



HVTECK SPECIFICATIONS

HVTECK AL 1/C 420TRXLPE TS PVC AIA PVC 35KV 133% CSA

PRODUCT HIGHLIGHTS

Southwire's 35KV 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: 0.42 inches (10.67mm) - 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.1/0 AWG to 250 kcmil = 0.08 inches (2.03mm)
 - 350 kcmil to 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.1/0 AWG to 350 kcmil = 0.06 inches (1.52mm)
 - 500 kcmil to 1000 kcmil = 0.075 inches (1.91mm)

Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CPT AL 420 TRXLPE AIA 35KV 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	
AL420F95-010	1/0(19)	0.336	8.5	1.206	30.6	1.286	32.7	1.466	37.2	1.786	45.4	1.906	48.4	22.9	581	1468	2185	10365	4701	108/70.5	2.74/1.79	6000	1829	
AL420F95-020	2/0(19)	0.376	9.6	1.246	31.6	1.326	33.7	1.506	38.3	1.836	46.6	1.956	49.7	23.5	596	1610	2396	10893	4941	108/70.5	2.74/1.79	5800	1768	
AL420F95-030	3/0(19)	0.423	10.7	1.293	32.8	1.373	34.9	1.553	39.4	1.883	47.8	2.003	50.9	24.0	611	1700	2530	10989	4984	108/70.5	2.74/1.79	5550	1692	
AL420F95-040	4/0(19)	0.475	12.1	1.345	34.2	1.425	36.2	1.605	40.8	1.935	49.1	2.055	52.2	24.7	626	1805	2685	11209	5084	108/70.5	2.74/1.79	5350	1631	
AL420F95-250	250(37)	0.520	13.2	1.400	35.6	1.480	37.6	1.660	42.2	1.990	50.5	2.110	53.6	25.3	643	1912	2845	10444	4737	108/70.5	2.74/1.79	4650	1417	
AL420F95-350	350(37)	0.616	15.6	1.496	38.0	1.576	40.0	1.816	46.1	2.146	54.5	2.266	57.6	27.2	691	2246	3343	11326	5138	108/70.5	2.74/1.79	4350	1326	
AL420F95-500	500(37)	0.736	18.7	1.616	41.0	1.696	43.1	1.936	49.2	2.266	57.6	2.416	61.4	29.0	736	2608	3882	11206	5083	108/70.5	2.74/1.79	3700	1128	
AL420F95-750	750(61)	0.908	23.1	1.798	45.7	1.878	47.7	2.118	53.8	2.448	62.2	2.598	66.0	31.2	792	3175	4724	10920	4953	108/70.5	2.74/1.79	2950	899	
AL420F95-1000	1000(61)	1.060	26.9	1.950	49.5	2.030	51.6	2.270	57.7	2.600	66.0	2.750	69.9	33.0	838	3615	5380	11677	5297	108/70.5	2.74/1.79	2800	853	

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

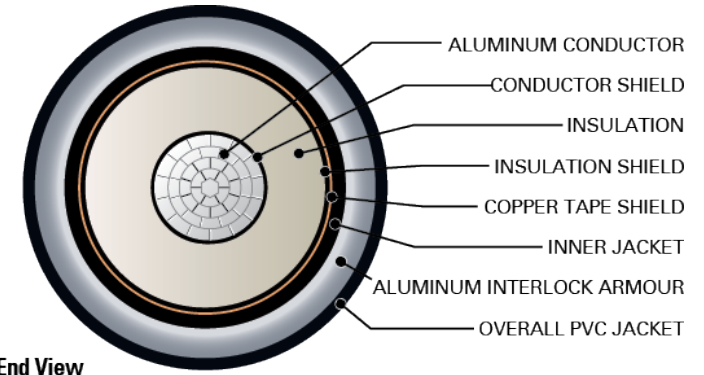
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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 _{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 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
AL420F95-010	634	2818	0.168	0.551	0.211	0.693	0.1355	0.4445	0.0305	0.1001	0.0511	0.1676	0.0870	0.0265	0.212 + j0.061	0.545 + j0.278	5.0	221	219
AL420F95-020	799	3552	0.133	0.436	0.167	0.549	0.1306	0.4286	0.0325	0.1067	0.0492	0.1616	0.0815	0.0249	0.168 + j0.059	0.497 + j0.267	6.3	253	246
AL420F95-030	1007	4478	0.105	0.345	0.132	0.433	0.1257	0.4124	0.0349	0.1145	0.0474	0.1555	0.0760	0.0232	0.133 + j0.057	0.458 + j0.255	7.9	288	275
AL420F95-040	1270	5647	0.084	0.274	0.105	0.345	0.1210	0.3971	0.0374	0.1229	0.0456	0.1497	0.0708	0.0216	0.106 + j0.055	0.426 + j0.243	9.9	327	305
AL420F95-250	1500	6672	0.071	0.232	0.089	0.292	0.1180	0.3870	0.0394	0.1291	0.0445	0.1459	0.0674	0.0205	0.090 + j0.054	0.404 + j0.232	11.8	367	343
AL420F95-350	2100	9341	0.051	0.166	0.064	0.209	0.1117	0.3664	0.0439	0.1441	0.0421	0.1381	0.0604	0.0184	0.065 + j0.052	0.370 + j0.213	16.5	443	399
AL420F95-500	3000	13345	0.035	0.116	0.045	0.147	0.1055	0.3462	0.0496	0.1626	0.0398	0.1305	0.0535	0.0163	0.046 + j0.049	0.340 + j0.193	23.5	529	451
AL420F95-750	4500	20017	0.024	0.077	0.030	0.099	0.0992	0.3255	0.0571	0.1872	0.0374	0.1227	0.0465	0.0142	0.032 + j0.046	0.309 + j0.168	35.3	633	505
AL420F95-1000	6000	26689	0.018	0.058	0.023	0.075	0.0947	0.3108	0.0639	0.2098	0.0357	0.1172	0.0415	0.0126	0.024 + j0.043	0.289 + j0.150	47.0	711	544

* 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