



## HVTECK AL 3/C 90TRXLPE TS PVC AIA PVC 5kV 100% CSA

3 Conductor, 90 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:** 90 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:** 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 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)
- 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 90 TRXLPE AIA 5kV 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 Size	Inner Jacket Thickness	Dia. Over Armour	Overall Jacket Thickness	Approx. OD	Approx. Weight
AWG/ Kcmil	No.	inch	inch	mil	inch	AWG	mil	inch	mil	inch	lb/1000ft
2	7	0.268	0.486	90	0.546	8	80	1.739	60	1.859	1271
1	19	0.298	0.516	90	0.576	6	80	1.803	60	1.923	1389
1/0	19	0.336	0.554	90	0.614	6	80	1.885	60	2.005	1622
2/0	19	0.376	0.594	90	0.654	6	80	1.972	60	2.092	1788
3/0	19	0.422	0.640	90	0.700	6	110	2.131	60	2.251	2110
4/0	19	0.474	0.692	90	0.752	6	110	2.244	60	2.364	2358
250	37	0.520	0.746	90	0.806	4	110	2.360	75	2.510	2693
350	37	0.615	0.841	90	0.901	4	110	2.565	75	2.715	3213
500	37	0.735	0.961	90	1.021	3	110	2.825	75	2.975	3962
750	61	0.908	1.144	90	1.204	2	125	3.250	85	3.420	5352
1000	61	1.060	1.296	90	1.356	2	125	3.578	85	3.748	6493

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
2	13.0	1194	0.267	0.336	0.035	0.039	0.699 + j0.550	0.336 + j0.039	1722	135	157
1	13.5	1506	0.211	0.266	0.030	0.038	0.633 + j0.530	0.266 + j0.036	1815	154	178
1/0	14.0	1900	0.168	0.211	0.030	0.036	0.581 + j0.508	0.211 + j0.035	1933	176	202
2/0	14.6	2395	0.133	0.167	0.030	0.035	0.540 + j0.485	0.167 + j0.034	2057	204	229
3/0	15.8	3020	0.105	0.133	0.030	0.030	0.508 + j0.461	0.133 + j0.032	2199	234	260
4/0	16.5	3808	0.084	0.105	0.020	0.030	0.481 + j0.435	0.105 + j0.031	2360	268	294
250	17.6	4500	0.071	0.090	0.020	0.030	0.465 + j0.410	0.090 + j0.031	2528	296	323
350	19.0	6300	0.050	0.065	0.020	0.030	0.436 + j0.370	0.065 + j0.029	2822	363	386
500	20.8	9000	0.035	0.046	0.020	0.030	0.410 + j0.326	0.046 + j0.028	3194	447	465
750	23.9	13500	0.020	0.030	0.013	0.030	0.381 + j0.272	0.033 + j0.027	3761	566	563
1000	26.2	18000	0.020	0.030	0.011	0.030	0.359 + j0.236	0.026 + j0.026	4232	661	638

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

\* CEC ampacities are based on:

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 Size	Inner Jacket Thickness	Dia. Over Armour	Overall Jacket Thickness	Approx. OD	Approx. Weight
AWG/Kcmil	No.	mm	mm	mm	mm	AWG	mm	mm	mm	mm	kg/km
2	7	6.81	12.34	2.29	13.87	8	2.03	44.17	1.52	47.22	1891
1	19	7.57	13.11	2.29	14.63	6	2.03	45.80	1.52	48.84	2067
1/0	19	8.53	14.07	2.29	15.60	6	2.03	47.88	1.52	50.93	2414
2/0	19	9.55	15.09	2.29	16.61	6	2.03	50.09	1.52	53.14	2661
3/0	19	10.72	16.26	2.29	17.78	6	2.79	54.13	1.52	57.18	3140
4/0	19	12.04	17.58	2.29	19.10	6	2.79	57.00	1.52	60.05	3509
250	37	13.21	18.95	2.29	20.47	4	2.79	59.94	1.91	63.75	4008
350	37	15.62	21.36	2.29	22.89	4	2.79	65.15	1.91	68.96	4781
500	37	18.67	24.41	2.29	25.93	3	2.79	71.76	1.91	75.57	5896
750	61	23.06	29.06	2.29	30.58	2	3.18	82.55	2.16	86.87	7965
1000	61	26.92	32.92	2.29	34.44	2	3.18	90.88	2.16	95.20	9663

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
2	330.20	5313	0.8760	1.10	0.0107	0.1280	0.699 + j0.550	0.336 + j0.039	1722	135	157
1	342.90	6702	0.6923	0.87	0.0091	0.1247	0.633 + j0.530	0.266 + j0.036	1815	154	178
1/0	355.60	8455	0.5512	0.69	0.0091	0.1181	0.581 + j0.508	0.211 + j0.035	1933	176	202
2/0	370.84	10658	0.4364	0.55	0.0091	0.1148	0.540 + j0.485	0.167 + j0.034	2057	204	229
3/0	401.32	13439	0.3445	0.44	0.0091	0.0984	0.508 + j0.461	0.133 + j0.032	2199	234	260
4/0	419.10	16946	0.2756	0.34	0.0061	0.0984	0.481 + j0.435	0.105 + j0.031	2360	268	294
250	447.04	20025	0.2329	0.30	0.0061	0.0984	0.465 + j0.410	0.090 + j0.031	2528	296	323
350	482.60	28035	0.1640	0.21	0.0061	0.0984	0.436 + j0.370	0.065 + j0.029	2822	363	386
500	528.32	40050	0.1148	0.15	0.0061	0.0984	0.410 + j0.326	0.046 + j0.028	3194	447	465
750	607.06	60075	0.0656	0.10	0.0040	0.0984	0.381 + j0.272	0.033 + j0.027	3761	566	563
1000	665.48	80100	0.0656	0.10	0.0034	0.0984	0.359 + j0.236	0.026 + j0.026	4232	661	638

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

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3/C direct buried copper and aluminum: D17E

