



**CSA TRAY RATED**

**HVTC SPECIFICATIONS**

# HVTC CU 1/C 140TRXLPE TS PVC 8KV 133% CSA



**Southwire®**  
C A N A D A

## PRODUCT HIGHLIGHTS

Southwire's 8KV 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: 0.14 inches (3.56mm) - 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.2 AWG = 0.06 inches (1.52mm)  
No.1 AWG to 750 kcmil = 0.08 inches (2.03mm)  
1000 kcmil = 0.11 inches (2.79mm)

### Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CU 140 TRXLPE 8KV 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
CU140V12-002	2(7)	0.283	7.2	0.593	15.1	0.673	17.1	0.813	20.7	9.8	248	468	696	3008	1364	72/42	1.83/1.07	6000	1829
CU140V12-001	1(19)	0.322	8.2	0.632	16.1	0.712	18.1	0.892	22.7	10.7	272	572	851	3630	1646	72/42	1.83/1.07	6000	1829
CU140V12-010	1/0(19)	0.362	9.2	0.672	17.1	0.752	19.1	0.932	23.7	11.2	284	659	980	4151	1883	72/42	1.83/1.07	6000	1829
CU140V12-020	2/0(19)	0.405	10.3	0.715	18.2	0.795	20.2	0.975	24.8	11.7	297	765	1138	4788	2172	72/42	1.83/1.07	6000	1829
CU140V12-030	3/0(19)	0.456	11.6	0.766	19.5	0.846	21.5	1.026	26.1	12.3	313	897	1335	5581	2531	72/42	1.83/1.07	6000	1829
CU140V12-040	4/0(19)	0.512	13.0	0.822	20.9	0.902	22.9	1.082	27.5	13.0	330	1059	1576	7106	3223	78/54	1.98/1.37	6000	1829
CU140V12-250	250(37)	0.558	14.2	0.878	22.3	0.958	24.3	1.138	28.9	13.7	347	1150	1711	7648	3469	78/54	1.98/1.37	6000	1829
CU140V12-350	350(37)	0.661	16.8	0.981	24.9	1.061	26.9	1.241	31.5	14.9	378	1570	2336	10169	4613	78/54	1.98/1.37	6000	1829
CU140V12-500	500(37)	0.789	20.0	1.109	28.2	1.189	30.2	1.369	34.8	16.4	417	2096	3120	13920	6314	104/56.5	2.64/1.44	6000	1829
CU140V12-750	750(61)	0.968	24.6	1.298	33.0	1.378	35.0	1.558	39.6	18.7	475	2970	4419	16552	7508	108/70.5	2.74/1.79	5050	1539
CU140V12-1000	1000(61)	1.117	28.4	1.447	36.8	1.527	38.8	1.767	44.9	21.2	539	3914	5825	16429	7452	108/70.5	2.74/1.79	3800	1158

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

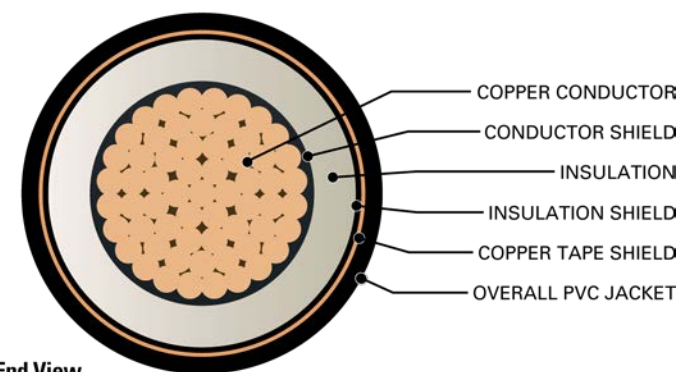
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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 (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	Ω / 1000ft	Ω / 1000ft	kAmps	Amps	Amps
CU140V12-002	531	2361	0.162	0.532	0.203	0.665	0.1027	0.3369	0.0527	0.1729	0.0387	0.1270	0.0503	0.0153	0.203 + j0.046	0.573 + j0.481	4.8	215	221
CU140V12-001	670	2978	0.129	0.423	0.161	0.530	0.0987	0.3238	0.0578	0.1896	0.0372	0.1221	0.0459	0.0140	0.162 + j0.045	0.532 + j0.460	6.0	245	247
CU140V12-010	845	3758	0.102	0.335	0.128	0.419	0.0953	0.3126	0.0630	0.2067	0.0359	0.1179	0.0421	0.0128	0.128 + j0.043	0.499 + j0.440	7.6	278	275
CU140V12-020	1065	4736	0.081	0.266	0.101	0.333	0.0922	0.3026	0.0686	0.2250	0.0348	0.1141	0.0387	0.0118	0.102 + j0.042	0.473 + j0.420	9.6	317	306
CU140V12-030	1342	5971	0.064	0.211	0.081	0.264	0.0892	0.2926	0.0751	0.2466	0.0336	0.1103	0.0353	0.0108	0.081 + j0.040	0.451 + j0.397	12.1	357	335
CU140V12-040	1693	7530	0.051	0.167	0.064	0.210	0.0864	0.2836	0.0823	0.2701	0.0326	0.1069	0.0322	0.0098	0.065 + j0.039	0.432 + j0.374	15.2	404	369
CU140V12-250	2000	8896	0.043	0.141	0.054	0.178	0.0852	0.2796	0.0860	0.2821	0.0321	0.1054	0.0308	0.0094	0.055 + j0.038	0.419 + j0.353	18.0	456	412
CU140V12-350	2800	12455	0.031	0.101	0.039	0.128	0.0816	0.2679	0.0987	0.3239	0.0308	0.1010	0.0269	0.0082	0.040 + j0.036	0.397 + j0.317	25.2	537	456
CU140V12-500	4000	17793	0.022	0.071	0.028	0.092	0.0783	0.2570	0.1145	0.3756	0.0295	0.0969	0.0232	0.0071	0.029 + j0.034	0.375 + j0.280	36.0	616	497
CU140V12-750	6000	26689	0.014	0.047	0.020	0.064	0.0755	0.2476	0.1329	0.4360	0.0284	0.0933	0.0200	0.0061	0.020 + j0.033	0.348 + j0.235	53.9	706	551
CU140V12-1000	8000	35586	0.011	0.035	0.015	0.051	0.0733	0.2407	0.1506	0.4941	0.0277	0.0907	0.0176	0.0054	0.016 + j0.032	0.329 + j0.206	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.

