

## HVTECK AL 1/C 90TRXLPE CB PVC AIA PVC 5kV 100% CSA

Single Conductor, 90 Mils Tree Retardant Cross Linked Polyethylene, 100% Insulation Level, Concentric Bond, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

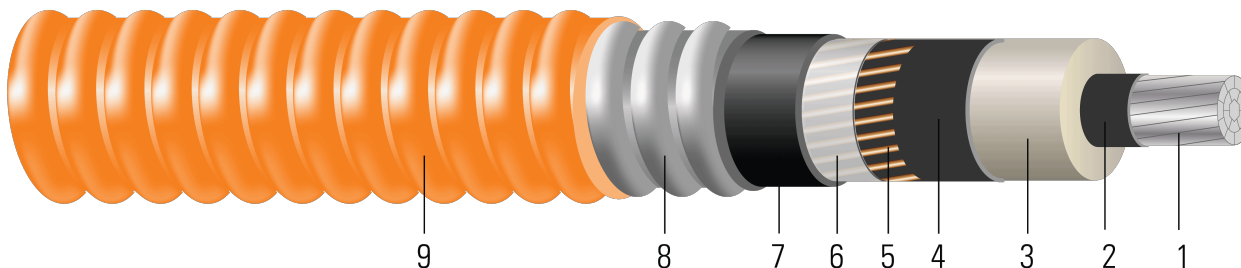


Image not to scale. See Table 1 for dimensions.

### CONSTRUCTION:

- Conductor:** Class B compact stranded 8000 Series aluminum per ASTM B800 and ASTM B836
- Conductor Shield:** Semi-conducting cross-linked copolymer; A conductor separator is used for cable size larger than or equal to 500 Kcmil
- Insulation:** 90 Mils Tree Retardant Cross Linked Polyethylene 100% insulation level
- Insulation Shield:** Strippable semi-conducting cross-linked copolymer
- 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
- Neutral Separator:** Mylar tape
- Inner Jacket:** PVC inner jacket
- Armour:** Aluminum Interlocked Armour (AIA)
- 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 (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

### SAMPLE PRINT LEGEND:

(CSA) SOUTHWIRE (NESC) #P# 1/C [#AWG or #kcmil] CPT AL 90 TRXLPE AIA 5kV 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
2	7	0.268	0.486	90	0.546	7 x 14	65	1.032	50	1.132	583
1	19	0.298	0.516	90	0.576	7 x 14	80	1.092	50	1.192	650
1/0	19	0.336	0.554	90	0.614	7 x 14	80	1.130	50	1.230	697
2/0	19	0.376	0.594	90	0.654	11 x 14	80	1.170	50	1.270	803
3/0	19	0.422	0.640	90	0.700	11 x 14	80	1.326	50	1.426	877
4/0	19	0.474	0.692	90	0.752	11 x 14	80	1.378	50	1.478	950
250	37	0.520	0.746	90	0.806	13 x 14	80	1.432	50	1.532	1052
350	37	0.615	0.841	90	0.901	17 x 14	80	1.527	60	1.647	1294
500	37	0.735	0.961	90	1.021	21 x 14	80	1.671	60	1.791	1604
750	61	0.908	1.144	90	1.204	17 x 12	80	1.888	60	2.008	2152
1000	61	1.060	1.296	90	1.356	17 x 12	110	2.100	60	2.220	2623

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 @ 60Hz	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	7.9	398	0.267	0.336	0.040	0.055	0.318 + j0.027	0.323 + j0.035	5458	169	176
1	8.3	502	0.211	0.266	0.037	0.053	0.248 + j0.025	0.253 + j0.032	5458	194	198
1/0	8.6	633	0.168	0.211	0.034	0.052	0.193 + j0.023	0.198 + j0.031	5458	222	223
2/0	8.8	798	0.133	0.167	0.031	0.050	0.149 + j0.022	0.155 + j0.03	8577	255	250
3/0	9.9	1006	0.105	0.133	0.028	0.050	0.115 + j0.02	0.12 + j0.028	8577	290	278
4/0	10.3	1269	0.084	0.105	0.025	0.048	0.087 + j0.019	0.092 + j0.027	8577	329	309
250	10.7	1500	0.071	0.090	0.024	0.047	0.072 + j0.018	0.077 + j0.026	10137	370	347
350	11.5	2100	0.050	0.065	0.021	0.044	0.047 + j0.017	0.053 + j0.025	13256	446	402
500	12.5	3000	0.035	0.046	0.018	0.042	0.028 + j0.015	0.034 + j0.023	16376	533	451
750	14.0	4500	0.024	0.033	0.015	0.040	0.015 + j0.014	0.021 + j0.022	21062	631	500
1000	15.5	6000	0.018	0.026	0.013	0.039	0.008 + j0.013	0.014 + j0.022	21062	707	539

\* 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
2	7	6.81	12.34	2.29	13.87	7 x 14	1.65	26.21	1.27	28.75	868
1	19	7.57	13.11	2.29	14.63	7 x 14	2.03	27.74	1.27	30.28	967
1/0	19	8.53	14.07	2.29	15.60	7 x 14	2.03	28.70	1.27	31.24	1037
2/0	19	9.55	15.09	2.29	16.61	11 x 14	2.03	29.72	1.27	32.26	1195
3/0	19	10.72	16.26	2.29	17.78	11 x 14	2.03	33.68	1.27	36.22	1305
4/0	19	12.04	17.58	2.29	19.10	11 x 14	2.03	35.00	1.27	37.54	1414
250	37	13.21	18.95	2.29	20.47	13 x 14	2.03	36.37	1.27	38.91	1566
350	37	15.62	21.36	2.29	22.89	17 x 14	2.03	38.79	1.52	41.83	1926
500	37	18.67	24.41	2.29	25.93	21 x 14	2.03	42.44	1.52	45.49	2387
750	61	23.06	29.06	2.29	30.58	17 x 12	2.03	47.96	1.52	51.00	3203
1000	61	26.92	32.92	2.29	34.44	17 x 12	2.79	53.34	1.52	56.39	3903

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 @ 60Hz	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	200.66	1771	0.8760	1.10	0.0122	0.1804	0.318 + j0.027	0.323 + j0.035	5458	169	176
1	210.82	2234	0.6923	0.87	0.0113	0.1739	0.248 + j0.025	0.253 + j0.032	5458	194	198
1/0	218.44	2817	0.5512	0.69	0.0104	0.1706	0.193 + j0.023	0.198 + j0.031	5458	222	223
2/0	223.52	3551	0.4364	0.55	0.0094	0.1640	0.149 + j0.022	0.155 + j0.03	8577	255	250
3/0	251.46	4477	0.3445	0.44	0.0085	0.1640	0.115 + j0.02	0.12 + j0.028	8577	290	278
4/0	261.62	5647	0.2756	0.34	0.0076	0.1575	0.087 + j0.019	0.092 + j0.027	8577	329	309
250	271.78	6675	0.2329	0.30	0.0073	0.1542	0.072 + j0.018	0.077 + j0.026	10137	370	347
350	292.10	9345	0.1640	0.21	0.0064	0.1444	0.047 + j0.017	0.053 + j0.025	13256	446	402
500	317.50	13350	0.1148	0.15	0.0055	0.1378	0.028 + j0.015	0.034 + j0.023	16376	533	451
750	355.60	20025	0.0787	0.11	0.0046	0.1312	0.015 + j0.014	0.021 + j0.022	21062	631	500
1000	393.70	26700	0.0591	0.09	0.0040	0.1280	0.008 + j0.013	0.014 + j0.022	21062	707	539

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

