HVTECK SPECIFICATIONS

HVTECK CU 1/C 420EPR CB PVC AIA PVC 35KV 133% CSA

PRODUCT HIGHLIGHTS

Southwire's 35KV 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: 0.42 inches (10.67mm) - 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.1/0 AWG to No.3/0 AWG = 0.08 inches (2.03mm)
  No.4/0 AWG 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.1/0 AWG to 350 kcmil = 0.06 inches (1.52mm)
  500 kcmil to 1000 kcmil = 0.075 inches (1.91mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CU 420 EPR AIA 35KV 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

	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
CU420J99-010	1/0(19)	0.362	9.2	1.232	31.3	1.312	33.3	17X16	1.523	38.7	1.853	47.1	1.973	50.1	23.7	601	1892	2815	12244	5554	108/70.5	2.74/1.79	5650	1722
CU420J99-020	2/0(19)	0.405	10.3	1.275	32.4	1.355	34.4	17X16	1.566	39.8	1.896	48.2	2.016	51.2	24.2	614	2031	3023	12829	5819	108/70.5	2.74/1.79	5550	1692
CU420J99-030	3/0(19)	0.456	11.6	1.326	33.7	1.406	35.7	21X16	1.617	41.1	1.947	49.4	2.067	52.5	24.8	630	2223	3308	13447	6099	108/70.5	2.74/1.79	5350	1631
CU420J99-040	4/0(19)	0.512	13.0	1.382	35.1	1.462	37.1	21X16	1.733	44.0	2.063	52.4	2.183	55.4	26.2	665	2547	3791	13017	5905	108/70.5	2.74/1.79	4500	1372
CU420J99-250	250(37)	0.558	14.2	1.438	36.5	1.518	38.6	27X16	1.789	45.4	2.119	53.8	2.239	56.9	26.9	682	2714	4038	13767	6244	108/70.5	2.74/1.79	4500	1372
CU420J99-350	350(37)	0.661	16.8	1.541	39.1	1.621	41.2	21X14	1.905	48.4	2.235	56.8	2.355	59.8	28.3	718	3259	4850	13612	6174	108/70.5	2.74/1.79	3700	1128
CU420J99-500	500(37)	0.789	20.0	1.669	42.4	1.749	44.4	27X14	2.033	51.6	2.363	60.0	2.513	63.8	30.2	766	4091	6088	14032	6365	108/70.5	2.74/1.79	3050	930
CU420J99-750	750(61)	0.968	24.6	1.858	47.2	1.938	49.2	33X14	2.222	56.4	2.552	64.8	2.702	68.6	32.4	824	5181	7711	16063	7286	108/70.5	2.74/1.79	2800	853
CU420J99-1000	1000(61)	1.117	28.4	2.007	51.0	2.107	53.5	33X14	2.391	60.7	2.721	69.1	2.871	72.9	34.5	875	6209	9241	15837	7183	108/70.5	2.74/1.79	2300	701

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

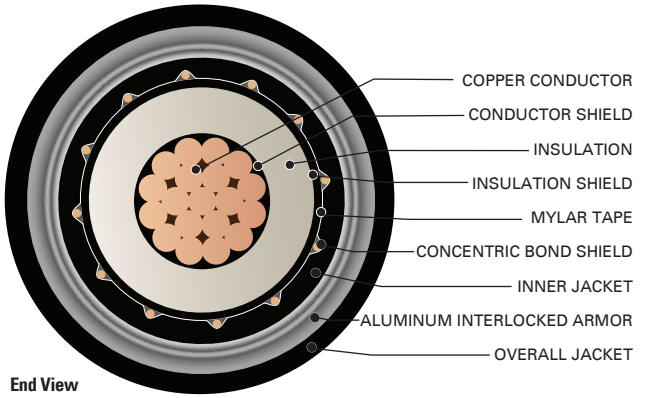
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
CU420J99-010	845	3758	0.102	0.335	0.128	0.419	0.1322	0.4339	0.0401	0.1317	0.0499	0.1636	0.0661	0.0201	0.130 + j0.060	0.348 + j0.123	7.2	278	272
CU420J99-020	1065	4736	0.081	0.266	0.101	0.333	0.1275	0.4183	0.0429	0.1406	0.0481	0.1577	0.0619	0.0189	0.104 + j0.058	0.322 + j0.121	9.0	316	303
CU420J99-030	1342	5971	0.064	0.211	0.080	0.264	0.1227	0.4024	0.0460	0.1511	0.0462	0.1517	0.0576	0.0176	0.083 + j0.056	0.268 + j0.094	11.4	356	333
CU420J99-040	1693	7530	0.051	0.167	0.064	0.210	0.1181	0.3875	0.0495	0.1624	0.0445	0.1461	0.0536	0.0163	0.067 + j0.055	0.251 + j0.092	14.3	403	367
CU420J99-250	2000	8896	0.043	0.141	0.054	0.178	0.1153	0.3783	0.0519	0.1703	0.0435	0.1426	0.0511	0.0156	0.058 + j0.053	0.205 + j0.070	16.9	455	411
CU420J99-350	2800	12455	0.031	0.101	0.039	0.128	0.1092	0.3582	0.0581	0.1905	0.0412	0.1350	0.0457	0.0139	0.043 + j0.050	0.164 + j0.057	23.7	537	459
CU420J99-500	4000	17793	0.022	0.071	0.028	0.090	0.1032	0.3388	0.0656	0.2152	0.0389	0.1277	0.0404	0.0123	0.033 + j0.047	0.126 + j0.044	33.9	616	499
CU420J99-750	6000	26689	0.014	0.047	0.019	0.062	0.0973	0.3193	0.0754	0.2473	0.0367	0.1204	0.0352	0.0107	0.025 + j0.043	0.101 + j0.037	50.8	716	557
CU420J99-1000	8000	35586	0.011	0.035	0.015	0.048	0.0933	0.3061	0.0839	0.2752	0.0352	0.1154	0.0316	0.0096	0.020 + j0.042	0.097 + j0.035	67.8	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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