Southwire® CANADA

HVTECK SPECIFICATIONS

HVTECK CU 1/C 220EPR CB PVC AIA PVC 15KV 133% CSA

PRODUCT HIGHLIGHTS

Southwire's 15KV 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: 0.22 inches (5.59mm) - 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.2 AWG to 500 kcmil = 0.08 inches (2.03mm)
  750 kcmil to 1000 kcmil = 0.11 inches (2.79mm)

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

Overall Jacket
- Red PVC (optional colours available)
- Nominal Thickness:
  No.2 AWG to No.2/0 AWG = 0.05 inches (1.27mm)
  No.3/0 AWG to 750 kcmil = 0.06 inches (1.52mm)
  1000 kcmil = 0.075 inches (1.91mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CU 220 EPR AIA 15KV 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
CU220Z02-002	2(7)	0.283	7.2	0.753	19.1	0.833	21.2	11X16	1.044	26.5	1.364	34.6	1.464	37.2	17.6	446	1032	1536	7353	3335	96/54.5	2.44/1.38	6000	1829
CU220Z02-001	1(19)	0.322	8.2	0.792	20.1	0.872	22.1	17X16	1.083	27.5	1.403	35.6	1.503	38.2	18.0	458	1150	1712	8061	3656	96/54.5	2.44/1.38	6000	1829
CU220Z02-010	1/0(19)	0.362	9.2	0.832	21.1	0.912	23.2	17X16	1.123	28.5	1.443	36.6	1.543	39.2	18.5	470	1254	1866	8681	3938	96/54.5	2.44/1.38	6000	1829
CU220Z02-020	2/0(19)	0.405	10.3	0.875	22.2	0.955	24.3	17X16	1.166	29.6	1.486	37.7	1.586	40.3	19.0	483	1377	2050	9606	4357	104/56.5	2.64/1.44	6000	1829
CU220Z02-030	3/0(19)	0.456	11.6	0.926	23.5	1.006	25.6	21X16	1.217	30.9	1.537	39.0	1.657	42.1	19.9	505	1581	2352	10827	4911	104/56.5	2.64/1.44	6000	1829
CU220Z02-040	4/0(19)	0.512	13.0	0.982	24.9	1.062	27.0	21X16	1.273	32.3	1.593	40.5	1.713	43.5	20.6	522	1767	2630	11946	5419	104/56.5	2.64/1.44	6000	1829
CU220Z02-250	250(37)	0.558	14.2	1.038	26.4	1.118	28.4	27X16	1.329	33.8	1.649	41.9	1.769	44.9	21.2	539	1911	2844	13022	5907	108/70.5	2.74/1.79	6000	1829
CU220Z02-350	350(37)	0.661	16.8	1.141	29.0	1.221	31.0	21X14	1.445	36.7	1.765	44.8	1.885	47.9	22.6	575	2413	3591	16034	7273	108/70.5	2.74/1.79	6000	1829
CU220Z02-500	500(37)	0.789	20.0	1.269	32.2	1.349	34.3	27X14	1.573	40.0	1.903	48.3	2.023	51.4	24.3	617	3113	4632	16496	7482	108/70.5	2.74/1.79	4800	1463
CU220Z02-750	750(61)	0.968	24.6	1.458	37.0	1.538	39.1	33X14	1.822	46.3	2.152	54.7	2.272	57.7	27.3	693	4245	6317	16412	7445	108/70.5	2.74/1.79	3500	1067
CU220Z02-1000	1000(61)	1.117	28.4	1.607	40.8	1.687	42.8	33X14	1.971	50.1	2.301	58.4	2.451	62.3	29.4	747	5239	7796	16485	7478	108/70.5	2.74/1.79	2850	869

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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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

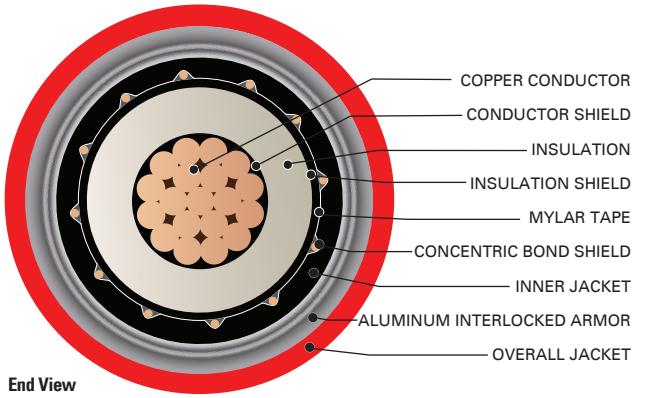
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
CU220Z02-002	531	2361	0.162	0.532	0.203	0.665	0.1172	0.3847	0.0502	0.1648	0.0442	0.1450	0.0528	0.0161	0.205 + j0.059	0.498 + j0.197	4.5	215	221
CU220Z02-001	670	2978	0.129	0.423	0.161	0.529	0.1124	0.3689	0.0546	0.1792	0.0424	0.1391	0.0486	0.0148	0.164 + j0.057	0.384 + j0.114	5.7	245	247
CU220Z02-010	845	3758	0.102	0.335	0.128	0.419	0.1083	0.3554	0.0591	0.1938	0.0408	0.1340	0.0449	0.0137	0.131 + j0.055	0.350 + j0.113	7.2	278	275
CU220Z02-020	1065	4736	0.081	0.266	0.101	0.333	0.1045	0.3430	0.0638	0.2093	0.0394	0.1293	0.0416	0.0127	0.104 + j0.053	0.324 + j0.111	9.0	317	306
CU220Z02-030	1342	5971	0.064	0.211	0.080	0.264	0.1008	0.3306	0.0694	0.2276	0.0380	0.1246	0.0382	0.0117	0.084 + j0.051	0.269 + j0.085	11.4	357	335
CU220Z02-040	1693	7530	0.051	0.167	0.064	0.210	0.0973	0.3192	0.0755	0.2476	0.0367	0.1203	0.0352	0.0107	0.067 + j0.049	0.252 + j0.084	14.3	404	369
CU220Z02-250	2000	8896	0.043	0.141	0.054	0.178	0.0954	0.3130	0.0792	0.2598	0.0360	0.1180	0.0335	0.0102	0.058 + j0.047	0.206 + j0.062	16.9	456	412
CU220Z02-350	2800	12455	0.031	0.101	0.039	0.128	0.0909	0.2981	0.0900	0.2954	0.0343	0.1124	0.0295	0.0090	0.044 + j0.045	0.164 + j0.050	23.7	537	456
CU220Z02-500	4000	17793	0.022	0.071	0.028	0.091	0.0865	0.2839	0.1034	0.3393	0.0326	0.1070	0.0256	0.0078	0.033 + j0.042	0.127 + j0.038	33.9	616	497
CU220Z02-750	6000	26689	0.014	0.047	0.019	0.062	0.0825	0.2708	0.1200	0.3937	0.0311	0.1021	0.0221	0.0067	0.025 + j0.039	0.101 + j0.031	50.8	706	551
CU220Z02-1000	8000	35586	0.011	0.035	0.015	0.049	0.0797	0.2616	0.1351	0.4433	0.0301	0.0986	0.0196	0.0060	0.021 + j0.038	0.097 + j0.030	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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