



HVTECK SPECIFICATIONS

HVTECK AL 3/C 90EPR 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

- No-lead EPR (Ethylene Propylene Rubber)
- 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

- Phase identification as per ICEA Method 3, using printed circuit numbers
- Meets requirement of ICEA but built to CSA standards

Copper Tape Shield

- Helically wrapped 5 mil copper tape with 25% overlap

Bonding Conductor

- Class B compressed stranded bare copper
- in accordance with ASTM B3 and B8

Fillers

- Non-wicking, non-hygroscopic

Inner Jacket

- Black PVC
- Thickness:
 - No.2 AWG to No.2/0 AWG = 0.08 inches (2.03mm)
 - No.3/0 AWG to 500 kcmil = 0.11 inches (2.79mm)
 - 750 kcmil to 1000 kcmil = 0.14 inches (3.56mm)

Armour

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

Overall Jacket

- Orange PVC (optional colours available)
- Nominal Thickness:
 - No.2 AWG to No.4/0 AWG = 0.06 inches (1.52mm)
 - 250 kcmil to 500 kcmil = 0.075 inches (1.91mm)
 - 750 kcmil to 1000 kcmil = 0.085 inches (2.16mm)

Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CPT AL 90 EPR 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		Bonding Cond. Size	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	AWG	inches	mm	inches	mm	inches	mm	inches	mm	lb / 1000ft	kg/km	lbs	kg	inches	m	feet	m
AL90B76-002	2(7)	0.268	6.8	0.478	12.1	0.558	14.2	8	1.408	35.8	1.728	43.9	1.848	47.0	12.9	329	1388	2065	8280	3756	104/56.5	2.64/1.44	5000	1524
AL90B76-001	1(19)	0.299	7.6	0.509	12.9	0.589	15.0	6	1.475	37.5	1.795	45.6	1.915	48.7	13.4	341	1527	2273	9191	4169	108/70.5	2.74/1.79	5000	1524
AL90B76-010	1/0(19)	0.336	8.5	0.546	13.9	0.626	15.9	6	1.555	39.5	1.885	47.9	2.005	50.9	14.0	357	1732	2578	10215	4634	108/70.5	2.74/1.79	5000	1524
AL90B76-020	2/0(19)	0.376	9.6	0.586	14.9	0.666	16.9	6	1.642	41.7	1.972	50.1	2.092	53.1	14.6	372	1892	2815	10731	4867	108/70.5	2.74/1.79	4850	1478
AL90B76-030	3/0(19)	0.423	10.7	0.633	16.1	0.713	18.1	6	1.803	45.8	2.133	54.2	2.253	57.2	15.8	401	2208	3286	11159	5062	108/70.5	2.74/1.79	4350	1326
AL90B76-040	4/0(19)	0.475	12.1	0.685	17.4	0.765	19.4	6	1.916	48.7	2.246	57.0	2.366	60.1	16.6	421	2445	3638	10600	4808	108/70.5	2.74/1.79	3700	1128
AL90B76-250	250(37)	0.520	13.2	0.740	18.8	0.820	20.8	4	2.034	51.7	2.364	60.1	2.514	63.9	17.6	447	2884	4292	10352	4695	108/70.5	2.74/1.79	3050	930
AL90B76-350	350(37)	0.616	15.6	0.836	21.2	0.916	23.3	4	2.242	56.9	2.572	65.3	2.722	69.1	19.1	484	3390	5045	11047	5011	108/70.5	2.74/1.79	2800	853
AL90B76-500	500(37)	0.736	18.7	0.956	24.3	1.036	26.3	3	2.501	63.5	2.831	71.9	2.981	75.7	20.9	530	4126	6140	10632	4823	108/70.5	2.74/1.79	2200	671
AL90B76-750	750(61)	0.908	23.1	1.138	28.9	1.218	30.9	2	2.954	75.0	3.284	83.4	3.454	87.7	24.2	614	5576	8298	9919	4499	108/70.5	2.74/1.79	1500	457
AL90B76-1000	1000(61)	1.060	26.9	1.290	32.8	1.370	34.8	2	3.282	83.4	3.612	91.8	3.782	96.1	26.5	673	6661	9913	8882	4029	108/70.5	2.74/1.79	1100	335

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.



HVTECK SPECIFICATIONS

HVTECK AL 3/C 90EPR TS PVC AIA PVC 5KV 100% CSA

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

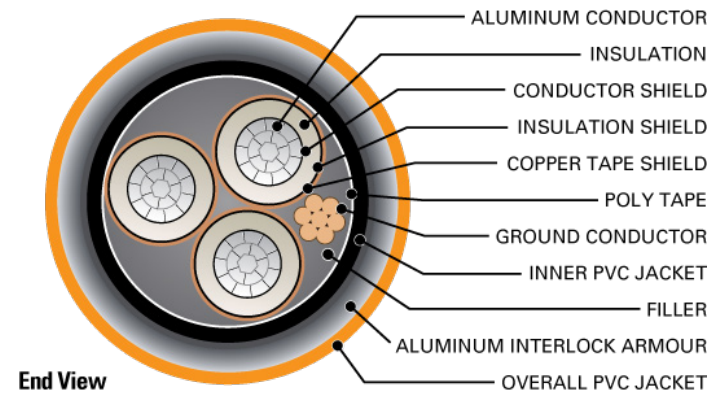


TABLE 2 - ENGINEERING SPECIFICATIONS

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
AL90B76-002	1194	5313	0.265	0.869	0.333	1.093	0.0928	0.3046	0.0849	0.2787	0.0350	0.1148	0.0312	0.0095	0.333 + j0.039	0.698 + j0.543	2.9	135	157
AL90B76-001	1506	6701	0.211	0.692	0.265	0.870	0.0900	0.2953	0.0924	0.3031	0.0339	0.1113	0.0287	0.0088	0.265 + j0.038	0.634 + j0.524	3.7	154	178
AL90B76-010	1901	8455	0.168	0.551	0.211	0.693	0.0872	0.2860	0.1012	0.3321	0.0329	0.1078	0.0262	0.0080	0.211 + j0.037	0.583 + j0.502	4.7	176	202
AL90B76-020	2396	10657	0.133	0.436	0.167	0.549	0.0846	0.2776	0.1108	0.3634	0.0319	0.1047	0.0239	0.0073	0.168 + j0.035	0.541 + j0.480	5.9	204	229
AL90B76-030	3020	13435	0.105	0.345	0.132	0.433	0.0821	0.2695	0.1219	0.4000	0.0310	0.1016	0.0218	0.0066	0.132 + j0.034	0.508 + j0.455	7.4	234	260
AL90B76-040	3809	16942	0.084	0.274	0.105	0.345	0.0799	0.2621	0.1342	0.4404	0.0301	0.0988	0.0198	0.0060	0.106 + j0.033	0.481 + j0.430	9.4	268	294
AL90B76-250	4500	20017	0.071	0.232	0.089	0.292	0.0791	0.2595	0.1393	0.4570	0.0298	0.0978	0.0190	0.0058	0.089 + j0.033	0.464 + j0.405	11.1	296	323
AL90B76-350	6300	28024	0.051	0.166	0.064	0.210	0.0762	0.2500	0.1609	0.5280	0.0287	0.0942	0.0165	0.0050	0.064 + j0.031	0.435 + j0.365	15.5	363	386
AL90B76-500	9000	40034	0.035	0.116	0.045	0.148	0.0735	0.2412	0.1879	0.6166	0.0277	0.0909	0.0141	0.0043	0.045 + j0.030	0.408 + j0.322	22.2	447	465
AL90B76-750	13500	60051	0.024	0.077	0.031	0.100	0.0713	0.2340	0.2177	0.7142	0.0269	0.0882	0.0122	0.0037	0.031 + j0.029	0.377 + j0.269	33.2	566	563
AL90B76-1000	18000	80068	0.018	0.058	0.024	0.077	0.0695	0.2282	0.2503	0.8211	0.0262	0.0860	0.0106	0.0032	0.024 + j0.028	0.354 + j0.234	44.3	661	638

* Calculations are based on 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 D17N of the 2015 Canadian Electrical Code Part I (40°C Ambient Air Temperature, indoor installation)

‡ Ampacities are based on Table D17E of the 2015 Canadian Electrical Code Part I