



# HVTECK SPECIFICATIONS

## HVTECK CU 1/C 140EPR CB PVC AIA PVC 8KV 133% CSA

### PRODUCT HIGHLIGHTS

Southwire's 8KV HVTECK is a CSA armored 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: 0.14 inches (3.56mm) - 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 750 kcmil = 0.08 inches (2.03mm)
  - 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.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 140 EPR AIA 8KV 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
CU140E73-002	2(7)	0.283	7.2	0.593	15.1	0.673	17.1	11X16	0.884	22.4	1.204	30.6	1.304	33.1	15.6	397	832	1238	5742	2605	78/54	1.98/1.37	6000	1829
CU140E73-001	1(19)	0.322	8.2	0.632	16.1	0.712	18.1	17X16	0.923	23.4	1.243	31.6	1.343	34.1	16.1	409	944	1405	6823	3095	96/54.5	2.44/1.38	6000	1829
CU140E73-010	1/0(19)	0.362	9.2	0.672	17.1	0.752	19.1	17X16	0.963	24.5	1.283	32.6	1.383	35.1	16.6	421	1041	1549	7405	3359	96/54.5	2.44/1.38	6000	1829
CU140E73-020	2/0(19)	0.405	10.3	0.715	18.2	0.795	20.2	17X16	1.006	25.5	1.326	33.7	1.426	36.2	17.1	435	1194	1776	8321	3774	96/54.5	2.44/1.38	6000	1829
CU140E73-030	3/0(19)	0.456	11.6	0.766	19.5	0.846	21.5	21X16	1.057	26.8	1.377	35.0	1.477	37.5	17.7	450	1360	2024	9319	4227	96/54.5	2.44/1.38	6000	1829
CU140E73-040	4/0(19)	0.512	13.0	0.822	20.9	0.902	22.9	21X16	1.113	28.3	1.433	36.4	1.533	38.9	18.4	467	1539	2290	10391	4713	96/54.5	2.44/1.38	6000	1829
CU140E73-250	250(37)	0.558	14.2	0.878	22.3	0.958	24.3	27X16	1.169	29.7	1.489	37.8	1.589	40.4	19.1	484	1674	2492	11389	5166	104/56.5	2.64/1.44	6000	1829
CU140E73-350	350(37)	0.661	16.8	0.981	24.9	1.061	26.9	21X14	1.285	32.6	1.605	40.8	1.725	43.8	20.7	526	2194	3264	14504	6579	104/56.5	2.64/1.44	6000	1829
CU140E73-500	500(37)	0.789	20.0	1.109	28.2	1.189	30.2	27X14	1.413	35.9	1.733	44.0	1.853	47.1	22.2	565	2806	4176	16427	7451	108/70.5	2.74/1.79	5300	1615
CU140E73-750	750(61)	0.968	24.6	1.298	33.0	1.378	35.0	33X14	1.602	40.7	1.932	49.1	2.052	52.1	24.6	625	3856	5739	16402	7440	108/70.5	2.74/1.79	3850	1173
CU140E73-1000	1000(61)	1.117	28.4	1.447	36.8	1.527	38.8	33X14	1.811	46.0	2.141	54.4	2.261	57.4	27.1	689	4878	7259	16433	7454	108/70.5	2.74/1.79	3050	930

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

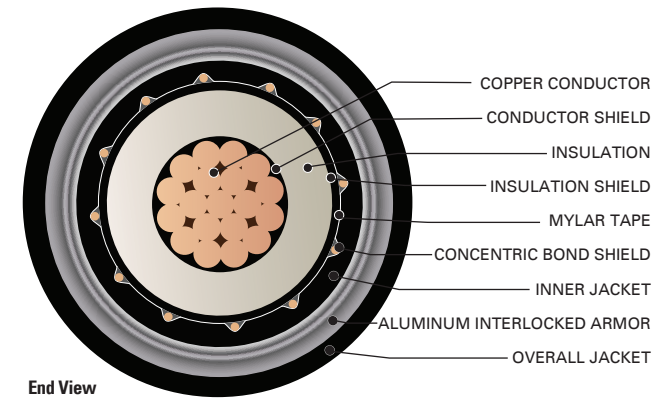
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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



**TABLE 2 - ENGINEERING SPECIFICATIONS**

HVTECK Product Code	Maximum Pulling Tension		DC Resistance @ 25°C R <sub>DC</sub>		AC Resistance @ 90°C 60 Hz (triplex formation) R <sub>AC</sub>		Inductance L		Capacitance C		Inductive Reactance @ 60Hz (triplexed) X <sub>L</sub>		Capacitive Reactance @ 60Hz (triplexed) X <sub>C</sub>		Positive - Sequence Impedance*	Zero - Sequence Impedance*	Short Circuit Current (each phase conductor) @ 60Hz	Allowable Ampacities in Ventilated Cable Tray †	Allowable Ampacities Directly Buried 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					
CU140E73-002	531	2361	0.162	0.532	0.203	0.665	0.1027	0.3369	0.0664	0.2180	0.0387	0.1270	0.0399	0.0122	0.205 + j0.057	0.500 + j0.191	4.5	215	221
CU140E73-001	670	2978	0.129	0.423	0.161	0.529	0.0987	0.3238	0.0729	0.2391	0.0372	0.1221	0.0364	0.0111	0.165 + j0.054	0.385 + j0.109	5.7	245	247
CU140E73-010	845	3758	0.102	0.335	0.128	0.419	0.0953	0.3126	0.0794	0.2607	0.0359	0.1179	0.0334	0.0102	0.131 + j0.052	0.351 + j0.108	7.2	278	275
CU140E73-020	1065	4736	0.081	0.266	0.101	0.333	0.0922	0.3026	0.0865	0.2837	0.0348	0.1141	0.0307	0.0094	0.105 + j0.050	0.325 + j0.106	9.0	317	306
CU140E73-030	1342	5971	0.064	0.211	0.080	0.264	0.0892	0.2926	0.0948	0.3109	0.0336	0.1103	0.0280	0.0085	0.084 + j0.048	0.269 + j0.080	11.4	357	335
CU140E73-040	1693	7530	0.051	0.167	0.064	0.210	0.0864	0.2836	0.1038	0.3406	0.0326	0.1069	0.0256	0.0078	0.068 + j0.046	0.253 + j0.079	14.3	404	369
CU140E73-250	2000	8896	0.043	0.141	0.054	0.178	0.0852	0.2796	0.1084	0.3557	0.0321	0.1054	0.0245	0.0075	0.059 + j0.045	0.206 + j0.058	16.9	456	412
CU140E73-350	2800	12455	0.031	0.101	0.039	0.128	0.0816	0.2679	0.1245	0.4084	0.0308	0.1010	0.0213	0.0065	0.044 + j0.042	0.164 + j0.046	23.7	537	456
CU140E73-500	4000	17793	0.022	0.071	0.028	0.091	0.0783	0.2570	0.1444	0.4736	0.0295	0.0969	0.0184	0.0056	0.034 + j0.040	0.127 + j0.035	33.9	616	497
CU140E73-750	6000	26689	0.014	0.047	0.019	0.063	0.0755	0.2476	0.1675	0.5497	0.0284	0.0933	0.0158	0.0048	0.026 + j0.037	0.101 + j0.028	50.8	706	551
CU140E73-1000	8000	35586	0.011	0.035	0.015	0.049	0.0733	0.2407	0.1899	0.6230	0.0277	0.0907	0.0140	0.0043	0.021 + j0.036	0.097 + j0.028	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