



HVTECK SPECIFICATIONS

HVTECK AL 1/C 90TRXLPE TS PVC AIA PVC 5KV 100% CSA

PRODUCT HIGHLIGHTS

Southwire's 5KV HVTECK is a CSA armoured cable for industrial and commercial medium voltage applications. Rated FT4, -40°C, Hazardous Locations (HL) and 105°C for use in harsh Canadian environments. For installation in cable trays, duct banks, direct burial, troughs, continuous rigid cable supports and concrete encaseable.

CONSTRUCTION

Conductor

- Class B - compact stranded -8000 Series Aluminum -ACM

Options

- Class B compact stranded copper
- Class B compressed stranded copper
- Strand blocking technology
- Tinning on copper conductors

Conductor Shield

- Extruded semi-conducting thermosetting polymeric layer

Insulation

- TR-XLPE - (Tree Retardent Cross Linked Polyethylene)
- Thickness: 0.09 inches (2.29mm) - nominal
- Insulation level: 100% - grounded system
- 105°C rated

Insulation Shield

- Extruded Semi-conducting thermosetting polymeric layer
- CSA 68.10 - Shield Removal/termination requirements are printed on the surface
- Meets requirement of ICEA but built to CSA standards

Copper Tape Shield

- Helically wrapped 5 mil copper tape with 25% overlap
- Not designed to carry ground fault current
- A separate bonding/grounding conductor may be required

Inner Jacket

- Black PVC
- Thickness:
 - No.2 AWG to No.2/0 AWG = 0.06 inches (1.52mm)
 - No.3/0 AWG to 1000 kcmil = 0.08 inches (2.03mm)

Armour

- Aluminum Interlocked Armour (AIA)
- Optional Galvanized Steel Interlocked Armour (GSIA)

Overall Jacket

- Orange PVC (optional colours available)
- Nominal Thickness:
 - No.2 AWG to 350 kcmil = 0.05 inches (1.27mm)
 - 500 kcmil to 1000 kcmil = 0.06 inches (1.52mm)

Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CPT AL 90 TRXLPE AIA 5KV 100% INS LEVEL 25% TS SUN RES 105° FT4 HL (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

TABLE 1 - WEIGHTS & MEASUREMENTS

HVTECK Product Code	Conductor Size *	Conductor Diameter		Diameter Over Insulation		Diameter Over Insulation Shield		Diameter Over Inner Jacket		Diameter Over Armour		Approx. Overall Diameter		Minimum Bend Radius		Approx. Weight of Cable		Max. Reel Weight (reel and cable)**		Max. Reel Diameter / Width **		Max. Length of Cable on Reel **	
	AWG or Kcmil	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	lb / 1000ft	kg/km	lbs	kg	inches	m	feet	m
AL90K01-002	2(7)	0.268	6.8	0.478	12.1	0.558	14.2	0.698	17.7	1.018	25.9	1.118	28.4	13.4	341	514	765	3835	1740	78/54	1.98/1.37	6000	1829
AL90K01-001	1(19)	0.299	7.6	0.509	12.9	0.589	15.0	0.729	18.5	1.049	26.6	1.149	29.2	13.8	350	551	820	4058	1841	78/54	1.98/1.37	6000	1829
AL90K01-010	1/0(19)	0.336	8.5	0.546	13.9	0.626	15.9	0.766	19.5	1.086	27.6	1.186	30.1	14.2	361	597	888	4331	1965	78/54	1.98/1.37	6000	1829
AL90K01-020	2/0(19)	0.376	9.6	0.586	14.9	0.666	16.9	0.806	20.5	1.126	28.6	1.226	31.1	14.7	374	650	967	4649	2109	78/54	1.98/1.37	6000	1829
AL90K01-030	3/0(19)	0.423	10.7	0.633	16.1	0.713	18.1	0.893	22.7	1.213	30.8	1.313	33.4	15.8	400	758	1128	5299	2403	78/54	1.98/1.37	6000	1829
AL90K01-040	4/0(19)	0.475	12.1	0.685	17.4	0.765	19.4	0.945	24.0	1.265	32.1	1.365	34.7	16.4	416	836	1245	6177	2802	96/54.5	2.44/1.38	6000	1829
AL90K01-250	250(37)	0.520	13.2	0.740	18.8	0.820	20.8	1.000	25.4	1.320	33.5	1.420	36.1	17.0	433	916	1363	6653	3018	96/54.5	2.44/1.38	6000	1829
AL90K01-350	350(37)	0.616	15.6	0.836	21.2	0.916	23.3	1.096	27.8	1.416	36.0	1.516	38.5	18.2	462	1117	1663	7862	3566	96/54.5	2.44/1.38	6000	1829
AL90K01-500	500(37)	0.736	18.7	0.956	24.3	1.036	26.3	1.216	30.9	1.536	39.0	1.656	42.1	19.9	505	1379	2052	9616	4362	104/56.5	2.64/1.44	6000	1829
AL90K01-750	750(61)	0.908	23.1	1.138	28.9	1.218	30.9	1.398	35.5	1.718	43.6	1.838	46.7	22.1	560	1762	2622	12127	5501	108/70.5	2.74/1.79	6000	1829
AL90K01-1000	1000(61)	1.060	26.9	1.290	32.8	1.370	34.8	1.550	39.4	1.880	47.8	2.000	50.8	24.0	610	2185	3251	13899	6305	108/70.5	2.74/1.79	5650	1722

NOTE: These are minimum average dimensions as per CSA Standards.

* Other conductor sizes and outer jacket colours are available upon request. (#s in brackets represent # of strands / conductor)

** Longer maximum lengths may be possible. Standard sizes and lengths may be supplied. Reel sizes are not guaranteed. The factory reserves the right to make changes as necessary to optimize manufacturing requirements.



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DESIGN

Qualification Standards

- 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 C22.2 No. 174 - Cables in Hazardous Locations
- ICEA S-93-639 (NEMA WC 74) 5 to 46 KV - Shielded Power Cable
- AEIC CS-8 - Qualification Testing Requirements

Flame Test Ratings

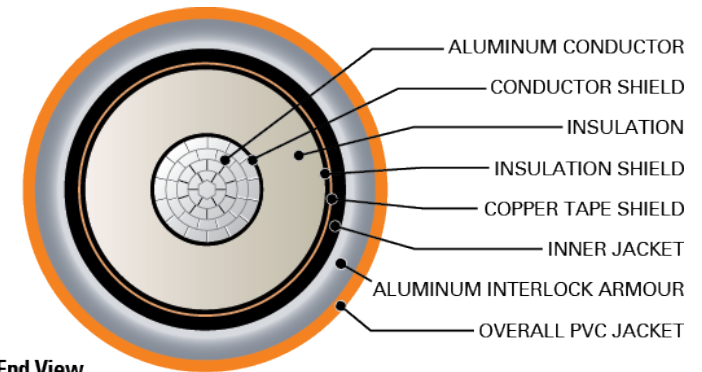
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 BTU/Hr)

Product Ratings

- CSA C22.2 No. 2556 & No. 0.3 - Wire and Cable Test Methods
- CSA LTGG [-40°C] - as per C68.10 - for Cold Bend and Impact rating
- CSA HL - for Hazardous Locations rating
- CSA FT4 - for Flame Retardancy rating
- CSA SUN RES - for Sunlight Resistant rating

Operating Temperatures

- -40°C - CSA Cold Bend and Impact Temperature
- -25°C - Min. Installation Temperature
- 105°C - Max Continuous Operating Temperature
- 140°C for Emergency Overload Temperature
- 250°C for Short Circuit Temperature



End View

TABLE 2 - ENGINEERING SPECIFICATIONS

HVTECK Product Code	Maximum Pulling Tension		DC Resistance @ 25°C R _{DC}		AC Resistance @ 90°C 60 Hz (triplex formation) R _{AC}		Inductance L		Capacitance C		Inductive Reactance @ 60Hz (triplexed) X _L		Capacitive Reactance @ 60Hz (triplexed) X _C		Positive - Sequence Impedance*	Zero - Sequence Impedance*	Short Circuit Current (each phase conductor) @ 60Hz	Allowable Ampacities in Ventilated Cable Tray †	Allowable Ampacities Directly Buried in Earth ‡
	lb	Newtons	Ω / 1000 ft.	Ω / km	Ω / 1000 ft.	Ω / km	mH / 1000 ft	mH / km	μF / 1000 ft	μF / km	Ω / 1000 ft.	Ω / km	MΩ • 1000ft	MΩ • km	Ω / 1000ft	Ω / 1000ft	kAmps	Amps	Amps
AL90K01-002	398	1771	0.265	0.869	0.333	1.093	0.0928	0.3046	0.0674	0.2210	0.0350	0.1148	0.0394	0.0120	0.334 + j0.054	0.680 + j0.533	3.1	169	176
AL90K01-001	502	2234	0.211	0.692	0.265	0.870	0.0900	0.2953	0.0733	0.2404	0.0339	0.1113	0.0362	0.0110	0.266 + j0.053	0.616 + j0.515	3.9	194	198
AL90K01-010	634	2818	0.168	0.551	0.211	0.693	0.0872	0.2860	0.0803	0.2634	0.0329	0.1078	0.0330	0.0101	0.212 + j0.051	0.567 + j0.495	5.0	222	223
AL90K01-020	799	3552	0.133	0.436	0.167	0.549	0.0846	0.2776	0.0878	0.2882	0.0319	0.1047	0.0302	0.0092	0.168 + j0.049	0.526 + j0.474	6.3	255	250
AL90K01-030	1007	4478	0.105	0.345	0.132	0.433	0.0821	0.2695	0.0967	0.3173	0.0310	0.1016	0.0274	0.0084	0.133 + j0.048	0.493 + j0.450	7.9	290	278
AL90K01-040	1270	5647	0.084	0.274	0.105	0.345	0.0799	0.2621	0.1065	0.3493	0.0301	0.0988	0.0249	0.0076	0.106 + j0.046	0.467 + j0.426	9.9	329	309
AL90K01-250	1500	6672	0.071	0.232	0.089	0.292	0.0791	0.2595	0.1105	0.3625	0.0298	0.0978	0.0240	0.0073	0.090 + j0.045	0.451 + j0.402	11.8	370	347
AL90K01-350	2100	9341	0.051	0.166	0.064	0.209	0.0762	0.2500	0.1276	0.4188	0.0287	0.0942	0.0208	0.0063	0.065 + j0.042	0.424 + j0.364	16.5	446	402
AL90K01-500	3000	13345	0.035	0.116	0.045	0.147	0.0735	0.2412	0.1490	0.4890	0.0277	0.0909	0.0178	0.0054	0.046 + j0.040	0.398 + j0.322	23.5	533	451
AL90K01-750	4500	20017	0.024	0.077	0.030	0.099	0.0713	0.2340	0.1726	0.5664	0.0269	0.0882	0.0154	0.0047	0.031 + j0.038	0.370 + j0.270	35.3	631	500
AL90K01-1000	6000	26689	0.018	0.058	0.023	0.076	0.0695	0.2282	0.1985	0.6512	0.0262	0.0860	0.0134	0.0041	0.024 + j0.036	0.349 + j0.235	47.0	707	539

* Calculations are based on three cables triplexed / 5 mil 25% over lapping copper tape shield / Conductor temperature of 90°C / Shield temperature of 45°C / Earth resistivity of 100 ohms-meter

† Ampacities are based on Table D17M of the 2015 Canadian Electrical Code Part I (40°C Ambient Air Temperature, indoor installation)

‡ Ampacities are based on Table D17A of the 2015 Canadian Electrical Code Part I

