



CSA TRAY RATED

HVTC SPECIFICATIONS

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



Southwire®
C A N A D A

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 compressed stranded copper
- in accordance with ASTM B3 and ASTM B8

Options

- Class B compact stranded -8000 Series Aluminum -ACM
- Class B compact stranded copper

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] CU 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	
CU320C81-001	1(19)	0.322	8.2	0.992	25.2	1.072	27.2	1.252	31.8	15.0	382	859	1279	5905	2679	78/54	1.98/1.37	6000	1829	
CU320C81-010	1/0(19)	0.362	9.2	1.032	26.2	1.112	28.2	1.292	32.8	15.5	394	955	1421	6481	2940	78/54	1.98/1.37	6000	1829	
CU320C81-020	2/0(19)	0.405	10.3	1.075	27.3	1.155	29.3	1.335	33.9	16.0	407	1071	1594	7176	3255	78/54	1.98/1.37	6000	1829	
CU320C81-030	3/0(19)	0.456	11.6	1.126	28.6	1.206	30.6	1.386	35.2	16.6	422	1215	1808	8447	3831	96/54.5	2.44/1.38	6000	1829	
CU320C81-040	4/0(19)	0.512	13.0	1.182	30.0	1.262	32.1	1.442	36.6	17.3	440	1390	2068	9498	4308	96/54.5	2.44/1.38	6000	1829	
CU320C81-250	250(37)	0.558	14.2	1.238	31.4	1.318	33.5	1.498	38.0	18.0	457	1493	2222	10116	4588	96/54.5	2.44/1.38	6000	1829	
CU320C81-350	350(37)	0.661	16.8	1.341	34.1	1.421	36.1	1.601	40.7	19.2	488	1936	2882	12960	5878	104/56.5	2.64/1.44	6000	1829	
CU320C81-500	500(37)	0.789	20.0	1.469	37.3	1.549	39.3	1.789	45.4	21.5	545	2590	3855	16449	7461	108/70.5	2.74/1.79	5750	1753	
CU320C81-750	750(61)	0.968	24.6	1.658	42.1	1.738	44.1	1.978	50.2	23.7	603	3517	5234	16502	7485	108/70.5	2.74/1.79	4250	1295	
CU320C81-1000	1000(61)	1.117	28.4	1.807	45.9	1.887	47.9	2.127	54.0	25.5	648	4406	6557	16536	7500	108/70.5	2.74/1.79	3400	1036	

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)

** Long 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

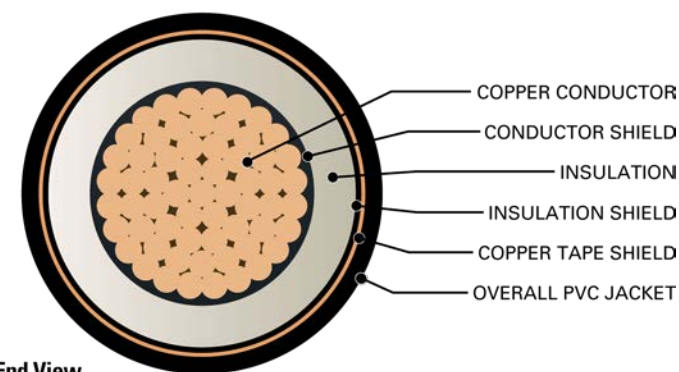
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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					
CU320C81-001	670	2978	0.129	0.423	0.161	0.529	0.1262	0.4140	0.0346	0.1137	0.0476	0.1561	0.0766	0.0233	0.162 + j0.053	0.518 + j0.331	6.0	245	244
CU320C81-010	845	3758	0.102	0.335	0.128	0.419	0.1214	0.3985	0.0372	0.1221	0.0458	0.1502	0.0713	0.0217	0.128 + j0.051	0.481 + j0.317	7.6	278	272
CU320C81-020	1065	4736	0.081	0.266	0.101	0.333	0.1171	0.3842	0.0399	0.1310	0.0441	0.1448	0.0664	0.0202	0.102 + j0.049	0.451 + j0.303	9.6	316	303
CU320C81-030	1342	5971	0.064	0.211	0.080	0.264	0.1127	0.3697	0.0431	0.1415	0.0425	0.1394	0.0615	0.0187	0.081 + j0.047	0.426 + j0.288	12.1	356	333
CU320C81-040	1693	7530	0.051	0.167	0.064	0.210	0.1086	0.3562	0.0466	0.1529	0.0409	0.1343	0.0569	0.0174	0.065 + j0.045	0.404 + j0.273	15.2	403	367
CU320C81-250	2000	8896	0.043	0.141	0.054	0.178	0.1062	0.3483	0.0489	0.1605	0.0400	0.1313	0.0542	0.0165	0.055 + j0.044	0.389 + j0.259	18.0	455	411
CU320C81-350	2800	12455	0.031	0.101	0.039	0.128	0.1007	0.3304	0.0551	0.1808	0.0380	0.1246	0.0481	0.0147	0.040 + j0.042	0.363 + j0.235	25.2	537	459
CU320C81-500	4000	17793	0.022	0.071	0.028	0.091	0.0955	0.3132	0.0627	0.2057	0.0360	0.1181	0.0423	0.0129	0.029 + j0.040	0.339 + j0.211	36.0	616	499
CU320C81-750	6000	26689	0.014	0.047	0.019	0.063	0.0904	0.2965	0.0724	0.2376	0.0341	0.1118	0.0366	0.0112	0.020 + j0.038	0.312 + j0.181	53.9	716	557
CU320C81-1000	8000	35586	0.011	0.035	0.015	0.049	0.0869	0.2851	0.0810	0.2659	0.0328	0.1075	0.0327	0.0100	0.016 + j0.036	0.295 + j0.161	71.9	825	608

* 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.

