



# HVTECK SPECIFICATIONS

## HVTECK AL 1/C 115EPR TS PVC AIA PVC 5KV 133% 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.

### CONSTRUCTION

#### Conductor

- Class B - compact stranded -8000 Series Aluminum -ACM

#### Options

- Class B compact stranded copper
- Class B compressed stranded copper
- Strand blocking technology
- Tinning on copper conductors

#### Conductor Shield

- Extruded semi-conducting thermosetting polymeric layer

#### Insulation

- No-lead EPR (Ethylene Propylene Rubber)
- Thickness: 0.115 inches (2.92mm) - 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 Tape Shield

- Helically wrapped 5 mil copper tape with 25% overlap
- Not designed to carry ground fault current
- A separate bonding/grounding conductor may be required

#### Inner Jacket

- Black PVC
- Thickness:
  - No.2 AWG to No.1/0 AWG = 0.06 inches (1.52mm)
  - No.2/0 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 350 kcmil = 0.05 inches (1.27mm)
  - 500 kcmil to 1000 kcmil = 0.06 inches (1.52mm)

#### Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CPT AL 115 EPR AIA 5KV 133% INS LEVEL 25% TS 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		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	inches	mm	inches	mm	inches	mm	inches	mm	lb / 1000ft	kg/km	lbs	kg	inches	m	feet	m
AL115A21-002	2(7)	0.268	6.8	0.528	13.4	0.608	15.4	0.748	19.0	1.068	27.1	1.168	29.7	14.0	356	571	849	4173	1893	78/54	1.98/1.37	6000	1829
AL115A21-001	1(19)	0.299	7.6	0.559	14.2	0.639	16.2	0.779	19.8	1.099	27.9	1.199	30.5	14.4	365	610	907	4408	1999	78/54	1.98/1.37	6000	1829
AL115A21-010	1/0(19)	0.336	8.5	0.596	15.1	0.676	17.2	0.816	20.7	1.136	28.9	1.236	31.4	14.8	377	658	979	4695	2130	78/54	1.98/1.37	6000	1829
AL115A21-020	2/0(19)	0.376	9.6	0.636	16.2	0.716	18.2	0.896	22.8	1.216	30.9	1.316	33.4	15.8	401	757	1127	5294	2401	78/54	1.98/1.37	6000	1829
AL115A21-030	3/0(19)	0.423	10.7	0.683	17.3	0.763	19.4	0.943	24.0	1.263	32.1	1.363	34.6	16.4	415	826	1230	6117	2775	96/54.5	2.44/1.38	6000	1829
AL115A21-040	4/0(19)	0.475	12.1	0.735	18.7	0.815	20.7	0.995	25.3	1.315	33.4	1.415	35.9	17.0	431	908	1351	6607	2997	96/54.5	2.44/1.38	6000	1829
AL115A21-250	250(37)	0.520	13.2	0.790	20.1	0.870	22.1	1.050	26.7	1.370	34.8	1.470	37.3	17.6	448	1028	1530	7327	3323	96/54.5	2.44/1.38	6000	1829
AL115A21-350	350(37)	0.616	15.6	0.886	22.5	0.966	24.5	1.146	29.1	1.466	37.2	1.566	39.8	18.8	477	1200	1786	8360	3792	96/54.5	2.44/1.38	6000	1829
AL115A21-500	500(37)	0.736	18.7	1.006	25.6	1.086	27.6	1.266	32.2	1.586	40.3	1.706	43.3	20.5	520	1471	2189	10166	4611	104/56.5	2.64/1.44	6000	1829
AL115A21-750	750(61)	0.908	23.1	1.188	30.2	1.268	32.2	1.448	36.8	1.768	44.9	1.888	48.0	22.7	575	1865	2776	12747	5782	108/70.5	2.74/1.79	6000	1829
AL115A21-1000	1000(61)	1.060	26.9	1.340	34.0	1.420	36.1	1.600	40.6	1.930	49.0	2.050	52.1	24.6	625	2300	3423	13860	6287	108/70.5	2.74/1.79	5350	1631

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.



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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

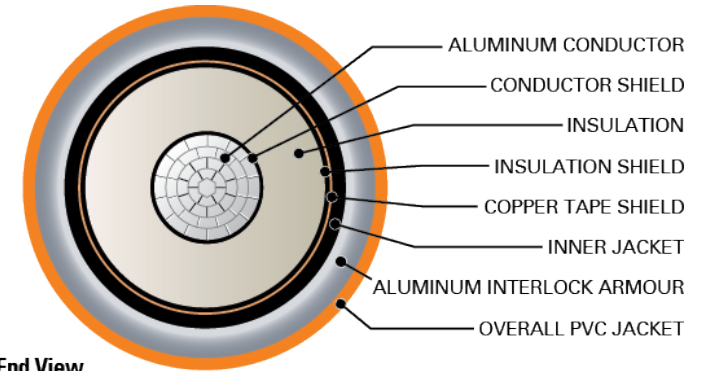
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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 <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					
AL115A21-002	398	1771	0.265	0.869	0.333	1.093	0.0989	0.3245	0.0725	0.2378	0.0373	0.1223	0.0366	0.0112	0.334 + j0.055	0.686 + j0.509	2.9	169	176
AL115A21-001	502	2234	0.211	0.692	0.265	0.870	0.0957	0.3140	0.0785	0.2577	0.0361	0.1184	0.0338	0.0103	0.266 + j0.054	0.622 + j0.491	3.7	194	198
AL115A21-010	634	2818	0.168	0.551	0.211	0.693	0.0925	0.3035	0.0858	0.2813	0.0349	0.1144	0.0309	0.0094	0.212 + j0.052	0.571 + j0.472	4.7	222	223
AL115A21-020	799	3552	0.133	0.436	0.167	0.549	0.0896	0.2940	0.0935	0.3068	0.0338	0.1108	0.0284	0.0086	0.168 + j0.050	0.528 + j0.452	5.9	255	250
AL115A21-030	1007	4478	0.105	0.345	0.132	0.433	0.0868	0.2847	0.1026	0.3366	0.0327	0.1073	0.0259	0.0079	0.133 + j0.049	0.494 + j0.429	7.4	290	278
AL115A21-040	1270	5647	0.084	0.274	0.105	0.345	0.0842	0.2762	0.1126	0.3694	0.0317	0.1041	0.0236	0.0072	0.106 + j0.047	0.468 + j0.406	9.4	329	309
AL115A21-250	1500	6672	0.071	0.232	0.089	0.292	0.0831	0.2725	0.1175	0.3856	0.0313	0.1027	0.0226	0.0069	0.090 + j0.046	0.451 + j0.384	11.1	370	347
AL115A21-350	2100	9341	0.051	0.166	0.064	0.209	0.0797	0.2616	0.1352	0.4436	0.0301	0.0986	0.0196	0.0060	0.065 + j0.043	0.422 + j0.348	15.5	446	402
AL115A21-500	3000	13345	0.035	0.116	0.045	0.147	0.0766	0.2514	0.1573	0.5160	0.0289	0.0948	0.0169	0.0051	0.046 + j0.041	0.395 + j0.308	22.2	533	451
AL115A21-750	4500	20017	0.024	0.077	0.030	0.099	0.0740	0.2426	0.1828	0.5999	0.0279	0.0915	0.0145	0.0044	0.031 + j0.038	0.365 + j0.259	33.2	631	500
AL115A21-1000	6000	26689	0.018	0.058	0.023	0.076	0.0719	0.2358	0.2097	0.6879	0.0271	0.0889	0.0127	0.0039	0.024 + j0.037	0.344 + j0.226	44.3	707	539

\* 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