Southwire® CANADA

HVTECK SPECIFICATIONS

HVTECK AL 1/C 320EPR TS PVC AIA PVC 25KV 133% CSA

PRODUCT HIGHLIGHTS

Southwire's 25KV 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: 0.32 inches (8.13mm) - nominal
- Insulation level: 133%
- 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.1 AWG to 350 kcmil = 0.08 inches (2.03mm)
  500 kcmil to 1000 kcmil = 0.11 inches (2.79mm)

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

Overall Jacket
- Black PVC (optional colours available)
- Nominal Thickness:
  No.1 AWG to 750 kcmil = 0.06 inches (1.52mm)
  1000 kcmil = 0.075 inches (1.91mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CPT AL 320 EPR AIA 25KV 133% 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
AL320C87-001	1(19)	0.299	7.6	0.969	24.6	1.049	26.6	1.229	31.2	1.549	39.3	1.669	42.4	20.0	509	1203	1791	8562	3884	104/56.5	2.64/1.44	6000	1829
AL320C87-010	1/0(19)	0.336	8.5	1.006	25.6	1.086	27.6	1.266	32.2	1.586	40.3	1.706	43.3	20.5	520	1266	1884	8940	4055	104/56.5	2.64/1.44	6000	1829
AL320C87-020	2/0(19)	0.376	9.6	1.046	26.6	1.126	28.6	1.306	33.2	1.626	41.3	1.746	44.3	21.0	532	1338	1991	9370	4250	104/56.5	2.64/1.44	6000	1829
AL320C87-030	3/0(19)	0.423	10.7	1.093	27.8	1.173	29.8	1.353	34.4	1.673	42.5	1.793	45.5	21.5	547	1424	2120	10101	4582	108/70.5	2.74/1.79	6000	1829
AL320C87-040	4/0(19)	0.475	12.1	1.145	29.1	1.225	31.1	1.405	35.7	1.725	43.8	1.845	46.9	22.1	562	1525	2270	10706	4856	108/70.5	2.74/1.79	6000	1829
AL320C87-250	250(37)	0.520	13.2	1.200	30.5	1.280	32.5	1.460	37.1	1.780	45.2	1.900	48.3	22.8	579	1628	2423	11324	5137	108/70.5	2.74/1.79	6000	1829
AL320C87-350	350(37)	0.616	15.6	1.296	32.9	1.376	35.0	1.556	39.5	1.886	47.9	2.006	51.0	24.1	611	1903	2832	12119	5497	108/70.5	2.74/1.79	5550	1692
AL320C87-500	500(37)	0.736	18.7	1.416	36.0	1.496	38.0	1.736	44.1	2.066	52.5	2.186	55.5	26.2	666	2306	3431	11931	5412	108/70.5	2.74/1.79	4500	1372
AL320C87-750	750(61)	0.908	23.1	1.598	40.6	1.678	42.6	1.918	48.7	2.248	57.1	2.368	60.1	28.4	722	2776	4130	11824	5363	108/70.5	2.74/1.79	3700	1128
AL320C87-1000	1000(61)	1.060	26.9	1.750	44.5	1.830	46.5	2.070	52.6	2.400	61.0	2.550	64.8	30.6	777	3355	4993	11452	5195	108/70.5	2.74/1.79	2950	899

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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HVTECK SPECIFICATIONS

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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

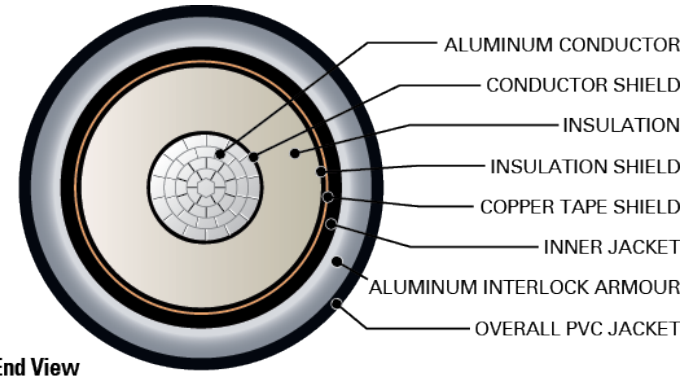
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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 Buries 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
AL320C87-001	502	2234	0.211	0.692	0.265	0.870	0.1293	0.4241	0.0418	0.1371	0.0487	0.1599	0.0635	0.0193	0.266 + j0.061	0.618 + j0.339	3.7	193	194
AL320C87-010	634	2818	0.168	0.551	0.211	0.693	0.1244	0.4083	0.0448	0.1470	0.0469	0.1539	0.0592	0.0180	0.212 + j0.059	0.561 + j0.326	4.7	221	219
AL320C87-020	799	3552	0.133	0.436	0.167	0.549	0.1200	0.3936	0.0480	0.1576	0.0452	0.1484	0.0552	0.0168	0.168 + j0.057	0.514 + j0.313	5.9	253	246
AL320C87-030	1007	4478	0.105	0.345	0.132	0.433	0.1154	0.3788	0.0518	0.1699	0.0435	0.1428	0.0512	0.0156	0.133 + j0.055	0.475 + j0.298	7.4	288	275
AL320C87-040	1270	5647	0.084	0.274	0.105	0.345	0.1112	0.3649	0.0559	0.1833	0.0419	0.1376	0.0475	0.0145	0.106 + j0.053	0.444 + j0.283	9.4	327	305
AL320C87-250	1500	6672	0.071	0.232	0.089	0.292	0.1086	0.3562	0.0588	0.1928	0.0409	0.1343	0.0451	0.0138	0.090 + j0.051	0.423 + j0.269	11.1	367	343
AL320C87-350	2100	9341	0.051	0.166	0.064	0.209	0.1029	0.3377	0.0661	0.2168	0.0388	0.1273	0.0401	0.0122	0.065 + j0.049	0.389 + j0.246	15.5	443	399
AL320C87-500	3000	13345	0.035	0.116	0.045	0.147	0.0975	0.3198	0.0751	0.2464	0.0367	0.1206	0.0353	0.0108	0.046 + j0.047	0.358 + j0.221	22.2	529	451
AL320C87-750	4500	20017	0.024	0.077	0.030	0.099	0.0920	0.3020	0.0869	0.2853	0.0347	0.1138	0.0305	0.0093	0.032 + j0.044	0.327 + j0.190	33.2	633	505
AL320C87-1000	6000	26689	0.018	0.058	0.023	0.075	0.0881	0.2892	0.0980	0.3216	0.0332	0.1090	0.0271	0.0082	0.024 + j0.042	0.306 + j0.169	44.3	711	544

* 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

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