



CSA TRAY RATED

HVTC SPECIFICATIONS
HVTC AL 1/C 320TRXLPE TS PVC 25KV 133% CSA

PRODUCT HIGHLIGHTS

Southwire's 25KV 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: 0.32 inches (8.13mm) - 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 AWG to 350 kcmil = 0.08 inches (2.03mm)
500 kcmil to 1000 kcmil = 0.11 inches (2.79mm)

Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CPT AL 320 TRXLPE 25KV 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
AL320E40-001	1(19)	0.299	7.6	0.969	24.6	1.049	26.6	1.229	31.2	14.7	375	663	986	4727	2144	78/54	1.98/1.37	6000	1829
AL320E40-010	1/0(19)	0.336	8.5	1.006	25.6	1.086	27.6	1.266	32.2	15.2	386	710	1056	5008	2272	78/54	1.98/1.37	6000	1829
AL320E40-020	2/0(19)	0.376	9.6	1.046	26.6	1.126	28.6	1.306	33.2	15.7	398	764	1137	5335	2420	78/54	1.98/1.37	6000	1829
AL320E40-030	3/0(19)	0.423	10.7	1.093	27.8	1.173	29.8	1.353	34.4	16.2	412	830	1235	6140	2785	96/54.5	2.44/1.38	6000	1829
AL320E40-040	4/0(19)	0.475	12.1	1.145	29.1	1.225	31.1	1.405	35.7	16.9	428	908	1352	6610	2998	96/54.5	2.44/1.38	6000	1829
AL320E40-250	250(37)	0.520	13.2	1.200	30.5	1.280	32.5	1.460	37.1	17.5	445	988	1470	7086	3214	96/54.5	2.44/1.38	6000	1829
AL320E40-350	350(37)	0.616	15.6	1.296	32.9	1.376	35.0	1.556	39.5	18.7	474	1151	1712	8063	3657	96/54.5	2.44/1.38	6000	1829
AL320E40-500	500(37)	0.736	18.7	1.416	36.0	1.496	38.0	1.736	44.1	20.8	529	1473	2193	10182	4619	104/56.5	2.64/1.44	6000	1829
AL320E40-750	750(61)	0.908	23.1	1.598	40.6	1.678	42.6	1.918	48.7	23.0	585	1857	2763	12697	5759	108/70.5	2.74/1.79	6000	1829
AL320E40-1000	1000(61)	1.060	26.9	1.750	44.5	1.830	46.5	2.070	52.6	24.8	631	2210	3289	13379	6068	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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C A N A D A

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

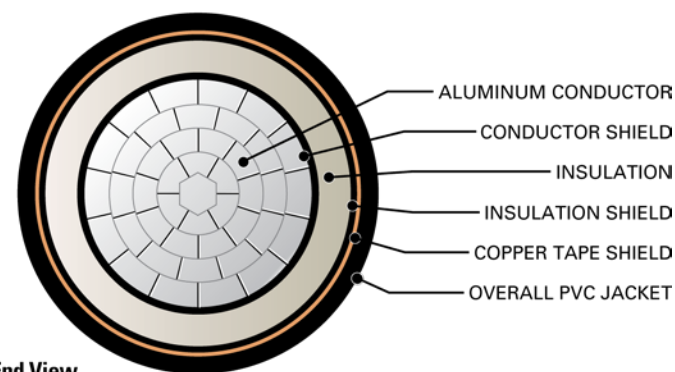
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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					
AL320E40-001	502	2234	0.211	0.692	0.265	0.870	0.1293	0.4241	0.0331	0.1088	0.0487	0.1599	0.0800	0.0244	0.266 + j0.054	0.624 + j0.339	3.9	193	194
AL320E40-010	634	2818	0.168	0.551	0.211	0.693	0.1244	0.4083	0.0355	0.1166	0.0469	0.1539	0.0746	0.0227	0.212 + j0.052	0.567 + j0.326	5.0	221	219
AL320E40-020	799	3552	0.133	0.436	0.167	0.549	0.1200	0.3936	0.0381	0.1250	0.0452	0.1484	0.0696	0.0212	0.168 + j0.050	0.520 + j0.312	6.3	253	246
AL320E40-030	1007	4478	0.105	0.345	0.132	0.433	0.1154	0.3788	0.0411	0.1347	0.0435	0.1428	0.0646	0.0197	0.133 + j0.048	0.480 + j0.298	7.9	288	275
AL320E40-040	1270	5647	0.084	0.274	0.105	0.345	0.1112	0.3649	0.0443	0.1454	0.0419	0.1376	0.0599	0.0182	0.106 + j0.047	0.449 + j0.283	9.9	327	305
AL320E40-250	1500	6672	0.071	0.232	0.089	0.292	0.1086	0.3562	0.0466	0.1529	0.0409	0.1343	0.0569	0.0173	0.090 + j0.045	0.427 + j0.269	11.8	367	343
AL320E40-350	2100	9341	0.051	0.166	0.064	0.209	0.1029	0.3377	0.0524	0.1719	0.0388	0.1273	0.0506	0.0154	0.064 + j0.043	0.393 + j0.245	16.5	443	399
AL320E40-500	3000	13345	0.035	0.116	0.045	0.147	0.0975	0.3198	0.0596	0.1954	0.0367	0.1206	0.0445	0.0136	0.046 + j0.041	0.361 + j0.220	23.5	529	451
AL320E40-750	4500	20017	0.024	0.077	0.030	0.099	0.0920	0.3020	0.0690	0.2262	0.0347	0.1138	0.0385	0.0117	0.031 + j0.039	0.329 + j0.189	35.3	633	505
AL320E40-1000	6000	26689	0.018	0.058	0.023	0.076	0.0881	0.2892	0.0777	0.2551	0.0332	0.1090	0.0341	0.0104	0.024 + j0.037	0.308 + j0.168	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.

