HVTECK SPECIFICATIONS

HVTECK CU 1/C 90EPR CB PVC AIA PVC 5KV 100% CSA

PRODUCT HIGHLIGHTS

Southwire's 5KV 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
- No-lead EPR (Ethylene Propylene Rubber)
- Thickness: 0.09 inches (2.29mm) - nominal
- Insulation level: 100%
- 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.2 AWG to No.1 AWG = 0.06 inches (1.52mm)
  No.1/0 AWG to 1000 kcmil = 0.08 inches (2.03mm)

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

Overall Jacket
- Orange PVC (optional colours available)
- Nominal Thickness:
  No.2 AWG to 250 kcmil = 0.05 inches (1.27mm)
  350 kcmil to 1000 kcmil = 0.06 inches (1.52mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CU 90 EPR AIA 5KV 100% INS LEVEL CB [No. x SIZE] AWG 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		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 **	
HVTECK Product Code	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
CU90X88-002	2(7)	0.283	7.2	0.493	12.5	0.573	14.6	11X16	0.744	18.9	1.064	27.0	1.164	29.6	14.0	355	700	1042	4950	2245	78/54	1.98/1.37	6000	1829
CU90X88-001	1(19)	0.322	8.2	0.532	13.5	0.612	15.5	17X16	0.783	19.9	1.103	28.0	1.203	30.6	14.4	367	807	1202	5595	2538	78/54	1.98/1.37	6000	1829
CU90X88-010	1/0(19)	0.362	9.2	0.572	14.5	0.652	16.6	17X16	0.863	21.9	1.183	30.0	1.283	32.6	15.4	391	943	1403	6407	2906	78/54	1.98/1.37	6000	1829
CU90X88-020	2/0(19)	0.405	10.3	0.615	15.6	0.695	17.7	17X16	0.906	23.0	1.226	31.1	1.326	33.7	15.9	404	1057	1572	7089	3216	78/54	1.98/1.37	6000	1829
CU90X88-030	3/0(19)	0.456	11.6	0.666	16.9	0.746	18.9	21X16	0.957	24.3	1.277	32.4	1.377	35.0	16.5	420	1217	1812	8463	3839	96/54.5	2.44/1.38	6000	1829
CU90X88-040	4/0(19)	0.512	13.0	0.722	18.3	0.802	20.4	21X16	1.013	25.7	1.333	33.9	1.433	36.4	17.2	437	1426	2122	9713	4406	96/54.5	2.44/1.38	6000	1829
CU90X88-250	250(37)	0.558	14.2	0.778	19.8	0.858	21.8	27X16	1.069	27.1	1.389	35.3	1.489	37.8	17.9	454	1557	2317	10502	4764	96/54.5	2.44/1.38	6000	1829
CU90X88-350	350(37)	0.661	16.8	0.881	22.4	0.961	24.4	21X14	1.185	30.1	1.505	38.2	1.625	41.3	19.5	495	2066	3075	13741	6233	104/56.5	2.64/1.44	6000	1829
CU90X88-500	500(37)	0.789	20.0	1.009	25.6	1.089	27.7	27X14	1.313	33.4	1.633	41.5	1.753	44.5	21.0	534	2669	3972	16501	7485	108/70.5	2.74/1.79	5600	1707
CU90X88-750	750(61)	0.968	24.6	1.198	30.4	1.278	32.5	33X14	1.502	38.2	1.832	46.5	1.952	49.6	23.4	595	3701	5507	16543	7504	108/70.5	2.74/1.79	4050	1234
CU90X88-1000	1000(61)	1.117	28.4	1.347	34.2	1.427	36.2	33X14	1.651	41.9	1.981	50.3	2.101	53.4	25.2	640	4588	6828	16466	7469	108/70.5	2.74/1.79	3250	991

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

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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

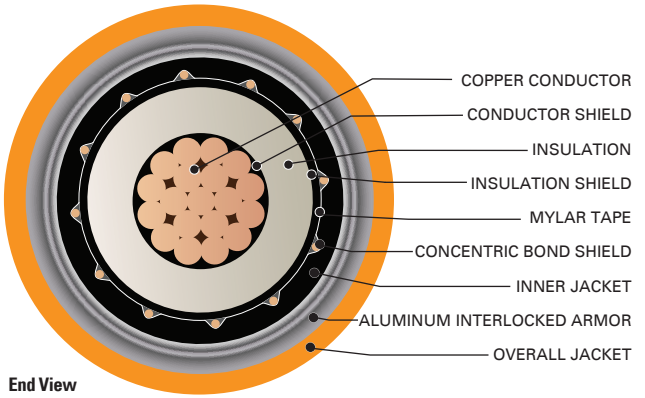
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
CU90X88-002	531	2361	0.162	0.532	0.203	0.665	0.0914	0.2999	0.0885	0.2905	0.0345	0.1131	0.0300	0.0091	0.205 + j0.054	0.502 + j0.187	4.5	215	221
CU90X88-001	670	2978	0.129	0.423	0.161	0.529	0.0882	0.2893	0.0979	0.3212	0.0332	0.1091	0.0271	0.0083	0.165 + j0.051	0.386 + j0.105	5.7	245	247
CU90X88-010	845	3758	0.102	0.335	0.128	0.419	0.0855	0.2804	0.1074	0.3525	0.0322	0.1057	0.0247	0.0075	0.131 + j0.050	0.352 + j0.104	7.2	278	275
CU90X88-020	1065	4736	0.081	0.266	0.101	0.333	0.0830	0.2724	0.1176	0.3860	0.0313	0.1027	0.0225	0.0069	0.105 + j0.048	0.325 + j0.103	9.0	317	306
CU90X88-030	1342	5971	0.064	0.211	0.080	0.264	0.0807	0.2647	0.1297	0.4257	0.0304	0.0998	0.0204	0.0062	0.085 + j0.046	0.270 + j0.077	11.4	357	335
CU90X88-040	1693	7530	0.051	0.167	0.064	0.210	0.0785	0.2576	0.1430	0.4692	0.0296	0.0971	0.0186	0.0057	0.068 + j0.045	0.253 + j0.076	14.3	404	369
CU90X88-250	2000	8896	0.043	0.141	0.054	0.178	0.0778	0.2554	0.1479	0.4852	0.0293	0.0963	0.0179	0.0055	0.059 + j0.043	0.207 + j0.055	16.9	456	412
CU90X88-350	2800	12455	0.031	0.101	0.039	0.128	0.0751	0.2463	0.1711	0.5613	0.0283	0.0929	0.0155	0.0047	0.044 + j0.041	0.164 + j0.044	23.7	537	456
CU90X88-500	4000	17793	0.022	0.071	0.028	0.091	0.0726	0.2381	0.1998	0.6556	0.0274	0.0898	0.0133	0.0040	0.034 + j0.038	0.127 + j0.033	33.9	616	497
CU90X88-750	6000	26689	0.014	0.047	0.019	0.063	0.0706	0.2315	0.2305	0.7564	0.0266	0.0873	0.0115	0.0035	0.026 + j0.035	0.101 + j0.027	50.8	706	551
CU90X88-1000	8000	35586	0.011	0.035	0.015	0.050	0.0690	0.2263	0.2625	0.8612	0.0260	0.0853	0.0101	0.0031	0.021 + j0.034	0.097 + j0.026	67.8	813	596

* 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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