



CSA TRAY RATED

HVTC SPECIFICATIONS
HVTC AL 1/C 420TRXLPE TS PVC 35KV 133% CSA

PRODUCT HIGHLIGHTS

Southwire's 35KV HVTC is a CSA approved copper tape shielded cable for Industrial and Commercial medium voltage applications. FT4, -40°C, and 105°C rated for use in harsh Canadian environments. Rated for installation in cable trays, duct banks, direct burial, troughs, continuous rigid cable supports and concrete encaseable. For use in cable trays, exposed run and hazardous locations as per the limitations in the Canadian Electrical Code Part I, particularly Table 19.

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

Overall Jacket

- Black PVC (optional colours available)
- Nominal Thickness:
 No. 1/0 AWG to 250 kcmil = 0.08 inches (2.03mm)
 350 kcmil to 1000 kcmil = 0.11 inches (2.79mm)

Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CPT AL 420 TRXLPE 35KV 133% INS LEVEL 25% TS SUN RES TC-ER 105° FT4 (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

TABLE 1 - WEIGHTS & MEASUREMENTS

HVTC Product Code	Conductor Size *		Conductor Diameter		Diameter Over Insulation		Diameter Over Insulation Shield		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	lb / 1000ft	kg/km	lbs	kg	inches	m	feet	m	
AL420A74-010	1/0(19)	0.336	8.5	1.206	30.6	1.286	32.7	1.466	37.2	17.6	447	906	1349	6597	2992	96/54.5	2.44/1.38	6000	1829	
AL420A74-020	2/0(19)	0.376	9.6	1.246	31.6	1.326	33.7	1.506	38.3	18.1	459	966	1437	6954	3154	96/54.5	2.44/1.38	6000	1829	
AL420A74-030	3/0(19)	0.423	10.7	1.293	32.8	1.373	34.9	1.553	39.4	18.6	473	1038	1544	7385	3350	96/54.5	2.44/1.38	6000	1829	
AL420A74-040	4/0(19)	0.475	12.1	1.345	34.2	1.425	36.2	1.605	40.8	19.3	489	1123	1671	8078	3664	104/56.5	2.64/1.44	6000	1829	
AL420A74-250	250(37)	0.520	13.2	1.400	35.6	1.480	37.6	1.660	42.2	19.9	506	1209	1799	8595	3898	104/56.5	2.64/1.44	6000	1829	
AL420A74-350	350(37)	0.616	15.6	1.496	38.0	1.576	40.0	1.816	46.1	21.8	554	1484	2208	10458	4744	108/70.5	2.74/1.79	6000	1829	
AL420A74-500	500(37)	0.736	18.7	1.616	41.0	1.696	43.1	1.936	49.2	23.2	590	1733	2578	11604	5264	108/70.5	2.74/1.79	5800	1768	
AL420A74-750	750(61)	0.908	23.1	1.798	45.7	1.878	47.7	2.118	53.8	25.4	646	2139	3183	11502	5217	108/70.5	2.74/1.79	4650	1417	
AL420A74-1000	1000(61)	1.060	26.9	1.950	49.5	2.030	51.6	2.270	57.7	27.2	692	2511	3737	12479	5660	108/70.5	2.74/1.79	4350	1326	

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. 230 - Tray Cables
- ICEA S-93-639 (NEMA WC 74) 5 to 46 kV - Shielded Power Cable
- AEIC CS-8 - Qualification Testing Requirements

Flame Test Ratings

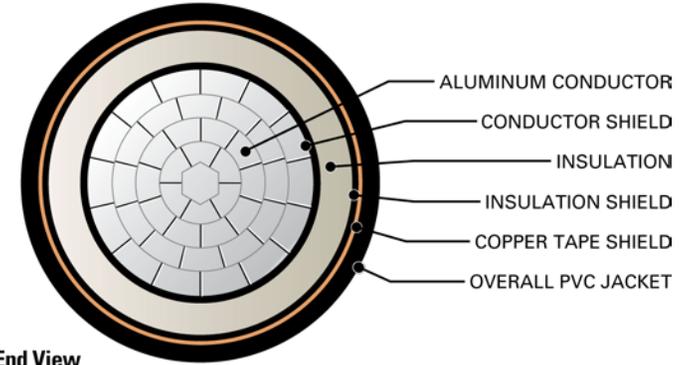
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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 FT4 - for Flame Retardancy rating
- CSA SUN RES - for Sunlight Resistant rating
- CSA TC-ER (marked TC for No. 1/0 AWG and larger)***

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

HVTC 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					
AL420A74-010	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 + j0.055	0.549 + j0.277	5.0	221	219
AL420A74-020	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 + j0.054	0.501 + j0.266	6.3	253	246
AL420A74-030	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 + j0.052	0.461 + j0.255	7.9	288	275
AL420A74-040	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 + j0.050	0.429 + j0.242	9.9	327	305
AL420A74-250	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 + j0.048	0.408 + j0.231	11.8	367	343
AL420A74-350	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 + j0.046	0.372 + j0.212	16.5	443	399
AL420A74-500	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 + j0.044	0.342 + j0.192	23.5	529	451
AL420A74-750	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	0.031 + j0.041	0.311 + j0.167	35.3	633	505
AL420A74-1000	6000	26689	0.018	0.058	0.023	0.076	0.0947	0.3108	0.0639	0.2098	0.0357	0.1172	0.0415	0.0126	0.024 + j0.039	0.290 + j0.149	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

*** For use in cable trays, exposed run and hazardous locations as per the limitations in the Canadian Electrical Code Part I, particularly Table 19.