



# HVTECK SPECIFICATIONS

## HVTECK AL 3/C 115TRXLPE 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

- TR-XLPE - (Tree Retardent Cross Linked Polyethylene)
- 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

- Phase identification as per ICEA Method 3, using printed circuit numbers
- Meets requirement of ICEA but built to CSA standards

#### Copper Tape Shield

- Helically wrapped 5 mil copper tape with 25% overlap

#### Bonding Conductor

- Class B compressed stranded bare copper
- in accordance with ASTM B3 and B8

#### Fillers

- Non-wicking, non-hygroscopic

#### Inner Jacket

- Black PVC
- Thickness:
  - No.2 AWG to No.1 AWG = 0.08 inches (2.03mm)
  - No.1/0 AWG to 500 kcmil = 0.11 inches (2.79mm)
  - 750 kcmil to 1000 kcmil = 0.14 inches (3.56mm)

#### Armour

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

#### Overall Jacket

- Orange PVC (optional colours available)
- Nominal Thickness:
  - No.2 AWG to No.3/0 AWG = 0.06 inches (1.52mm)
  - No.4/0 AWG to 500 kcmil = 0.075 inches (1.91mm)
  - 750 kcmil to 1000 kcmil = 0.085 inches (2.16mm)

#### Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CPT AL 115 TRXLPE 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		Bonding Cond. Size	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	AWG	inches	mm	inches	mm	inches	mm	inches	mm	lb / 1000ft	kg/km	lbs	kg	inches	m
AL115Z67-002	2(7)	0.268	6.8	0.528	13.4	0.608	15.4	8	1.516	38.5	1.846	46.9	1.966	49.9	13.8	350	1548	2304	9295	4216	108/70.5	2.74/1.79	5000	1524
AL115Z67-001	1(19)	0.299	7.6	0.559	14.2	0.639	16.2	6	1.583	40.2	1.913	48.6	2.033	51.6	14.2	362	1691	2516	10009	4540	108/70.5	2.74/1.79	5000	1524
AL115Z67-010	1/0(19)	0.336	8.5	0.596	15.1	0.676	17.2	6	1.723	43.8	2.053	52.2	2.173	55.2	15.2	386	1947	2897	10315	4679	108/70.5	2.74/1.79	4500	1372
AL115Z67-020	2/0(19)	0.376	9.6	0.636	16.2	0.716	18.2	6	1.810	46.0	2.140	54.3	2.260	57.4	15.8	402	2112	3143	10743	4873	108/70.5	2.74/1.79	4350	1326
AL115Z67-030	3/0(19)	0.423	10.7	0.683	17.3	0.763	19.4	6	1.911	48.5	2.241	56.9	2.361	60.0	16.5	420	2312	3441	10111	4586	108/70.5	2.74/1.79	3700	1128
AL115Z67-040	4/0(19)	0.475	12.1	0.735	18.7	0.815	20.7	6	2.024	51.4	2.354	59.8	2.504	63.6	17.5	445	2701	4020	9794	4442	108/70.5	2.74/1.79	3050	930
AL115Z67-250	250(37)	0.520	13.2	0.790	20.1	0.870	22.1	4	2.142	54.4	2.472	62.8	2.622	66.6	18.4	466	2998	4461	10398	4716	108/70.5	2.74/1.79	2950	899
AL115Z67-350	350(37)	0.616	15.6	0.886	22.5	0.966	24.5	4	2.350	59.7	2.680	68.1	2.830	71.9	19.8	503	3505	5216	9616	4362	108/70.5	2.74/1.79	2300	701
AL115Z67-500	500(37)	0.736	18.7	1.006	25.6	1.086	27.6	3	2.609	66.3	2.939	74.6	3.089	78.5	21.6	549	4243	6314	10253	4651	108/70.5	2.74/1.79	2050	625
AL115Z67-750	750(61)	0.908	23.1	1.188	30.2	1.268	32.2	2	3.062	77.8	3.392	86.2	3.562	90.5	24.9	633	5704	8489	8400	3810	108/70.5	2.74/1.79	1200	366
AL115Z67-1000	1000(61)	1.060	26.9	1.340	34.0	1.420	36.1	2	3.390	86.1	3.720	94.5	3.890	98.8	27.2	692	6792	10107	8686	3940	108/70.5	2.74/1.79	1050	320

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

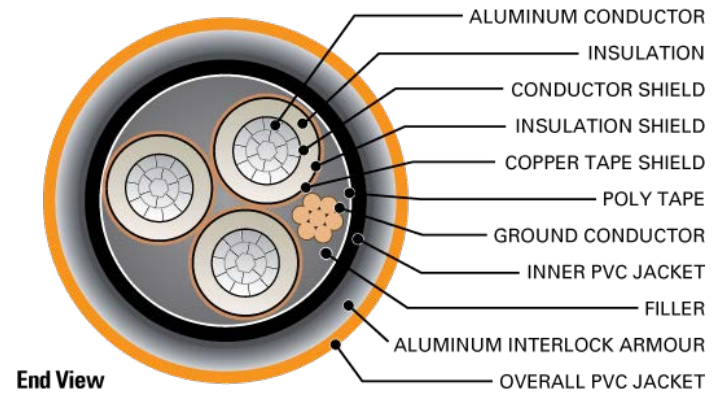
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000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



**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	Ω / 1000ft	Ω / 1000ft	kAmps	Amps	Amps
AL115Z67-002	1194	5313	0.265	0.869	0.333	1.093	0.0989	0.3245	0.0575	0.1886	0.0373	0.1223	0.0461	0.0141	0.333 + j0.041	0.703 + j0.516	3.1	135	157
AL115Z67-001	1506	6701	0.211	0.692	0.265	0.870	0.0957	0.3140	0.0623	0.2044	0.0361	0.1184	0.0426	0.0130	0.265 + j0.040	0.638 + j0.498	3.9	154	178
AL115Z67-010	1901	8455	0.168	0.551	0.211	0.693	0.0925	0.3035	0.0680	0.2231	0.0349	0.1144	0.0390	0.0119	0.211 + j0.038	0.586 + j0.478	5.0	176	202
AL115Z67-020	2396	10657	0.133	0.436	0.167	0.549	0.0896	0.2940	0.0742	0.2433	0.0338	0.1108	0.0358	0.0109	0.168 + j0.037	0.543 + j0.456	6.3	204	229
AL115Z67-030	3020	13435	0.105	0.345	0.132	0.433	0.0868	0.2847	0.0814	0.2669	0.0327	0.1073	0.0326	0.0099	0.132 + j0.036	0.508 + j0.433	7.9	234	260
AL115Z67-040	3809	16942	0.084	0.274	0.105	0.345	0.0842	0.2762	0.0893	0.2929	0.0317	0.1041	0.0297	0.0091	0.106 + j0.035	0.480 + j0.409	9.9	268	294
AL115Z67-250	4500	20017	0.071	0.232	0.089	0.292	0.0831	0.2725	0.0932	0.3058	0.0313	0.1027	0.0285	0.0087	0.089 + j0.034	0.462 + j0.386	11.8	296	323
AL115Z67-350	6300	28024	0.051	0.166	0.064	0.209	0.0797	0.2616	0.1072	0.3519	0.0301	0.0986	0.0247	0.0075	0.064 + j0.032	0.431 + j0.348	16.5	363	386
AL115Z67-500	9000	40034	0.035	0.116	0.045	0.148	0.0766	0.2514	0.1247	0.4092	0.0289	0.0948	0.0213	0.0065	0.045 + j0.031	0.403 + j0.308	23.5	447	465
AL115Z67-750	13500	60051	0.024	0.077	0.031	0.100	0.0740	0.2426	0.1450	0.4758	0.0279	0.0915	0.0183	0.0056	0.031 + j0.030	0.372 + j0.258	35.3	566	563
AL115Z67-1000	18000	80068	0.018	0.058	0.023	0.077	0.0719	0.2358	0.1663	0.5456	0.0271	0.0889	0.0160	0.0049	0.024 + j0.029	0.349 + j0.224	47.0	661	638

\* Calculations are based on 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 D17N of the 2015 Canadian Electrical Code Part I (40°C Ambient Air Temperature, indoor installation)

‡ Ampacities are based on Table D17E of the 2015 Canadian Electrical Code Part I