



**CSA TRAY RATED**

**HVTC SPECIFICATIONS**  
**HVTC CU 3/C 175EPR TS PVC 15KV 100% CSA**



**PRODUCT HIGHLIGHTS**

Southwire's 15KV 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: 0.175 inches (4.45mm) - nominal
- Insulation level: 100% - grounded system
- 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**

- Red PVC (optional colours available)
- Nominal Thickness:  
No.2 AWG to 350 kcmil = 0.11 inches (2.79mm)  
500 kcmil to 750 kcmil = 0.14 inches (3.56mm)

**Typical Print Legend**

- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CU 175 EPR 15KV 100% 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
CU175C45-002	2(7)	0.283	7.2	0.663	16.8	0.743	18.9	6	1.868	47.4	13.1	332	1943	2891	11055	5014	104/56.5	2.64/1.44	5000	1524
CU175C45-001	1(19)	0.322	8.2	0.702	17.8	0.782	19.9	6	1.952	49.6	13.7	347	2188	3256	12496	5668	108/70.5	2.74/1.79	5000	1524
CU175C45-010	1/0(19)	0.362	9.2	0.742	18.8	0.822	20.9	6	2.039	51.8	14.3	362	2479	3689	13948	6327	108/70.5	2.74/1.79	5000	1524
CU175C45-020	2/0(19)	0.405	10.3	0.785	19.9	0.865	22.0	6	2.132	54.1	14.9	379	2830	4211	14714	6674	108/70.5	2.74/1.79	4650	1417
CU175C45-030	3/0(19)	0.456	11.6	0.836	21.2	0.916	23.3	4	2.242	56.9	15.7	399	3314	4932	16470	7471	108/70.5	2.74/1.79	4500	1372
CU175C45-040	4/0(19)	0.512	13.0	0.892	22.7	0.972	24.7	4	2.363	60.0	16.5	420	3848	5726	15793	7163	108/70.5	2.74/1.79	3700	1128
CU175C45-250	250(37)	0.558	14.2	0.948	24.1	1.028	26.1	4	2.484	63.1	17.4	442	4167	6201	16347	7415	108/70.5	2.74/1.79	3550	1082
CU175C45-350	350(37)	0.661	16.8	1.051	26.7	1.131	28.7	3	2.706	68.7	18.9	481	5553	8264	16549	7507	108/70.5	2.74/1.79	2700	823
CU175C45-500	500(37)	0.789	20.0	1.179	29.9	1.259	32.0	3	3.043	77.3	21.3	541	7425	11050	16405	7441	108/70.5	2.74/1.79	2000	610
CU175C45-750	750(61)	0.968	24.6	1.368	34.7	1.448	36.8	2	3.451	87.7	24.2	614	10309	15342	16503	7486	108/70.5	2.74/1.79	1450	442

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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# HVTC SPECIFICATIONS

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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

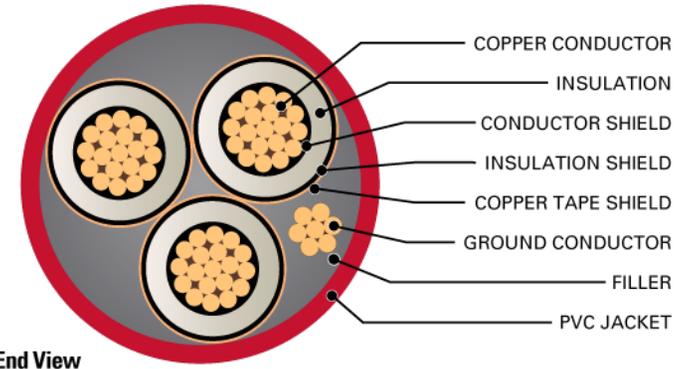
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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					
CU175C45-002	1593	7084	0.162	0.532	0.203	0.665	0.1095	0.3592	0.0577	0.1894	0.0413	0.1354	0.0459	0.0140	0.203 + j0.044	0.578 + j0.451	4.5	172	201
CU175C45-001	2009	8935	0.129	0.423	0.161	0.530	0.1051	0.3448	0.0631	0.2069	0.0396	0.1300	0.0421	0.0128	0.162 + j0.043	0.537 + j0.431	5.7	197	228
CU175C45-010	2534	11274	0.102	0.335	0.128	0.419	0.1013	0.3325	0.0685	0.2247	0.0382	0.1253	0.0387	0.0118	0.128 + j0.041	0.502 + j0.412	7.2	225	257
CU175C45-020	3194	14209	0.081	0.266	0.101	0.333	0.0979	0.3213	0.0743	0.2437	0.0369	0.1211	0.0357	0.0109	0.102 + j0.040	0.475 + j0.393	9.0	260	292
CU175C45-030	4027	17914	0.064	0.211	0.081	0.264	0.0945	0.3101	0.0811	0.2660	0.0356	0.1169	0.0327	0.0100	0.081 + j0.038	0.451 + j0.372	11.4	297	330
CU175C45-040	5078	22590	0.051	0.167	0.064	0.210	0.0914	0.2999	0.0885	0.2905	0.0345	0.1131	0.0300	0.0091	0.065 + j0.037	0.431 + j0.350	14.3	342	372
CU175C45-250	6000	26689	0.043	0.141	0.054	0.178	0.0899	0.2949	0.0927	0.3042	0.0339	0.1112	0.0286	0.0087	0.055 + j0.036	0.417 + j0.331	16.9	376	410
CU175C45-350	8400	37365	0.031	0.101	0.039	0.129	0.0858	0.2816	0.1060	0.3477	0.0324	0.1062	0.0250	0.0076	0.040 + j0.034	0.394 + j0.298	23.7	460	487
CU175C45-500	12000	53379	0.022	0.071	0.028	0.092	0.0821	0.2692	0.1224	0.4015	0.0309	0.1015	0.0217	0.0066	0.029 + j0.033	0.370 + j0.263	33.9	556	573
CU175C45-750	18000	80068	0.014	0.047	0.020	0.064	0.0787	0.2581	0.1421	0.4662	0.0297	0.0973	0.0187	0.0057	0.020 + j0.031	0.343 + j0.222	50.8	678	668

\* 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.

