



CSA TRAY RATED

HVTC SPECIFICATIONS

HVTC AL 1/C 220EPR TS PVC 15KV 133% CSA



PRODUCT HIGHLIGHTS

Southwire's 15KV 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: 0.22 inches (5.59mm) - 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

- Red PVC (optional colours available)
- Nominal Thickness:
No.2 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] CPT AL 220 EPR 15KV 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
AL220H69-002	2(7)	0.268	6.8	0.738	18.7	0.818	20.8	0.998	25.3	12.0	304	494	735	3164	1435	72/42	1.83/1.07	6000	1829
AL220H69-001	1(19)	0.299	7.6	0.769	19.5	0.849	21.6	1.029	26.1	12.3	314	530	789	3383	1534	72/42	1.83/1.07	6000	1829
AL220H69-010	1/0(19)	0.336	8.5	0.806	20.5	0.886	22.5	1.066	27.1	12.8	325	575	856	4200	1905	78/54	1.98/1.37	6000	1829
AL220H69-020	2/0(19)	0.376	9.6	0.846	21.5	0.926	23.5	1.106	28.1	13.3	337	627	933	4512	2047	78/54	1.98/1.37	6000	1829
AL220H69-030	3/0(19)	0.423	10.7	0.893	22.7	0.973	24.7	1.153	29.3	13.8	351	690	1027	4890	2218	78/54	1.98/1.37	6000	1829
AL220H69-040	4/0(19)	0.475	12.1	0.945	24.0	1.025	26.0	1.205	30.6	14.5	367	765	1139	5341	2423	78/54	1.98/1.37	6000	1829
AL220H69-250	250(37)	0.520	13.2	1.000	25.4	1.080	27.4	1.260	32.0	15.1	384	841	1252	5796	2629	78/54	1.98/1.37	6000	1829
AL220H69-350	350(37)	0.616	15.6	1.096	27.8	1.176	29.9	1.356	34.4	16.3	413	998	1485	7147	3242	96/54.5	2.44/1.38	6000	1829
AL220H69-500	500(37)	0.736	18.7	1.216	30.9	1.296	32.9	1.476	37.5	17.7	450	1217	1812	8464	3839	96/54.5	2.44/1.38	6000	1829
AL220H69-750	750(61)	0.908	23.1	1.398	35.5	1.478	37.5	1.658	42.1	19.9	505	1580	2351	10819	4908	104/56.5	2.64/1.44	6000	1829
AL220H69-1000	1000(61)	1.060	26.9	1.550	39.4	1.630	41.4	1.870	47.5	22.4	570	2018	3003	13661	6197	108/70.5	2.74/1.79	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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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

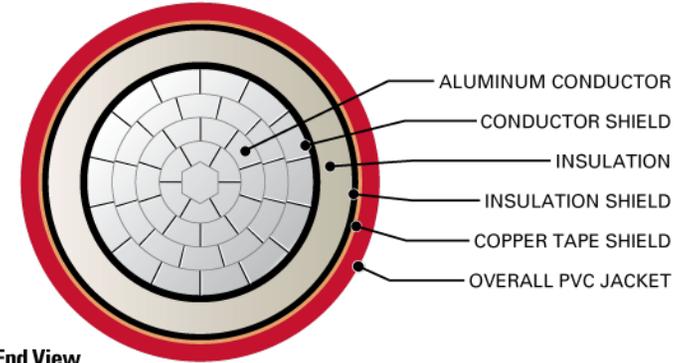
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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 _{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
AL220H69-002	398	1771	0.265	0.869	0.333	1.093	0.1193	0.3915	0.0485	0.1592	0.0450	0.1476	0.0547	0.0167	0.334 + j0.052	0.704 + j0.420	2.9	169	176
AL220H69-001	502	2234	0.211	0.692	0.265	0.870	0.1152	0.3779	0.0520	0.1707	0.0434	0.1424	0.0510	0.0155	0.266 + j0.050	0.635 + j0.406	3.7	194	198
AL220H69-010	634	2818	0.168	0.551	0.211	0.693	0.1109	0.3639	0.0562	0.1843	0.0418	0.1372	0.0472	0.0144	0.212 + j0.048	0.580 + j0.389	4.7	222	223
AL220H69-020	799	3552	0.133	0.436	0.167	0.549	0.1070	0.3511	0.0606	0.1988	0.0403	0.1324	0.0438	0.0133	0.168 + j0.046	0.534 + j0.373	5.9	255	250
AL220H69-030	1007	4478	0.105	0.345	0.132	0.433	0.1031	0.3384	0.0658	0.2158	0.0389	0.1276	0.0403	0.0123	0.133 + j0.045	0.496 + j0.354	7.4	290	278
AL220H69-040	1270	5647	0.084	0.274	0.105	0.345	0.0995	0.3265	0.0714	0.2344	0.0375	0.1231	0.0371	0.0113	0.106 + j0.043	0.466 + j0.336	9.4	329	309
AL220H69-250	1500	6672	0.071	0.232	0.089	0.292	0.0974	0.3197	0.0752	0.2466	0.0367	0.1205	0.0353	0.0108	0.090 + j0.042	0.445 + j0.318	11.1	370	347
AL220H69-350	2100	9341	0.051	0.166	0.064	0.209	0.0927	0.3041	0.0853	0.2799	0.0349	0.1147	0.0311	0.0095	0.064 + j0.040	0.412 + j0.288	15.5	446	402
AL220H69-500	3000	13345	0.035	0.116	0.045	0.147	0.0882	0.2893	0.0979	0.3212	0.0332	0.1091	0.0271	0.0083	0.046 + j0.038	0.382 + j0.257	22.2	533	451
AL220H69-750	4500	20017	0.024	0.077	0.030	0.100	0.0839	0.2752	0.1139	0.3736	0.0316	0.1038	0.0233	0.0071	0.031 + j0.035	0.349 + j0.218	33.2	631	500
AL220H69-1000	6000	26689	0.018	0.058	0.023	0.076	0.0807	0.2649	0.1293	0.4244	0.0304	0.0999	0.0205	0.0063	0.024 + j0.035	0.327 + j0.192	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.

