HVTECK SPECIFICATIONS

HVTECK CU 1/C 175EPR CB PVC AIA PVC 15KV 100% 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: 0.175 inches (4.45mm) - 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 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.3/0 AWG = 0.05 inches (1.27mm)
  No.4/0 AWG to 1000 kcmil = 0.06 inches (1.52mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CU 175 EPR AIA 15KV 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
CU175Q20-002	2(7)	0.283	7.2	0.663	16.8	0.743	18.9	11X16	0.954	24.2	1.274	32.4	1.374	34.9	16.5	419	901	1341	6565	2978	96/54.5	2.44/1.38	6000	1829
CU175Q20-001	1(19)	0.322	8.2	0.702	17.8	0.782	19.9	17X16	0.993	25.2	1.313	33.3	1.413	35.9	17.0	431	1015	1511	7250	3288	96/54.5	2.44/1.38	6000	1829
CU175Q20-010	1/0(19)	0.362	9.2	0.742	18.8	0.822	20.9	17X16	1.033	26.2	1.353	34.4	1.453	36.9	17.4	443	1151	1713	8064	3658	96/54.5	2.44/1.38	6000	1829
CU175Q20-020	2/0(19)	0.405	10.3	0.785	19.9	0.865	22.0	17X16	1.076	27.3	1.396	35.5	1.496	38.0	17.9	456	1272	1892	8789	3986	96/54.5	2.44/1.38	6000	1829
CU175Q20-030	3/0(19)	0.456	11.6	0.836	21.2	0.916	23.3	21X16	1.127	28.6	1.447	36.7	1.547	39.3	18.6	471	1441	2144	9803	4447	96/54.5	2.44/1.38	6000	1829
CU175Q20-040	4/0(19)	0.512	13.0	0.892	22.7	0.972	24.7	21X16	1.183	30.0	1.503	38.2	1.623	41.2	19.5	495	1652	2459	11257	5106	104/56.5	2.64/1.44	6000	1829
CU175Q20-250	250(37)	0.558	14.2	0.948	24.1	1.028	26.1	27X16	1.239	31.5	1.559	39.6	1.679	42.6	20.1	512	1792	2667	12096	5487	104/56.5	2.64/1.44	6000	1829
CU175Q20-350	350(37)	0.661	16.8	1.051	26.7	1.131	28.7	21X14	1.355	34.4	1.675	42.5	1.795	45.6	21.5	547	2287	3404	15278	6930	108/70.5	2.74/1.79	6000	1829
CU175Q20-500	500(37)	0.789	20.0	1.179	29.9	1.259	32.0	27X14	1.483	37.7	1.803	45.8	1.923	48.8	23.1	586	2907	4325	16524	7495	108/70.5	2.74/1.79	5150	1570
CU175Q20-750	750(61)	0.968	24.6	1.368	34.7	1.448	36.8	33X14	1.732	44.0	2.062	52.4	2.182	55.4	26.2	665	4088	6084	16477	7474	108/70.5	2.74/1.79	3650	1113
CU175Q20-1000	1000(61)	1.117	28.4	1.517	38.5	1.597	40.6	33X14	1.881	47.8	2.211	56.2	2.331	59.2	28.0	710	5003	7446	16315	7400	108/70.5	2.74/1.79	2950	899

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

HVTECK SPECIFICATIONS

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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

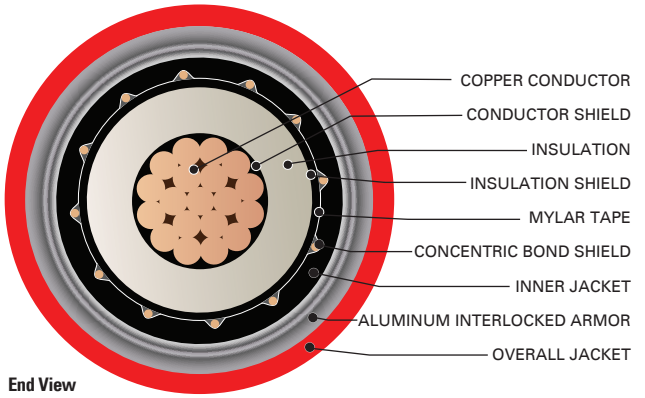
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
CU175Q20-002	531	2361	0.162	0.532	0.203	0.665	0.1095	0.3592	0.0577	0.1894	0.0413	0.1354	0.0459	0.0140	0.205 + j0.058	0.499 + j0.194	4.5	215	221
CU175Q20-001	670	2978	0.129	0.423	0.161	0.529	0.1051	0.3448	0.0631	0.2069	0.0396	0.1300	0.0421	0.0128	0.165 + j0.055	0.385 + j0.111	5.7	245	247
CU175Q20-010	845	3758	0.102	0.335	0.128	0.419	0.1013	0.3325	0.0685	0.2247	0.0382	0.1253	0.0387	0.0118	0.131 + j0.053	0.351 + j0.110	7.2	278	275
CU175Q20-020	1065	4736	0.081	0.266	0.101	0.333	0.0979	0.3213	0.0743	0.2437	0.0369	0.1211	0.0357	0.0109	0.104 + j0.051	0.324 + j0.109	9.0	317	306
CU175Q20-030	1342	5971	0.064	0.211	0.080	0.264	0.0945	0.3101	0.0811	0.2660	0.0356	0.1169	0.0327	0.0100	0.084 + j0.049	0.269 + j0.082	11.4	357	335
CU175Q20-040	1693	7530	0.051	0.167	0.064	0.210	0.0914	0.2999	0.0885	0.2905	0.0345	0.1131	0.0300	0.0091	0.067 + j0.048	0.252 + j0.081	14.3	404	369
CU175Q20-250	2000	8896	0.043	0.141	0.054	0.178	0.0899	0.2949	0.0927	0.3042	0.0339	0.1112	0.0286	0.0087	0.058 + j0.046	0.206 + j0.060	16.9	456	412
CU175Q20-350	2800	12455	0.031	0.101	0.039	0.128	0.0858	0.2816	0.1060	0.3477	0.0324	0.1062	0.0250	0.0076	0.044 + j0.043	0.164 + j0.048	23.7	537	456
CU175Q20-500	4000	17793	0.022	0.071	0.028	0.091	0.0821	0.2692	0.1224	0.4015	0.0309	0.1015	0.0217	0.0066	0.033 + j0.040	0.127 + j0.036	33.9	616	497
CU175Q20-750	6000	26689	0.014	0.047	0.019	0.063	0.0787	0.2581	0.1421	0.4662	0.0297	0.0973	0.0187	0.0057	0.026 + j0.038	0.101 + j0.030	50.8	706	551
CU175Q20-1000	8000	35586	0.011	0.035	0.015	0.049	0.0762	0.2501	0.1606	0.5268	0.0287	0.0943	0.0165	0.0050	0.021 + j0.036	0.097 + j0.029	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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