Southwire® CANADA

HVTECK SPECIFICATIONS

HVTECK AL 1/C 345EPR 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
- No-lead EPR (Ethylene Propylene Rubber)
- 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
- 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 750 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 500 kcmil = 0.06 inches (1.52mm)
  750 kcmil = 0.075 inches (1.91mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CPT AL 345 EPR AIA 28KV 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		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	inches	mm	inches	mm	inches	mm	inches	mm	lb / 1000ft	kg/km	lbs	kg	inches	m	feet	m
AL345N70-001	1(19)	0.299	7.6	1.019	25.9	1.099	27.9	1.279	32.5	1.599	40.6	1.719	43.7	20.6	524	1273	1895	8981	4074	104/56.5	2.64/1.44	6000	1829
AL345N70-010	1/0(19)	0.336	8.5	1.056	26.8	1.136	28.9	1.316	33.4	1.636	41.6	1.756	44.6	21.1	535	1338	1990	9367	4249	104/56.5	2.64/1.44	6000	1829
AL345N70-020	2/0(19)	0.376	9.6	1.096	27.8	1.176	29.9	1.356	34.4	1.676	42.6	1.796	45.6	21.6	547	1411	2100	10020	4545	108/70.5	2.74/1.79	6000	1829
AL345N70-030	3/0(19)	0.423	10.7	1.143	29.0	1.223	31.1	1.403	35.6	1.723	43.8	1.843	46.8	22.1	562	1499	2231	10549	4785	108/70.5	2.74/1.79	6000	1829
AL345N70-040	4/0(19)	0.475	12.1	1.195	30.4	1.275	32.4	1.455	37.0	1.775	45.1	1.895	48.1	22.7	578	1602	2384	11166	5065	108/70.5	2.74/1.79	6000	1829
AL345N70-250	250(37)	0.520	13.2	1.250	31.8	1.330	33.8	1.510	38.4	1.840	46.7	1.960	49.8	23.5	597	1776	2643	11854	5377	108/70.5	2.74/1.79	5800	1768
AL345N70-350	350(37)	0.616	15.6	1.346	34.2	1.426	36.2	1.606	40.8	1.936	49.2	2.056	52.2	24.7	627	1988	2958	12190	5529	108/70.5	2.74/1.79	5350	1631
AL345N70-500	500(37)	0.736	18.7	1.466	37.2	1.546	39.3	1.786	45.4	2.116	53.7	2.236	56.8	26.8	682	2398	3568	12344	5599	108/70.5	2.74/1.79	4500	1372
AL345N70-750	750(61)	0.908	23.1	1.648	41.9	1.728	43.9	1.968	50.0	2.298	58.4	2.448	62.2	29.4	746	2943	4379	12001	5444	108/70.5	2.74/1.79	3550	1082

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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SPS_N70_INDUSTRIAL-E(06/23/2016) Rev: 3.05R

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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

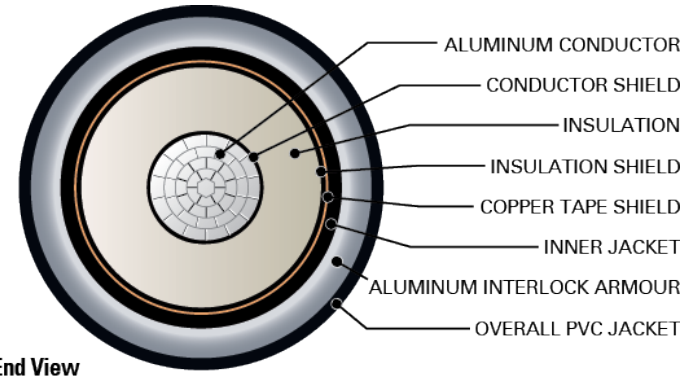
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
AL345N70-001	502	2234	0.211	0.692	0.265	0.870	0.1323	0.4342	0.0401	0.1315	0.0499	0.1637	0.0662	0.0202	0.266 + j0.062	0.614 + j0.325	3.7	193	194
AL345N70-010	634	2818	0.168	0.551	0.211	0.693	0.1274	0.4180	0.0429	0.1408	0.0480	0.1576	0.0618	0.0188	0.212 + j0.060	0.558 + j0.313	4.7	221	219
AL345N70-020	799	3552	0.133	0.436	0.167	0.549	0.1228	0.4029	0.0459	0.1507	0.0463	0.1519	0.0577	0.0176	0.168 + j0.058	0.510 + j0.300	5.9	253	246
AL345N70-030	1007	4478	0.105	0.345	0.132	0.433	0.1182	0.3877	0.0494	0.1622	0.0446	0.1462	0.0537	0.0164	0.133 + j0.055	0.471 + j0.286	7.4	288	275
AL345N70-040	1270	5647	0.084	0.274	0.105	0.345	0.1138	0.3734	0.0533	0.1748	0.0429	0.1408	0.0498	0.0152	0.106 + j0.053	0.440 + j0.272	9.4	327	305
AL345N70-250	1500	6672	0.071	0.232	0.089	0.292	0.1110	0.3643	0.0560	0.1838	0.0419	0.1374	0.0473	0.0144	0.090 + j0.052	0.419 + j0.259	11.1	367	343
AL345N70-350	2100	9341	0.051	0.166	0.064	0.209	0.1052	0.3452	0.0629	0.2063	0.0397	0.1302	0.0422	0.0129	0.065 + j0.049	0.384 + j0.237	15.5	443	399
AL345N70-500	3000	13345	0.035	0.116	0.045	0.147	0.0996	0.3267	0.0713	0.2340	0.0375	0.1232	0.0372	0.0113	0.046 + j0.047	0.354 + j0.214	22.2	529	451
AL345N70-750	4500	20017	0.024	0.077	0.030	0.099	0.0939	0.3081	0.0825	0.2705	0.0354	0.1162	0.0322	0.0098	0.032 + j0.044	0.322 + j0.184	33.2	633	505

* 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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SPS_N70_INDUSTRIAL-E(06/23/2016) Rev: 3.05R