HVTECK SPECIFICATIONS

HVTECK AL 3/C 320TRXLPE 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
- TR-XLPE - (Tree Retardent Cross Linked Polyethylene)
- 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
- 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.1 AWG to No.2/0 AWG = 0.11 inches (2.79mm)
  No.3/0 AWG to 500 kcmil = 0.14 inches (3.56mm)

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

Overall Jacket
- Black PVC (optional colours available)
- Nominal Thickness:
  No.1 AWG to No.1/0 AWG = 0.075 inches (1.91mm)
  No.2/0 AWG to 500 kcmil = 0.085 inches (2.16mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CPT AL 320 TRXLPE AIA 25KV 133% INS LEVEL 25% TS SUN RES 105° FT4 HL (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

TABLE 1 - WEIGHTS & MEASUREMENTS

	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 **	
HVTECK Product Code	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
AL320B87-001	1(19)	0.299	7.6	0.969	24.6	1.049	26.6	6	2.529	64.2	2.859	72.6	3.009	76.4	21.1	535	3271	4868	8588	3896	108/70.5	2.74/1.79	2150	655
AL320B87-010	1/0(19)	0.336	8.5	1.006	25.6	1.086	27.6	6	2.609	66.3	2.939	74.6	3.089	78.5	21.6	549	3448	5131	8623	3911	108/70.5	2.74/1.79	2050	625
AL320B87-020	2/0(19)	0.376	9.6	1.046	26.6	1.126	28.6	6	2.695	68.5	3.025	76.8	3.195	81.2	22.4	568	3709	5520	7861	3566	108/70.5	2.74/1.79	1700	518
AL320B87-030	3/0(19)	0.423	10.7	1.093	27.8	1.173	29.8	6	2.857	72.6	3.187	80.9	3.357	85.3	23.5	597	4141	6163	8181	3711	108/70.5	2.74/1.79	1600	488
AL320B87-040	4/0(19)	0.475	12.1	1.145	29.1	1.225	31.1	6	2.969	75.4	3.299	83.8	3.469	88.1	24.3	617	4435	6600	8207	3723	108/70.5	2.74/1.79	1500	457
AL320B87-250	250(37)	0.520	13.2	1.200	30.5	1.280	32.5	4	3.088	78.4	3.418	86.8	3.588	91.1	25.1	638	4782	7117	6816	3092	108/70.5	2.74/1.79	1100	335
AL320B87-350	350(37)	0.616	15.6	1.296	32.9	1.376	35.0	4	3.295	83.7	3.625	92.1	3.795	96.4	26.6	675	5379	8005	7472	3389	108/70.5	2.74/1.79	1100	335
AL320B87-500	500(37)	0.736	18.7	1.416	36.0	1.496	38.0	3	3.555	90.3	3.885	98.7	4.055	103.0	28.4	721	6229	9270	7473	3390	108/70.5	2.74/1.79	950	290

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

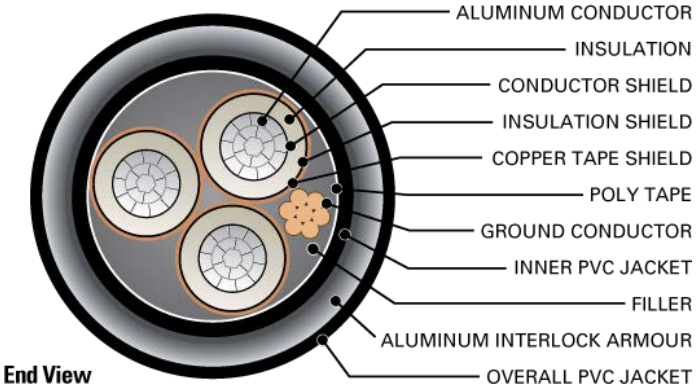
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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 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
AL320B87-001	1506	6701	0.211	0.692	0.265	0.870	0.1293	0.4241	0.0331	0.1088	0.0487	0.1599	0.0800	0.0244	0.266 + j0.051	0.627 + j0.339	3.9	158	177
AL320B87-010	1901	8455	0.168	0.551	0.211	0.693	0.1244	0.4083	0.0355	0.1166	0.0469	0.1539	0.0746	0.0227	0.212 + j0.049	0.570 + j0.326	5.0	181	200
AL320B87-020	2396	10657	0.133	0.436	0.167	0.549	0.1200	0.3936	0.0381	0.1250	0.0452	0.1484	0.0696	0.0212	0.168 + j0.047	0.522 + j0.312	6.3	208	228
AL320B87-030	3020	13435	0.105	0.345	0.132	0.433	0.1154	0.3788	0.0411	0.1347	0.0435	0.1428	0.0646	0.0197	0.133 + j0.045	0.483 + j0.298	7.9	239	258
AL320B87-040	3809	16942	0.084	0.274	0.105	0.345	0.1112	0.3649	0.0443	0.1454	0.0419	0.1376	0.0599	0.0182	0.106 + j0.044	0.451 + j0.282	9.9	273	292
AL320B87-250	4500	20017	0.071	0.232	0.089	0.292	0.1086	0.3562	0.0466	0.1529	0.0409	0.1343	0.0569	0.0173	0.090 + j0.043	0.429 + j0.268	11.8	302	321
AL320B87-350	6300	28024	0.051	0.166	0.064	0.209	0.1029	0.3377	0.0524	0.1719	0.0388	0.1273	0.0506	0.0154	0.064 + j0.040	0.394 + j0.245	16.5	368	385
AL320B87-500	9000	40034	0.035	0.116	0.045	0.147	0.0975	0.3198	0.0596	0.1954	0.0367	0.1206	0.0445	0.0136	0.045 + j0.038	0.363 + j0.220	23.5	454	462

* 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

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