


CSA TRAY RATED
HVTC SPECIFICATIONS
HVTC AL 3/C 320EPR 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

- No-lead EPR (Ethylene Propylene Rubber)
- 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
- 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

Overall Jacket

- Black PVC (optional colours available)
- Nominal Thickness:
No.1 AWG to No.2/0 AWG = 0.11 inches (2.79mm)
No.3/0 AWG to 500 kcmil = 0.14 inches (3.56mm)

Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CPT AL 320 EPR 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		Bonding Cond. Size	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	lb / 1000ft	kg/km	lbs	kg	inches	m	feet	m
AL320M37-001	1(19)	0.299	7.6	0.969	24.6	1.049	26.6	6	2.529	64.2	17.7	450	2552	3798	9338	4236	108/70.5	2.74/1.79	3050	930
AL320M37-010	1/0(19)	0.336	8.5	1.006	25.6	1.086	27.6	6	2.609	66.3	18.3	464	2725	4056	9595	4352	108/70.5	2.74/1.79	2950	899
AL320M37-020	2/0(19)	0.376	9.6	1.046	26.6	1.126	28.6	6	2.695	68.5	18.9	479	2925	4353	9745	4420	108/70.5	2.74/1.79	2800	853
AL320M37-030	3/0(19)	0.423	10.7	1.093	27.8	1.173	29.8	6	2.857	72.6	20.0	508	3325	4948	9203	4174	108/70.5	2.74/1.79	2300	701
AL320M37-040	4/0(19)	0.475	12.1	1.145	29.1	1.225	31.1	6	2.969	75.4	20.8	528	3616	5381	9511	4314	108/70.5	2.74/1.79	2200	671
AL320M37-250	250(37)	0.520	13.2	1.200	30.5	1.280	32.5	4	3.088	78.4	21.6	549	3963	5897	9679	4390	108/70.5	2.74/1.79	2050	625
AL320M37-350	350(37)	0.616	15.6	1.296	32.9	1.376	35.0	4	3.295	83.7	23.1	586	4562	6789	8854	4016	108/70.5	2.74/1.79	1600	488
AL320M37-500	500(37)	0.736	18.7	1.416	36.0	1.496	38.0	3	3.555	90.3	24.9	632	5422	8069	9689	4395	108/70.5	2.74/1.79	1500	457

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

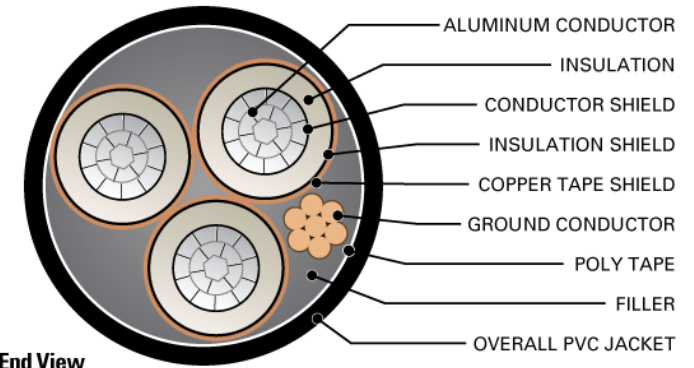
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000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

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	Ω / 1000ft	Ω / 1000ft	kAmps	Amps	Amps
AL320M37-001	1506	6701	0.211	0.692	0.265	0.870	0.1293	0.4241	0.0418	0.1371	0.0487	0.1599	0.0635	0.0193	0.266 + j0.051	0.627 + j0.339	3.7	158	177
AL320M37-010	1901	8455	0.168	0.551	0.211	0.693	0.1244	0.4083	0.0448	0.1470	0.0469	0.1539	0.0592	0.0180	0.212 + j0.049	0.570 + j0.326	4.7	181	200
AL320M37-020	2396	10657	0.133	0.436	0.167	0.549	0.1200	0.3936	0.0480	0.1576	0.0452	0.1484	0.0552	0.0168	0.168 + j0.047	0.522 + j0.312	5.9	208	228
AL320M37-030	3020	13435	0.105	0.345	0.132	0.433	0.1154	0.3788	0.0518	0.1699	0.0435	0.1428	0.0512	0.0156	0.133 + j0.045	0.483 + j0.298	7.4	239	258
AL320M37-040	3809	16942	0.084	0.274	0.105	0.345	0.1112	0.3649	0.0559	0.1833	0.0419	0.1376	0.0475	0.0145	0.106 + j0.044	0.451 + j0.282	9.4	273	292
AL320M37-250	4500	20017	0.071	0.232	0.089	0.292	0.1086	0.3562	0.0588	0.1928	0.0409	0.1343	0.0451	0.0138	0.090 + j0.043	0.429 + j0.268	11.1	302	321
AL320M37-350	6300	28024	0.051	0.166	0.064	0.209	0.1029	0.3377	0.0661	0.2168	0.0388	0.1273	0.0401	0.0122	0.064 + j0.040	0.394 + j0.245	15.5	368	385
AL320M37-500	9000	40034	0.035	0.116	0.045	0.147	0.0975	0.3198	0.0751	0.2464	0.0367	0.1206	0.0353	0.0108	0.045 + j0.038	0.363 + j0.220	22.2	454	462

* 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

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

