



**CSA TRAY RATED**

HVTC SPECIFICATIONS

# HVTC AL 1/C 140EPR 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 - compact stranded -8000 Series Aluminum -ACM

### Options

- Class B compact stranded copper
- Class B compressed stranded copper
- Strand blocking technology
- Tinning on copper conductors

### Conductor Shield

- Extruded semi-conducting thermosetting polymeric layer

### Insulation

- No-lead EPR (Ethylene Propylene Rubber)
- 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 1000 kcmil = 0.08 inches (2.03mm)

### Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CPT AL 140 EPR 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
AL140D86-002	2(7)	0.268	6.8	0.578	14.7	0.658	16.7	0.798	20.3	9.6	243	336	500	2216	1005	72/42	1.83/1.07	6000	1829
AL140D86-001	1(19)	0.299	7.6	0.609	15.5	0.689	17.5	0.869	22.1	10.4	265	399	594	2595	1177	72/42	1.83/1.07	6000	1829
AL140D86-010	1/0(19)	0.336	8.5	0.646	16.4	0.726	18.4	0.906	23.0	10.9	276	439	654	2835	1286	72/42	1.83/1.07	6000	1829
AL140D86-020	2/0(19)	0.376	9.6	0.686	17.4	0.766	19.5	0.946	24.0	11.4	288	486	724	3118	1414	72/42	1.83/1.07	6000	1829
AL140D86-030	3/0(19)	0.423	10.7	0.733	18.6	0.813	20.7	0.993	25.2	11.9	303	544	809	3461	1570	72/42	1.83/1.07	6000	1829
AL140D86-040	4/0(19)	0.475	12.1	0.785	19.9	0.865	22.0	1.045	26.5	12.5	319	612	911	3873	1757	72/42	1.83/1.07	6000	1829
AL140D86-250	250(37)	0.520	13.2	0.840	21.3	0.920	23.4	1.100	27.9	13.2	335	681	1014	4838	2194	78/54	1.98/1.37	6000	1829
AL140D86-350	350(37)	0.616	15.6	0.936	23.8	1.016	25.8	1.196	30.4	14.4	365	826	1230	5708	2589	78/54	1.98/1.37	6000	1829
AL140D86-500	500(37)	0.736	18.7	1.056	26.8	1.136	28.9	1.316	33.4	15.8	401	1031	1534	6937	3146	78/54	1.98/1.37	6000	1829
AL140D86-750	750(61)	0.908	23.1	1.238	31.4	1.318	33.5	1.498	38.0	18.0	457	1371	2040	9383	4256	96/54.5	2.44/1.38	6000	1829
AL140D86-1000	1000(61)	1.060	26.9	1.390	35.3	1.470	37.3	1.650	41.9	19.8	503	1687	2511	11464	5200	104/56.5	2.64/1.44	6000	1829

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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**Southwire®**  
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

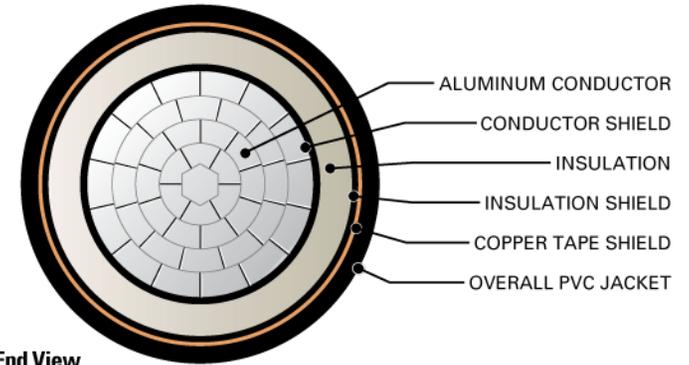
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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					
AL140D86-002	398	1771	0.265	0.869	0.333	1.093	0.1044	0.3426	0.0639	0.2098	0.0394	0.1292	0.0415	0.0126	0.333 + j0.047	0.702 + j0.490	2.9	169	176
AL140D86-001	502	2234	0.211	0.692	0.265	0.870	0.1009	0.3312	0.0691	0.2267	0.0381	0.1249	0.0384	0.0117	0.266 + j0.046	0.635 + j0.472	3.7	194	198
AL140D86-010	634	2818	0.168	0.551	0.211	0.693	0.0974	0.3196	0.0752	0.2467	0.0367	0.1205	0.0353	0.0108	0.212 + j0.044	0.582 + j0.453	4.7	222	223
AL140D86-020	799	3552	0.133	0.436	0.167	0.549	0.0942	0.3092	0.0817	0.2682	0.0355	0.1166	0.0325	0.0099	0.168 + j0.043	0.538 + j0.433	5.9	255	250
AL140D86-030	1007	4478	0.105	0.345	0.132	0.433	0.0911	0.2989	0.0894	0.2933	0.0343	0.1127	0.0297	0.0090	0.133 + j0.041	0.503 + j0.412	7.4	290	278
AL140D86-040	1270	5647	0.084	0.274	0.105	0.345	0.0882	0.2894	0.0978	0.3210	0.0332	0.1091	0.0271	0.0083	0.106 + j0.040	0.475 + j0.389	9.4	329	309
AL140D86-250	1500	6672	0.071	0.232	0.089	0.292	0.0868	0.2848	0.1025	0.3362	0.0327	0.1074	0.0259	0.0079	0.090 + j0.039	0.456 + j0.367	11.1	370	347
AL140D86-350	2100	9341	0.051	0.166	0.064	0.209	0.0831	0.2726	0.1175	0.3854	0.0313	0.1028	0.0226	0.0069	0.064 + j0.037	0.425 + j0.332	15.5	446	402
AL140D86-500	3000	13345	0.035	0.116	0.045	0.147	0.0796	0.2611	0.1361	0.4467	0.0300	0.0984	0.0195	0.0059	0.046 + j0.035	0.397 + j0.294	22.2	533	451
AL140D86-750	4500	20017	0.024	0.077	0.030	0.100	0.0765	0.2509	0.1585	0.5201	0.0288	0.0946	0.0167	0.0051	0.031 + j0.033	0.365 + j0.248	33.2	631	500
AL140D86-1000	6000	26689	0.018	0.058	0.023	0.076	0.0741	0.2431	0.1813	0.5949	0.0279	0.0916	0.0146	0.0045	0.024 + j0.032	0.343 + j0.216	44.3	707	539

\* 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.

