HVTECK SPECIFICATIONS

HVTECK AL 3/C 345TRXLPE TS PVC AIA PVC 28KV 133% CSA

PRODUCT HIGHLIGHTS

Southwire's 28KV 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: 0.345 inches (8.76mm) - 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.1/0 AWG = 0.11 inches (2.79mm)
  No.2/0 AWG to 350 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 = 0.075 inches (1.91mm)
  No.1/0 AWG to 350 kcmil = 0.085 inches (2.16mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CPT AL 345 TRXLPE AIA 28KV 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		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
AL345A29-001	1(19)	0.299	7.6	1.019	25.9	1.099	27.9	6	2.637	67.0	2.967	75.4	3.117	79.2	21.8	554	3457	5144	7431	3371	108/70.5	2.74/1.79	1700	518
AL345A29-010	1/0(19)	0.336	8.5	1.056	26.8	1.136	28.9	6	2.717	69.0	3.047	77.4	3.217	81.7	22.5	572	3696	5501	7469	3388	108/70.5	2.74/1.79	1600	488
AL345A29-020	2/0(19)	0.376	9.6	1.096	27.8	1.176	29.9	6	2.863	72.7	3.193	81.1	3.363	85.4	23.5	598	4091	6088	8100	3674	108/70.5	2.74/1.79	1600	488
AL345A29-030	3/0(19)	0.423	10.7	1.143	29.0	1.223	31.1	6	2.965	75.3	3.295	83.7	3.465	88.0	24.3	616	4346	6468	8074	3662	108/70.5	2.74/1.79	1500	457
AL345A29-040	4/0(19)	0.475	12.1	1.195	30.4	1.275	32.4	6	3.077	78.2	3.407	86.5	3.577	90.9	25.0	636	4645	6912	6664	3023	108/70.5	2.74/1.79	1100	335
AL345A29-250	250(37)	0.520	13.2	1.250	31.8	1.330	33.8	4	3.196	81.2	3.526	89.6	3.696	93.9	25.9	657	4997	7437	7052	3199	108/70.5	2.74/1.79	1100	335
AL345A29-350	350(37)	0.616	15.6	1.346	34.2	1.426	36.2	4	3.403	86.4	3.733	94.8	3.903	99.1	27.3	694	5603	8339	7439	3374	108/70.5	2.74/1.79	1050	320

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

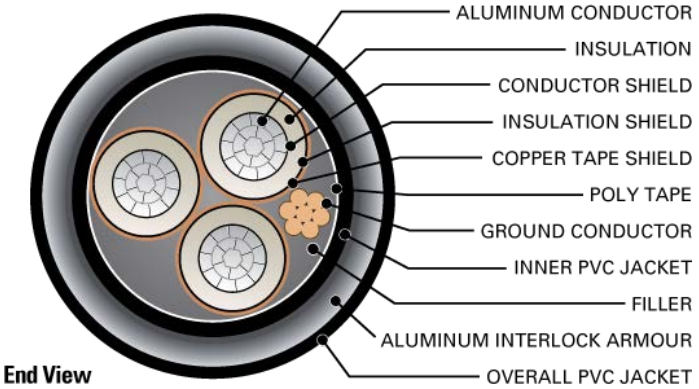
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
AL345A29-001	1506	6701	0.211	0.692	0.265	0.870	0.1323	0.4342	0.0318	0.1043	0.0499	0.1637	0.0834	0.0254	0.266 + j0.052	0.622 + j0.325	3.9	158	177
AL345A29-010	1901	8455	0.168	0.551	0.211	0.693	0.1274	0.4180	0.0340	0.1117	0.0480	0.1576	0.0779	0.0238	0.212 + j0.050	0.565 + j0.312	5.0	181	200
AL345A29-020	2396	10657	0.133	0.436	0.167	0.549	0.1228	0.4029	0.0364	0.1195	0.0463	0.1519	0.0728	0.0222	0.168 + j0.048	0.517 + j0.300	6.3	208	228
AL345A29-030	3020	13435	0.105	0.345	0.132	0.433	0.1182	0.3877	0.0392	0.1287	0.0446	0.1462	0.0676	0.0206	0.133 + j0.046	0.478 + j0.286	7.9	239	258
AL345A29-040	3809	16942	0.084	0.274	0.105	0.345	0.1138	0.3734	0.0422	0.1386	0.0429	0.1408	0.0628	0.0191	0.106 + j0.045	0.446 + j0.271	9.9	273	292
AL345A29-250	4500	20017	0.071	0.232	0.089	0.292	0.1110	0.3643	0.0444	0.1458	0.0419	0.1374	0.0597	0.0182	0.090 + j0.044	0.424 + j0.258	11.8	302	321
AL345A29-350	6300	28024	0.051	0.166	0.064	0.209	0.1052	0.3452	0.0499	0.1636	0.0397	0.1302	0.0532	0.0162	0.064 + j0.041	0.389 + j0.236	16.5	368	385

* 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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