



**CSA TRAY RATED**

HVTC SPECIFICATIONS

# HVTC CU 1/C 90TRXLPE TS PVC 5KV 100% CSA



**Southwire®**  
C A N A D A

## PRODUCT HIGHLIGHTS

Southwire's 5KV 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: 0.09 inches (2.29mm) - 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
- 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

- Orange PVC (optional colours available)
- Nominal Thickness:  
No.2 AWG to No.1/0 AWG = 0.06 inches (1.52mm)  
No.2/0 AWG to 1000 kcmil = 0.08 inches (2.03mm)

### Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CU 90 TRXLPE 5KV 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		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
CU90M45-002	2(7)	0.283	7.2	0.493	12.5	0.573	14.6	0.713	18.1	8.6	217	409	608	2727	1237	60/32	1.52/0.81	6000	1829
CU90M45-001	1(19)	0.322	8.2	0.532	13.5	0.612	15.5	0.752	19.1	9.0	229	477	710	3139	1424	60/32	1.52/0.81	6000	1829
CU90M45-010	1/0(19)	0.362	9.2	0.572	14.5	0.652	16.6	0.792	20.1	9.5	241	560	834	3561	1615	72/42	1.83/1.07	6000	1829
CU90M45-020	2/0(19)	0.405	10.3	0.615	15.6	0.695	17.7	0.875	22.2	10.5	267	694	1033	4364	1979	72/42	1.83/1.07	6000	1829
CU90M45-030	3/0(19)	0.456	11.6	0.666	16.9	0.746	18.9	0.926	23.5	11.1	282	823	1225	5137	2330	72/42	1.83/1.07	6000	1829
CU90M45-040	4/0(19)	0.512	13.0	0.722	18.3	0.802	20.4	0.982	24.9	11.8	299	982	1461	6092	2763	72/42	1.83/1.07	6000	1829
CU90M45-250	250(37)	0.558	14.2	0.778	19.8	0.858	21.8	1.038	26.4	12.5	316	1069	1590	6613	2999	72/42	1.83/1.07	6000	1829
CU90M45-350	350(37)	0.661	16.8	0.881	22.4	0.961	24.4	1.141	29.0	13.7	348	1483	2206	9645	4375	78/54	1.98/1.37	6000	1829
CU90M45-500	500(37)	0.789	20.0	1.009	25.6	1.089	27.7	1.269	32.2	15.2	387	2001	2978	13165	5972	96/54.5	2.44/1.38	6000	1829
CU90M45-750	750(61)	0.968	24.6	1.198	30.4	1.278	32.5	1.458	37.0	17.5	444	2863	4260	16440	7457	108/70.5	2.74/1.79	5200	1585
CU90M45-1000	1000(61)	1.117	28.4	1.347	34.2	1.427	36.2	1.607	40.8	19.3	490	3700	5507	16541	7503	108/70.5	2.74/1.79	4050	1234

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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CANADA

## 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

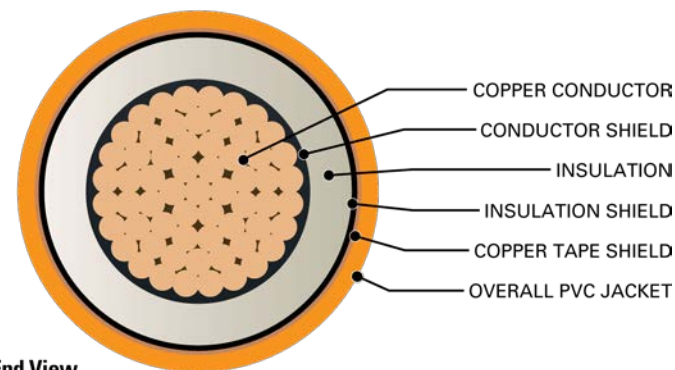
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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 <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					
CU90M45-002	531	2361	0.162	0.532	0.203	0.665	0.0914	0.2999	0.0702	0.2304	0.0345	0.1131	0.0378	0.0115	0.203 + j0.043	0.564 + j0.531	4.8	215	221
CU90M45-001	670	2978	0.129	0.423	0.161	0.530	0.0882	0.2893	0.0776	0.2547	0.0332	0.1091	0.0342	0.0104	0.162 + j0.041	0.527 + j0.508	6.0	245	247
CU90M45-010	845	3758	0.102	0.335	0.128	0.419	0.0855	0.2804	0.0852	0.2795	0.0322	0.1057	0.0311	0.0095	0.128 + j0.040	0.497 + j0.486	7.6	278	275
CU90M45-020	1065	4736	0.081	0.266	0.101	0.333	0.0830	0.2724	0.0933	0.3061	0.0313	0.1027	0.0284	0.0087	0.102 + j0.039	0.471 + j0.463	9.6	317	306
CU90M45-030	1342	5971	0.064	0.211	0.081	0.264	0.0807	0.2647	0.1029	0.3376	0.0304	0.0998	0.0258	0.0079	0.081 + j0.038	0.452 + j0.437	12.1	357	335
CU90M45-040	1693	7530	0.051	0.167	0.064	0.210	0.0785	0.2576	0.1134	0.3721	0.0296	0.0971	0.0234	0.0071	0.065 + j0.037	0.435 + j0.412	15.2	404	369
CU90M45-250	2000	8896	0.043	0.141	0.054	0.178	0.0778	0.2554	0.1173	0.3848	0.0293	0.0963	0.0226	0.0069	0.055 + j0.036	0.424 + j0.388	18.0	456	412
CU90M45-350	2800	12455	0.031	0.101	0.039	0.129	0.0751	0.2463	0.1357	0.4451	0.0283	0.0929	0.0196	0.0060	0.040 + j0.034	0.404 + j0.348	25.2	537	456
CU90M45-500	4000	17793	0.022	0.071	0.028	0.092	0.0726	0.2381	0.1585	0.5200	0.0274	0.0898	0.0167	0.0051	0.029 + j0.033	0.384 + j0.305	36.0	616	497
CU90M45-750	6000	26689	0.014	0.047	0.020	0.064	0.0706	0.2315	0.1828	0.5999	0.0266	0.0873	0.0145	0.0044	0.020 + j0.031	0.358 + j0.255	53.9	706	551
CU90M45-1000	8000	35586	0.011	0.035	0.016	0.051	0.0690	0.2263	0.2082	0.6830	0.0260	0.0853	0.0127	0.0039	0.016 + j0.030	0.339 + j0.222	71.9	813	596

\* 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.

