HVTECK SPECIFICATIONS

HVTECK CU 1/C 345TRXLPE CB 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. When used in a 3 phase system, the combination of each bond conductor from each single conductor cable provide a 100% bonded system to ground.

CONSTRUCTION

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

Options
- Class B compact stranded -8000 Series Aluminum -ACM
- Class B compact stranded copper

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
- Meets requirement of ICEA but built to CSA standards

Copper Full Bond Wire Shield
- Concentrically applied copper bond / shield wires
- *** Complies with greater than the minimum requirement as per Table 44, CSA Standard C68.10 and Table 16A, Canadian Electrical Code Part 1

Inner Jacket
- Black PVC
- Thickness:
  No.1 AWG to 250 kcmil = 0.08 inches (2.03mm)
  350 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 500 kcmil = 0.06 inches (1.52mm)
  750 kcmil to 1000 kcmil = 0.075 inches (1.91mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CU 345 TRXLPE AIA 28KV 133% INS LEVEL CB [No. x SIZE] AWG 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		CB 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	No. X AWG	inches	mm	inches	mm	inches	mm	inches	mm	lb / 1000ft	kg/km	lbs	kg	inches	m	feet	m
CU345X49-001	1(19)	0.322	8.2	1.042	26.5	1.122	28.5	17X16	1.333	33.9	1.653	42.0	1.773	45.0	21.3	540	1425	2120	10104	4583	108/70.5	2.74/1.79	6000	1829
CU345X49-010	1/0(19)	0.362	9.2	1.082	27.5	1.162	29.5	17X16	1.373	34.9	1.693	43.0	1.813	46.0	21.8	553	1533	2281	10751	4877	108/70.5	2.74/1.79	6000	1829
CU345X49-020	2/0(19)	0.405	10.3	1.125	28.6	1.205	30.6	17X16	1.416	36.0	1.736	44.1	1.856	47.1	22.3	566	1661	2472	11523	5227	108/70.5	2.74/1.79	6000	1829
CU345X49-030	3/0(19)	0.456	11.6	1.176	29.9	1.256	31.9	21X16	1.467	37.3	1.787	45.4	1.907	48.4	22.9	581	1840	2738	12593	5712	108/70.5	2.74/1.79	6000	1829
CU345X49-040	4/0(19)	0.512	13.0	1.232	31.3	1.312	33.3	21X16	1.523	38.7	1.853	47.1	1.973	50.1	23.7	601	2101	3126	13425	6089	108/70.5	2.74/1.79	5650	1722
CU345X49-250	250(37)	0.558	14.2	1.288	32.7	1.368	34.7	27X16	1.579	40.1	1.909	48.5	2.029	51.5	24.3	618	2252	3352	13604	6171	108/70.5	2.74/1.79	5350	1631
CU345X49-350	350(37)	0.661	16.8	1.391	35.3	1.471	37.4	21X14	1.755	44.6	2.085	53.0	2.205	56.0	26.5	672	2888	4298	14552	6601	108/70.5	2.74/1.79	4500	1372
CU345X49-500	500(37)	0.789	20.0	1.519	38.6	1.599	40.6	27X14	1.883	47.8	2.213	56.2	2.333	59.3	28.0	711	3541	5269	15187	6889	108/70.5	2.74/1.79	3850	1173
CU345X49-750	750(61)	0.968	24.6	1.708	43.4	1.788	45.4	33X14	2.072	52.6	2.402	61.0	2.552	64.8	30.6	778	4733	7043	15517	7038	108/70.5	2.74/1.79	2950	899
CU345X49-1000	1000(61)	1.117	28.4	1.857	47.2	1.937	49.2	33X14	2.221	56.4	2.551	64.8	2.701	68.6	32.4	823	5682	8456	16329	7406	108/70.5	2.74/1.79	2600	792

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.

*** Concentric 1/3 Bond size values are available on request

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Southwire® CANADA

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

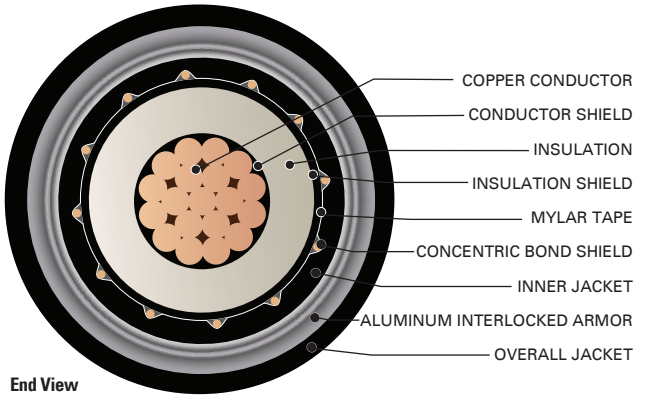
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
CU345X49-001	670	2978	0.129	0.423	0.161	0.529	0.1292	0.4238	0.0332	0.1089	0.0487	0.1598	0.0799	0.0244	0.164 + j0.061	0.383 + j0.121	6.0	245	244
CU345X49-010	845	3758	0.102	0.335	0.128	0.419	0.1243	0.4079	0.0356	0.1168	0.0469	0.1538	0.0745	0.0227	0.130 + j0.058	0.349 + j0.119	7.6	278	272
CU345X49-020	1065	4736	0.081	0.266	0.101	0.333	0.1199	0.3933	0.0382	0.1252	0.0452	0.1483	0.0695	0.0212	0.104 + j0.056	0.322 + j0.118	9.6	316	303
CU345X49-030	1342	5971	0.064	0.211	0.080	0.264	0.1153	0.3784	0.0411	0.1350	0.0435	0.1427	0.0645	0.0197	0.083 + j0.054	0.268 + j0.091	12.1	356	333
CU345X49-040	1693	7530	0.051	0.167	0.064	0.210	0.1111	0.3645	0.0444	0.1456	0.0419	0.1374	0.0598	0.0182	0.067 + j0.052	0.251 + j0.089	15.2	403	367
CU345X49-250	2000	8896	0.043	0.141	0.054	0.178	0.1086	0.3562	0.0466	0.1529	0.0409	0.1343	0.0569	0.0174	0.058 + j0.051	0.206 + j0.067	18.0	455	411
CU345X49-350	2800	12455	0.031	0.101	0.039	0.128	0.1029	0.3377	0.0524	0.1719	0.0388	0.1273	0.0506	0.0154	0.043 + j0.048	0.164 + j0.054	25.2	537	459
CU345X49-500	4000	17793	0.022	0.071	0.028	0.091	0.0975	0.3199	0.0595	0.1952	0.0368	0.1206	0.0446	0.0136	0.033 + j0.045	0.127 + j0.042	36.0	616	499
CU345X49-750	6000	26689	0.014	0.047	0.019	0.062	0.0922	0.3025	0.0686	0.2252	0.0348	0.1140	0.0386	0.0118	0.025 + j0.042	0.101 + j0.035	53.9	716	557
CU345X49-1000	8000	35586	0.011	0.035	0.015	0.048	0.0886	0.2906	0.0767	0.2516	0.0334	0.1095	0.0346	0.0105	0.021 + j0.040	0.097 + j0.033	71.9	825	608

* 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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