HVTECK SPECIFICATIONS

HVTECK CU 1/C 320TRXLPE CB 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. 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: 0.32 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 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 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 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 320 TRXLPE AIA 25KV 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
CU320Z55-001	1(19)	0.322	8.2	0.992	25.2	1.072	27.2	17X16	1.283	32.6	1.603	40.7	1.723	43.8	20.7	525	1365	2032	9534	4324	104/56.5	2.64/1.44	6000	1829
CU320Z55-010	1/0(19)	0.362	9.2	1.032	26.2	1.112	28.2	17X16	1.323	33.6	1.643	41.7	1.763	44.8	21.2	537	1472	2190	10173	4614	104/56.5	2.64/1.44	6000	1829
CU320Z55-020	2/0(19)	0.405	10.3	1.075	27.3	1.155	29.3	17X16	1.366	34.7	1.686	42.8	1.806	45.9	21.7	550	1599	2380	11149	5057	108/70.5	2.74/1.79	6000	1829
CU320Z55-030	3/0(19)	0.456	11.6	1.126	28.6	1.206	30.6	21X16	1.417	36.0	1.737	44.1	1.857	47.2	22.3	566	1776	2643	12210	5539	108/70.5	2.74/1.79	6000	1829
CU320Z55-040	4/0(19)	0.512	13.0	1.182	30.0	1.262	32.1	21X16	1.473	37.4	1.793	45.5	1.913	48.6	23.0	583	1966	2926	13351	6056	108/70.5	2.74/1.79	6000	1829
CU320Z55-250	250(37)	0.558	14.2	1.238	31.4	1.318	33.5	27X16	1.529	38.8	1.859	47.2	1.979	50.3	23.7	603	2183	3248	13888	6300	108/70.5	2.74/1.79	5650	1722
CU320Z55-350	350(37)	0.661	16.8	1.341	34.1	1.421	36.1	21X14	1.645	41.8	1.975	50.2	2.095	53.2	25.1	639	2696	4012	14631	6636	108/70.5	2.74/1.79	4850	1478
CU320Z55-500	500(37)	0.789	20.0	1.469	37.3	1.549	39.3	27X14	1.833	46.6	2.163	54.9	2.283	58.0	27.4	696	3461	5151	14882	6750	108/70.5	2.74/1.79	3850	1173
CU320Z55-750	750(61)	0.968	24.6	1.658	42.1	1.738	44.1	33X14	2.022	51.4	2.352	59.7	2.502	63.6	30.0	763	4644	6911	15719	7130	108/70.5	2.74/1.79	3050	930
CU320Z55-1000	1000(61)	1.117	28.4	1.807	45.9	1.887	47.9	33X14	2.171	55.1	2.501	63.5	2.651	67.3	31.8	808	5589	8317	16365	7423	108/70.5	2.74/1.79	2650	808

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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SPS_Z55_INDUSTRIAL-E(04/21/2017) Rev: 3.08B

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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

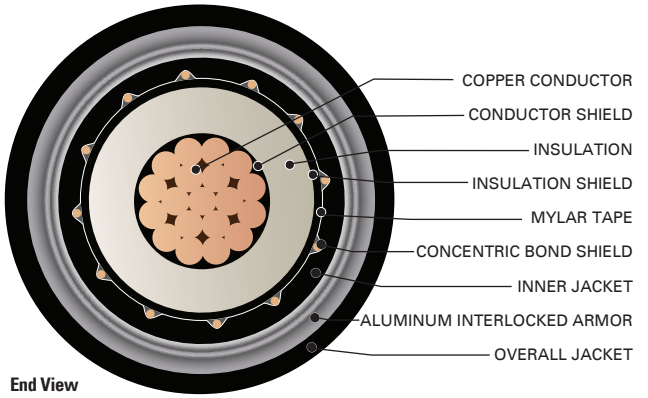
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
CU320Z55-001	670	2978	0.129	0.423	0.161	0.529	0.1262	0.4140	0.0346	0.1137	0.0476	0.1561	0.0766	0.0233	0.164 + j0.060	0.383 + j0.120	6.0	245	244
CU320Z55-010	845	3758	0.102	0.335	0.128	0.419	0.1214	0.3985	0.0372	0.1221	0.0458	0.1502	0.0713	0.0217	0.130 + j0.058	0.349 + j0.118	7.6	278	272
CU320Z55-020	1065	4736	0.081	0.266	0.101	0.333	0.1171	0.3842	0.0399	0.1310	0.0441	0.1448	0.0664	0.0202	0.104 + j0.056	0.323 + j0.117	9.6	316	303
CU320Z55-030	1342	5971	0.064	0.211	0.080	0.264	0.1127	0.3697	0.0431	0.1415	0.0425	0.1394	0.0615	0.0187	0.083 + j0.054	0.268 + j0.090	12.1	356	333
CU320Z55-040	1693	7530	0.051	0.167	0.064	0.210	0.1086	0.3562	0.0466	0.1529	0.0409	0.1343	0.0569	0.0174	0.067 + j0.052	0.252 + j0.088	15.2	403	367
CU320Z55-250	2000	8896	0.043	0.141	0.054	0.178	0.1062	0.3483	0.0489	0.1605	0.0400	0.1313	0.0542	0.0165	0.058 + j0.050	0.206 + j0.066	18.0	455	411
CU320Z55-350	2800	12455	0.031	0.101	0.039	0.128	0.1007	0.3304	0.0551	0.1808	0.0380	0.1246	0.0481	0.0147	0.043 + j0.047	0.164 + j0.054	25.2	537	459
CU320Z55-500	4000	17793	0.022	0.071	0.028	0.091	0.0955	0.3132	0.0627	0.2057	0.0360	0.1181	0.0423	0.0129	0.033 + j0.045	0.127 + j0.041	36.0	616	499
CU320Z55-750	6000	26689	0.014	0.047	0.019	0.062	0.0904	0.2965	0.0724	0.2376	0.0341	0.1118	0.0366	0.0112	0.025 + j0.041	0.101 + j0.034	53.9	716	557
CU320Z55-1000	8000	35586	0.011	0.035	0.015	0.049	0.0869	0.2851	0.0810	0.2659	0.0328	0.1075	0.0327	0.0100	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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