



**CSA TRAY RATED**

**HVTC SPECIFICATIONS**

**HVTC CU 3/C 140TRXLPE TS PVC 8KV 133% CSA**



**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
- 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.2 AWG = 0.08 inches (2.03mm)  
No.1 AWG to 350 kcmil = 0.11 inches (2.79mm)  
500 kcmil to 1000 kcmil = 0.14 inches (3.56mm)

**Typical Print Legend**

- (CSA) SOUTHWIRE (NESC) #P# 3/C [#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		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	inches	mm	inches	mm	inches	mm	lb / 1000ft	kg/km	lbs	kg	inches	m	feet	m
CU140P31-002	2(7)	0.283	7.2	0.593	15.1	0.673	17.1	6	1.657	42.1	11.6	295	1603	2385	9172	4160	96/54.5	2.44/1.38	5000	1524	
CU140P31-001	1(19)	0.322	8.2	0.632	16.1	0.712	18.1	6	1.801	45.7	12.6	320	1930	2873	10994	4987	104/56.5	2.64/1.44	5000	1524	
CU140P31-010	1/0(19)	0.362	9.2	0.672	17.1	0.752	19.1	6	1.888	47.9	13.2	336	2208	3286	12382	5616	104/56.5	2.64/1.44	5000	1524	
CU140P31-020	2/0(19)	0.405	10.3	0.715	18.2	0.795	20.2	6	1.980	50.3	13.9	352	2545	3788	14282	6478	108/70.5	2.74/1.79	5000	1524	
CU140P31-030	3/0(19)	0.456	11.6	0.766	19.5	0.846	21.5	4	2.091	53.1	14.6	372	3013	4484	16170	7335	108/70.5	2.74/1.79	4850	1478	
CU140P31-040	4/0(19)	0.512	13.0	0.822	20.9	0.902	22.9	4	2.212	56.2	15.5	393	3529	5252	16554	7509	108/70.5	2.74/1.79	4250	1295	
CU140P31-250	250(37)	0.558	14.2	0.878	22.3	0.958	24.3	4	2.332	59.2	16.3	415	3830	5699	16300	7393	108/70.5	2.74/1.79	3850	1173	
CU140P31-350	350(37)	0.661	16.8	0.981	24.9	1.061	26.9	3	2.555	64.9	17.9	454	5183	7714	16328	7406	108/70.5	2.74/1.79	2850	869	
CU140P31-500	500(37)	0.789	20.0	1.109	28.2	1.189	30.2	3	2.891	73.4	20.2	514	7005	10425	16266	7378	108/70.5	2.74/1.79	2100	640	
CU140P31-750	750(61)	0.968	24.6	1.298	33.0	1.378	35.0	2	3.300	83.8	23.1	587	9829	14627	16298	7393	108/70.5	2.74/1.79	1500	457	
CU140P31-1000	1000(61)	1.117	28.4	1.447	36.8	1.527	38.8	1	3.622	92.0	25.4	644	12565	18698	15376	6975	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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# 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

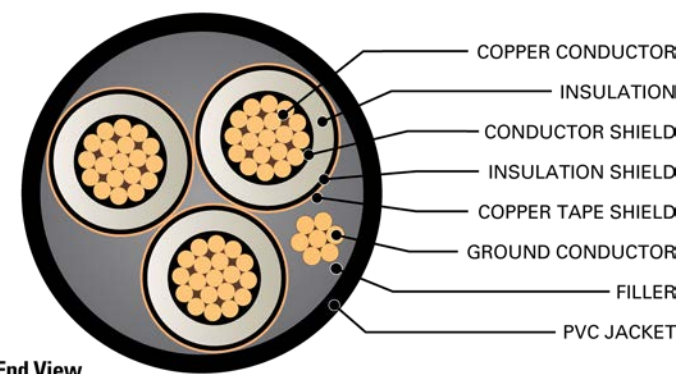
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000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



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					
CU140P31-002	1593	7084	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 + j0.042	0.577 + j0.483	4.8	172	201
CU140P31-001	2009	8935	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 + j0.041	0.537 + j0.462	6.0	197	228
CU140P31-010	2534	11274	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 + j0.039	0.504 + j0.441	7.6	225	257
CU140P31-020	3194	14209	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 + j0.038	0.477 + j0.421	9.6	260	292
CU140P31-030	4027	17914	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 + j0.036	0.455 + j0.398	12.1	297	330
CU140P31-040	5078	22590	0.051	0.167	0.064	0.211	0.0864	0.2836	0.0823	0.2701	0.0326	0.1069	0.0322	0.0098	0.065 + j0.035	0.436 + j0.374	15.2	342	372
CU140P31-250	6000	26689	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 + j0.035	0.423 + j0.353	18.0	376	410
CU140P31-350	8400	37365	0.031	0.101	0.039	0.129	0.0816	0.2679	0.0987	0.3239	0.0308	0.1010	0.0269	0.0082	0.040 + j0.033	0.400 + j0.317	25.2	460	487
CU140P31-500	12000	53379	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 + j0.031	0.377 + j0.279	36.0	556	573
CU140P31-750	18000	80068	0.014	0.047	0.020	0.065	0.0755	0.2476	0.1329	0.4360	0.0284	0.0933	0.0200	0.0061	0.020 + j0.030	0.350 + j0.234	53.9	678	668
CU140P31-1000	24000	106757	0.011	0.035	0.016	0.052	0.0733	0.2407	0.1506	0.4941	0.0277	0.0907	0.0176	0.0054	0.016 + j0.029	0.331 + j0.205	71.9	798	772

\* 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.

