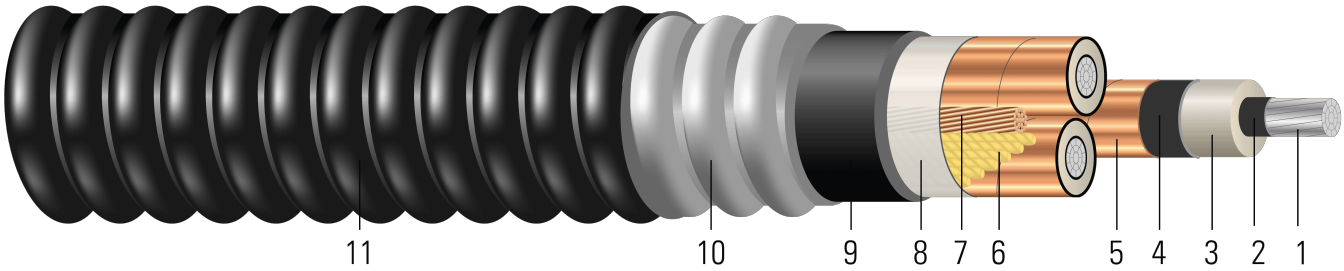



Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

1. **Conductor:** Class B 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. **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)
11. **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


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- 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
- 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] CPT AL 280 TRXLPE AIA 28kV 100% INS LEVEL 25% TS 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 | 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 |
| 1 | 19 | 0.299 | 0.897 | 280 | 0.957 | 1x6 | 110 | 2.623 | 75 | 2.773 | 322 | 2558 | 3.5 |
| 1/0 | 19 | 0.336 | 0.934 | 280 | 0.994 | 1x6 | 110 | 2.703 | 75 | 2.853 | 331 | 2724 | 3.5 |
| 2/0 | 19 | 0.376 | 0.974 | 280 | 1.034 | 1x6 | 110 | 2.789 | 75 | 2.939 | 341 | 2916 | 4 |
| 3/0 | 19 | 0.423 | 1.021 | 280 | 1.081 | 1x6 | 110 | 2.891 | 75 | 3.041 | 353 | 3150 | 4 |
| 4/0 | 19 | 0.475 | 1.073 | 280 | 1.133 | 1x6 | 110 | 3.003 | 85 | 3.173 | 366 | 3478 | 4 |
| 250 | 37 | 0.52 | 1.126 | 280 | 1.186 | 1x4 | 125 | 3.148 | 85 | 3.318 | 426 | 3809 | 4.5 |
| 350 | 37 | 0.616 | 1.222 | 280 | 1.282 | 1x4 | 125 | 3.355 | 85 | 3.525 | 450 | 4373 | 4.5 |
| 500 | 37 | 0.736 | 1.342 | 280 | 1.402 | 1x3 | 125 | 3.614 | 85 | 3.784 | 518 | 5190 | 5 |

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
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.

## 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 | 19.4 | 1506 | 0.211 | 0.289 | 0.067 | 0.033 | 0.659+j0.412 | 0.289+j0.047 | 2996 | 158 | 177 |
| 1/0 | 20 | 1900 | 0.167 | 0.229 | 0.062 | 0.031 | 0.598+j0.397 | 0.229+j0.046 | 3111 | 181 | 200 |
| 2/0 | 20.6 | 2395 | 0.133 | 0.182 | 0.058 | 0.029 | 0.549+j0.382 | 0.182+j0.044 | 3235 | 208 | 228 |
| 3/0 | 21.3 | 3020 | 0.105 | 0.144 | 0.054 | 0.028 | 0.509+j0.365 | 0.144+j0.042 | 3380 | 239 | 258 |
| 4/0 | 22.2 | 3808 | 0.084 | 0.115 | 0.05 | 0.026 | 0.477+j0.348 | 0.115+j0.041 | 3541 | 273 | 292 |
| 250 | 23.2 | 4500 | 0.07 | 0.096 | 0.047 | 0.025 | 0.455+j0.332 | 0.096+j0.040 | 3706 | 302 | 321 |
| 350 | 24.7 | 6300 | 0.051 | 0.07 | 0.042 | 0.023 | 0.422+j0.304 | 0.070+j0.037 | 4003 | 368 | 385 |
| 500 | 26.5 | 9000 | 0.036 | 0.05 | 0.037 | 0.021 | 0.392+j0.275 | 0.050+j0.035 | 4375 | 454 | 462 |

* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.
***** CEC ampacities are based on:


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3/C in air copper and aluminum: D17N
3/C direct buried copper and aluminum: D17E

## Table 3 – Weights and Measurements (Metric)

| 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 |
| 1 | 19 | 7.59 | 22.78 | 7.11 | 24.31 | 1x6 | 2.79 | 66.62 | 1.91 | 70.43 | 479 | 3807 | 3.5 |
| 1/0 | 19 | 8.53 | 23.72 | 7.11 | 25.25 | 1x6 | 2.79 | 68.66 | 1.91 | 72.47 | 493 | 4054 | 3.5 |
| 2/0 | 19 | 9.55 | 24.74 | 7.11 | 26.26 | 1x6 | 2.79 | 70.84 | 1.91 | 74.65 | 507 | 4339 | 4 |
| 3/0 | 19 | 10.74 | 25.93 | 7.11 | 27.46 | 1x6 | 2.79 | 73.43 | 1.91 | 77.24 | 525 | 4688 | 4 |
| 4/0 | 19 | 12.07 | 27.25 | 7.11 | 28.78 | 1x6 | 2.79 | 76.28 | 2.16 | 80.59 | 545 | 5176 | 4 |
| 250 | 37 | 13.21 | 28.60 | 7.11 | 30.12 | 1x4 | 3.18 | 79.96 | 2.16 | 84.28 | 634 | 5668 | 4.5 |
| 350 | 37 | 15.65 | 31.04 | 7.11 | 32.56 | 1x4 | 3.18 | 85.22 | 2.16 | 89.54 | 670 | 6508 | 4.5 |
| 500 | 37 | 18.69 | 34.09 | 7.11 | 35.61 | 1x3 | 3.18 | 91.80 | 2.16 | 96.11 | 771 | 7724 | 5 |

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
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.

## 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 | 492.76 | 6702 | 0.6923 | 0.95 | 0.0204 | 0.1083 | 0.659+j0.412 | 0.289+j0.047 | 2996 | 158 | 177 |
| 1/0 | 508.00 | 8455 | 0.5479 | 0.75 | 0.0189 | 0.1017 | 0.598+j0.397 | 0.229+j0.046 | 3111 | 181 | 200 |
| 2/0 | 523.24 | 10658 | 0.4364 | 0.60 | 0.0177 | 0.0951 | 0.549+j0.382 | 0.182+j0.044 | 3235 | 208 | 228 |
| 3/0 | 541.02 | 13439 | 0.3445 | 0.47 | 0.0165 | 0.0919 | 0.509+j0.365 | 0.144+j0.042 | 3380 | 239 | 258 |
| 4/0 | 563.88 | 16946 | 0.2756 | 0.38 | 0.0152 | 0.0853 | 0.477+j0.348 | 0.115+j0.041 | 3541 | 273 | 292 |
| 250 | 589.28 | 20025 | 0.2297 | 0.31 | 0.0143 | 0.0820 | 0.455+j0.332 | 0.096+j0.040 | 3706 | 302 | 321 |
| 350 | 627.38 | 28035 | 0.1673 | 0.23 | 0.0128 | 0.0755 | 0.422+j0.304 | 0.070+j0.037 | 4003 | 368 | 385 |
| 500 | 673.10 | 40050 | 0.1181 | 0.16 | 0.0113 | 0.0689 | 0.392+j0.275 | 0.050+j0.035 | 4375 | 454 | 462 |

* 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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