



**CSA TRAY RATED**

**HVTC SPECIFICATIONS**

# HVTC CU 3/C 345EPR TS PVC 28KV 133% CSA



## PRODUCT HIGHLIGHTS

Southwire's 28KV 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

- No-lead EPR (Ethylene Propylene Rubber)
- Thickness: 0.345 inches (8.76mm) - 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 = 0.11 inches (2.79mm)  
No. 1/0 AWG to 500 kcmil = 0.14 inches (3.56mm)

### Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CU 345 EPR 28KV 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
CU345T23-001	1(19)	0.322	8.2	1.042	26.5	1.122	28.5	6	2.687	68.2	18.8	478	3354	4991	10945	4965	108/70.5	2.74/1.79	2800	853
CU345T23-010	1/0(19)	0.362	9.2	1.082	27.5	1.162	29.5	6	2.833	72.0	19.8	504	3840	5715	10388	4712	108/70.5	2.74/1.79	2300	701
CU345T23-020	2/0(19)	0.405	10.3	1.125	28.6	1.205	30.6	6	2.926	74.3	20.5	520	4239	6308	10880	4935	108/70.5	2.74/1.79	2200	671
CU345T23-030	3/0(19)	0.456	11.6	1.176	29.9	1.256	31.9	4	3.036	77.1	21.3	540	4779	7112	11830	5366	108/70.5	2.74/1.79	2150	655
CU345T23-040	4/0(19)	0.512	13.0	1.232	31.3	1.312	33.3	4	3.157	80.2	22.1	561	5374	7998	10692	4850	108/70.5	2.74/1.79	1700	518
CU345T23-250	250(37)	0.558	14.2	1.288	32.7	1.368	34.7	4	3.278	83.3	22.9	583	5755	8564	10763	4882	108/70.5	2.74/1.79	1600	488
CU345T23-350	350(37)	0.661	16.8	1.391	35.3	1.471	37.4	3	3.501	88.9	24.5	622	7255	10796	12437	5641	108/70.5	2.74/1.79	1500	457
CU345T23-500	500(37)	0.789	20.0	1.519	38.6	1.599	40.6	3	3.777	95.9	26.4	672	9098	13539	11563	5245	108/70.5	2.74/1.79	1100	335

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

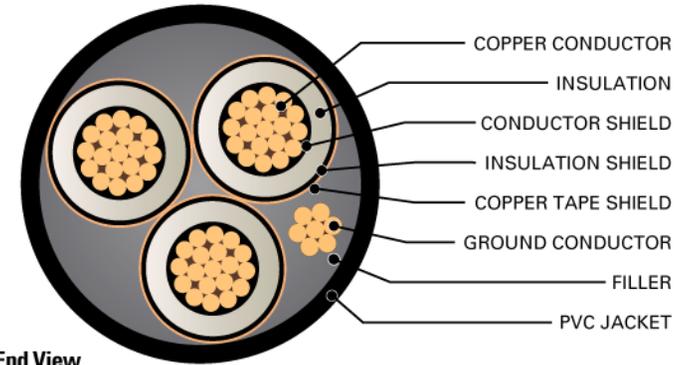
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000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



**TABLE 2 - ENGINEERING SPECIFICATIONS**

HVTC Product Code	Maximum Pulling Tension		DC Resistance @ 25°C R <sub>DC</sub>		AC Resistance @ 90°C 60 Hz (triplex formation) R <sub>AC</sub>		Inductance L		Capacitance C		Inductive Reactance @ 60Hz (triplexed) X <sub>L</sub>		Capacitive Reactance @ 60Hz (triplexed) X <sub>C</sub>		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
CU345T23-001	2009	8935	0.129	0.423	0.161	0.529	0.1292	0.4238	0.0419	0.1373	0.0487	0.1598	0.0634	0.0193	0.162 + j0.051	0.517 + j0.317	5.7	202	226
CU345T23-010	2534	11274	0.102	0.335	0.128	0.419	0.1243	0.4079	0.0449	0.1473	0.0469	0.1538	0.0591	0.0180	0.128 + j0.049	0.479 + j0.304	7.2	231	256
CU345T23-020	3194	14209	0.081	0.266	0.101	0.333	0.1199	0.3933	0.0481	0.1578	0.0452	0.1483	0.0551	0.0168	0.102 + j0.047	0.449 + j0.291	9.0	265	290
CU345T23-030	4027	17914	0.064	0.211	0.080	0.264	0.1153	0.3784	0.0519	0.1702	0.0435	0.1427	0.0511	0.0156	0.081 + j0.045	0.423 + j0.276	11.4	303	327
CU345T23-040	5078	22590	0.051	0.167	0.064	0.210	0.1111	0.3645	0.0560	0.1836	0.0419	0.1374	0.0474	0.0144	0.065 + j0.044	0.401 + j0.262	14.3	348	369
CU345T23-250	6000	26689	0.043	0.141	0.054	0.178	0.1086	0.3562	0.0588	0.1928	0.0409	0.1343	0.0451	0.0138	0.055 + j0.043	0.385 + j0.249	16.9	384	408
CU345T23-350	8400	37365	0.031	0.101	0.039	0.128	0.1029	0.3377	0.0661	0.2167	0.0388	0.1273	0.0402	0.0122	0.040 + j0.040	0.360 + j0.226	23.7	468	485
CU345T23-500	12000	53379	0.022	0.071	0.028	0.091	0.0975	0.3199	0.0750	0.2462	0.0368	0.1206	0.0354	0.0108	0.028 + j0.038	0.336 + j0.203	33.9	565	571

\* 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.

