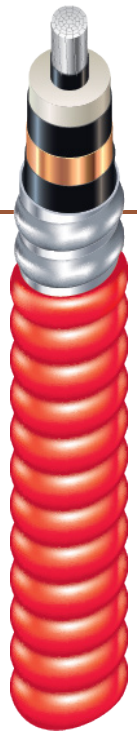

HVTECK SPECIFICATIONS

HVTECK AL 1/C 175EPR TS 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.

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: 0.175 inches (4.45mm) - nominal
- Insulation level: 100% - grounded system
- 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 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
- Red 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] CPT AL 175 EPR AIA 15KV 100% 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
AL175U83-002	2(7)	0.268	6.8	0.648	16.5	0.728	18.5	0.908	23.1	1.228	31.2	1.328	33.7	15.9	405	734	1093	5156	2339	78/54	1.98/1.37	6000	1829
AL175U83-001	1(19)	0.299	7.6	0.679	17.2	0.759	19.3	0.939	23.9	1.259	32.0	1.359	34.5	16.3	414	778	1157	5824	2642	96/54.5	2.44/1.38	6000	1829
AL175U83-010	1/0(19)	0.336	8.5	0.716	18.2	0.796	20.2	0.976	24.8	1.296	32.9	1.396	35.5	16.8	426	830	1236	6141	2785	96/54.5	2.44/1.38	6000	1829
AL175U83-020	2/0(19)	0.376	9.6	0.756	19.2	0.836	21.2	1.016	25.8	1.336	33.9	1.436	36.5	17.2	438	927	1380	6721	3049	96/54.5	2.44/1.38	6000	1829
AL175U83-030	3/0(19)	0.423	10.7	0.803	20.4	0.883	22.4	1.063	27.0	1.383	35.1	1.483	37.7	17.8	452	1002	1491	7171	3253	96/54.5	2.44/1.38	6000	1829
AL175U83-040	4/0(19)	0.475	12.1	0.855	21.7	0.935	23.7	1.115	28.3	1.435	36.4	1.535	39.0	18.4	468	1090	1622	7700	3493	96/54.5	2.44/1.38	6000	1829
AL175U83-250	250(37)	0.520	13.2	0.910	23.1	0.990	25.1	1.170	29.7	1.490	37.8	1.590	40.4	19.1	485	1180	1756	8421	3820	104/56.5	2.64/1.44	6000	1829
AL175U83-350	350(37)	0.616	15.6	1.006	25.6	1.086	27.6	1.266	32.2	1.586	40.3	1.706	43.3	20.5	520	1393	2073	9698	4399	104/56.5	2.64/1.44	6000	1829
AL175U83-500	500(37)	0.736	18.7	1.126	28.6	1.206	30.6	1.386	35.2	1.706	43.3	1.826	46.4	21.9	557	1645	2448	11424	5182	108/70.5	2.74/1.79	6000	1829
AL175U83-750	750(61)	0.908	23.1	1.308	33.2	1.388	35.3	1.568	39.8	1.898	48.2	2.018	51.3	24.2	615	2127	3166	13362	6061	108/70.5	2.74/1.79	5550	1692
AL175U83-1000	1000(61)	1.060	26.9	1.460	37.1	1.540	39.1	1.780	45.2	2.110	53.6	2.230	56.6	26.8	680	2631	3915	13394	6076	108/70.5	2.74/1.79	4500	1372

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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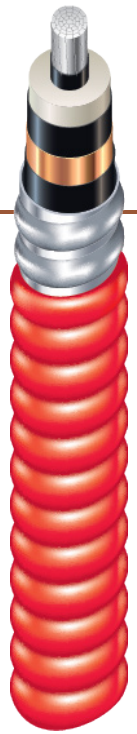


Southwire® CANADA

HVTECK SPECIFICATIONS

HVTECK AL 1/C 175EPR TS PVC AIA PVC 15KV 100% CSA

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

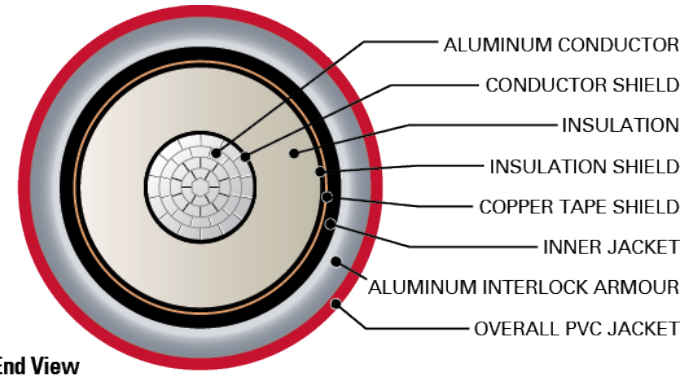
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
AL175U83-002	398	1771	0.265	0.869	0.333	1.093	0.1114	0.3655	0.0557	0.1826	0.0420	0.1378	0.0477	0.0145	0.334 + j0.058	0.694 + j0.454	2.9	169	176
AL175U83-001	502	2234	0.211	0.692	0.265	0.870	0.1076	0.3530	0.0599	0.1966	0.0406	0.1331	0.0443	0.0135	0.266 + j0.056	0.627 + j0.439	3.7	194	198
AL175U83-010	634	2818	0.168	0.551	0.211	0.693	0.1037	0.3402	0.0650	0.2131	0.0391	0.1283	0.0408	0.0124	0.212 + j0.054	0.574 + j0.422	4.7	222	223
AL175U83-020	799	3552	0.133	0.436	0.167	0.549	0.1002	0.3286	0.0704	0.2309	0.0378	0.1239	0.0377	0.0115	0.168 + j0.052	0.529 + j0.404	5.9	255	250
AL175U83-030	1007	4478	0.105	0.345	0.132	0.433	0.0966	0.3171	0.0767	0.2516	0.0364	0.1195	0.0346	0.0105	0.133 + j0.050	0.493 + j0.384	7.4	290	278
AL175U83-040	1270	5647	0.084	0.274	0.105	0.345	0.0934	0.3065	0.0836	0.2743	0.0352	0.1155	0.0317	0.0097	0.106 + j0.049	0.465 + j0.364	9.4	329	309
AL175U83-250	1500	6672	0.071	0.232	0.089	0.292	0.0917	0.3008	0.0878	0.2881	0.0346	0.1134	0.0302	0.0092	0.090 + j0.047	0.446 + j0.344	11.1	370	347
AL175U83-350	2100	9341	0.051	0.166	0.064	0.209	0.0875	0.2870	0.1002	0.3288	0.0330	0.1082	0.0265	0.0081	0.065 + j0.045	0.414 + j0.312	15.5	446	402
AL175U83-500	3000	13345	0.035	0.116	0.045	0.147	0.0835	0.2739	0.1156	0.3792	0.0315	0.1033	0.0229	0.0070	0.046 + j0.042	0.385 + j0.278	22.2	533	451
AL175U83-750	4500	20017	0.024	0.077	0.030	0.099	0.0798	0.2619	0.1346	0.4418	0.0301	0.0987	0.0197	0.0060	0.031 + j0.040	0.354 + j0.235	33.2	631	500
AL175U83-1000	6000	26689	0.018	0.058	0.023	0.076	0.0771	0.2529	0.1535	0.5036	0.0291	0.0953	0.0173	0.0053	0.024 + j0.039	0.332 + j0.206	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

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