



CSA TRAY RATED

HVTC SPECIFICATIONS

HVTC AL 3/C 140EPR TS PVC 8KV 133% CSA



Southwire®
CANADA

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
- 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 500 kcmil = 0.11 inches (2.79mm)
750 kcmil to 1000 kcmil = 0.14 inches (3.56mm)

Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# 3/C [#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		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
AL140S85-002	2(7)		0.268	6.8	0.578	14.7	0.658	16.7	8	1.624	41.3	11.4	289	1171	1743	7015	3182	96/54.5	2.44/1.38	5000	1524
AL140S85-001	1(19)		0.299	7.6	0.609	15.5	0.689	17.5	6	1.751	44.5	12.3	311	1404	2089	8361	3792	104/56.5	2.64/1.44	5000	1524
AL140S85-010	1/0(19)		0.336	8.5	0.646	16.4	0.726	18.4	6	1.831	46.5	12.8	326	1539	2290	9037	4099	104/56.5	2.64/1.44	5000	1524
AL140S85-020	2/0(19)		0.376	9.6	0.686	17.4	0.766	19.5	6	1.918	48.7	13.4	341	1697	2526	10041	4555	108/70.5	2.74/1.79	5000	1524
AL140S85-030	3/0(19)		0.423	10.7	0.733	18.6	0.813	20.7	6	2.019	51.3	14.1	359	1890	2813	11006	4992	108/70.5	2.74/1.79	5000	1524
AL140S85-040	4/0(19)		0.475	12.1	0.785	19.9	0.865	22.0	6	2.132	54.1	14.9	379	2121	3157	11419	5179	108/70.5	2.74/1.79	4650	1417
AL140S85-250	250(37)		0.520	13.2	0.840	21.3	0.920	23.4	4	2.250	57.2	15.8	400	2404	3578	12374	5613	108/70.5	2.74/1.79	4500	1372
AL140S85-350	350(37)		0.616	15.6	0.936	23.8	1.016	25.8	4	2.458	62.4	17.2	437	2893	4305	11824	5363	108/70.5	2.74/1.79	3550	1082
AL140S85-500	500(37)		0.736	18.7	1.056	26.8	1.136	28.9	3	2.717	69.0	19.0	483	3614	5378	11674	5295	108/70.5	2.74/1.79	2800	853
AL140S85-750	750(61)		0.908	23.1	1.238	31.4	1.318	33.5	2	3.170	80.5	22.2	564	4978	7409	10018	4544	108/70.5	2.74/1.79	1700	518
AL140S85-1000	1000(61)		1.060	26.9	1.390	35.3	1.470	37.3	2	3.498	88.9	24.5	622	6066	9028	10654	4833	108/70.5	2.74/1.79	1500	457

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 ***

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

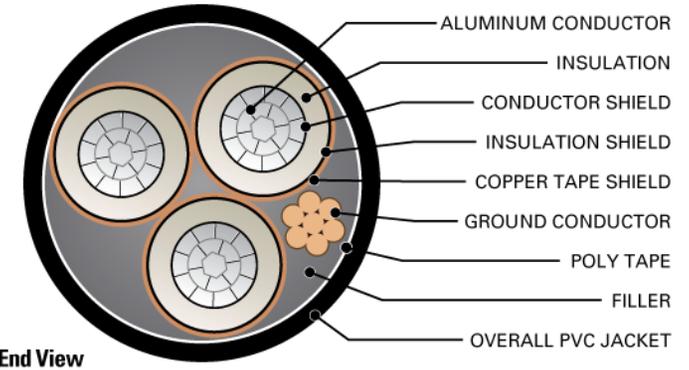


TABLE 2 - ENGINEERING SPECIFICATIONS

HVTC Product Code	Maximum Pulling Tension		DC Resistance @ 25°C R _{DC}		AC Resistance @ 90°C 60 Hz (triplex formation) R _{AC}		Inductance L		Capacitance C		Inductive Reactance @ 60Hz (triplexed) X _L		Capacitive Reactance @ 60Hz (triplexed) X _C		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
AL140S85-002	1194	5313	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 + j0.043	0.707 + j0.491	2.9	135	157
AL140S85-001	1506	6701	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 + j0.041	0.640 + j0.474	3.7	154	178
AL140S85-010	1901	8455	0.168	0.551	0.211	0.693	0.0974	0.3196	0.0752	0.2467	0.0367	0.1205	0.0353	0.0108	0.211 + j0.040	0.587 + j0.455	4.7	176	202
AL140S85-020	2396	10657	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 + j0.039	0.543 + j0.434	5.9	204	229
AL140S85-030	3020	13435	0.105	0.345	0.132	0.433	0.0911	0.2989	0.0894	0.2933	0.0343	0.1127	0.0297	0.0090	0.132 + j0.037	0.507 + j0.412	7.4	234	260
AL140S85-040	3809	16942	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 + j0.036	0.479 + j0.390	9.4	268	294
AL140S85-250	4500	20017	0.071	0.232	0.089	0.292	0.0868	0.2848	0.1025	0.3362	0.0327	0.1074	0.0259	0.0079	0.089 + j0.035	0.460 + j0.368	11.1	296	323
AL140S85-350	6300	28024	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 + j0.034	0.428 + j0.332	15.5	363	386
AL140S85-500	9000	40034	0.035	0.116	0.045	0.148	0.0796	0.2611	0.1361	0.4467	0.0300	0.0984	0.0195	0.0059	0.045 + j0.032	0.399 + j0.294	22.2	447	465
AL140S85-750	13500	60051	0.024	0.077	0.031	0.100	0.0765	0.2509	0.1585	0.5201	0.0288	0.0946	0.0167	0.0051	0.031 + j0.031	0.367 + j0.247	33.2	566	563
AL140S85-1000	18000	80068	0.018	0.058	0.023	0.077	0.0741	0.2431	0.1813	0.5949	0.0279	0.0916	0.0146	0.0045	0.024 + j0.029	0.344 + j0.216	44.3	661	638

* 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.

