



**CSA TRAY RATED**

**HVTC SPECIFICATIONS**

**HVTC AL 3/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
- 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**

- Red PVC (optional colours available)
- Nominal Thickness:  
No.2 AWG to 250 kcmil = 0.11 inches (2.79mm)  
350 kcmil to 750 kcmil = 0.14 inches (3.56mm)

**Typical Print Legend**

- (CSA) SOUTHWIRE (NESC) #P# 3/C [#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		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		
AL220Q50-002	2(7)	0.268	6.8	0.738	18.7	0.818	20.8	8	2.030	51.6	14.2	361	1714	2551	10125	4593	108/70.5	2.74/1.79	5000	1524		
AL220Q50-001	1(19)	0.299	7.6	0.769	19.5	0.849	21.6	6	2.097	53.3	14.7	373	1868	2780	10241	4645	108/70.5	2.74/1.79	4650	1417		
AL220Q50-010	1/0(19)	0.336	8.5	0.806	20.5	0.886	22.5	6	2.177	55.3	15.2	387	2020	3006	10646	4829	108/70.5	2.74/1.79	4500	1372		
AL220Q50-020	2/0(19)	0.376	9.6	0.846	21.5	0.926	23.5	6	2.263	57.5	15.8	402	2197	3269	11111	5040	108/70.5	2.74/1.79	4350	1326		
AL220Q50-030	3/0(19)	0.423	10.7	0.893	22.7	0.973	24.7	6	2.365	60.1	16.6	420	2411	3589	10477	4753	108/70.5	2.74/1.79	3700	1128		
AL220Q50-040	4/0(19)	0.475	12.1	0.945	24.0	1.025	26.0	6	2.477	62.9	17.3	440	2666	3968	11021	4999	108/70.5	2.74/1.79	3550	1082		
AL220Q50-250	250(37)	0.520	13.2	1.000	25.4	1.080	27.4	4	2.596	65.9	18.2	462	2975	4427	10331	4686	108/70.5	2.74/1.79	2950	899		
AL220Q50-350	350(37)	0.616	15.6	1.096	27.8	1.176	29.9	4	2.863	72.7	20.0	509	3666	5456	9987	4530	108/70.5	2.74/1.79	2300	701		
AL220Q50-500	500(37)	0.736	18.7	1.216	30.9	1.296	32.9	3	3.123	79.3	21.9	555	4457	6633	9132	4142	108/70.5	2.74/1.79	1700	518		
AL220Q50-750	750(61)	0.908	23.1	1.398	35.5	1.478	37.5	2	3.516	89.3	24.6	625	5751	8559	10182	4619	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.





**CSA TRAY RATED**

HVTC SPECIFICATIONS

# HVTC AL 3/C 220EPR TS PVC 15KV 133% CSA



## 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

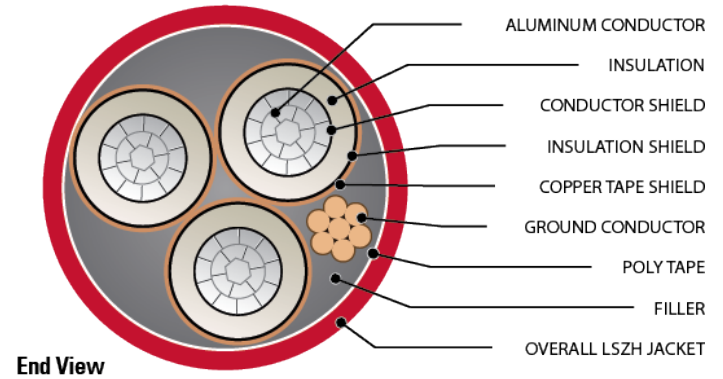
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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 <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					
AL220Q50-002	1194	5313	0.265	0.869	0.333	1.093	0.1193	0.3915	0.0485	0.1592	0.0450	0.1476	0.0547	0.0167	0.333 + j0.048	0.708 + j0.421	2.9	135	157
AL220Q50-001	1506	6701	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 + j0.046	0.639 + j0.406	3.7	154	178
AL220Q50-010	1901	8455	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 + j0.044	0.584 + j0.390	4.7	176	202
AL220Q50-020	2396	10657	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 + j0.043	0.537 + j0.373	5.9	204	229
AL220Q50-030	3020	13435	0.105	0.345	0.132	0.433	0.1031	0.3384	0.0658	0.2158	0.0389	0.1276	0.0403	0.0123	0.132 + j0.041	0.499 + j0.354	7.4	234	260
AL220Q50-040	3809	16942	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 + j0.040	0.469 + j0.336	9.4	268	294
AL220Q50-250	4500	20017	0.071	0.232	0.089	0.292	0.0974	0.3197	0.0752	0.2466	0.0367	0.1205	0.0353	0.0108	0.089 + j0.039	0.448 + j0.317	11.1	296	323
AL220Q50-350	6300	28024	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 + j0.037	0.414 + j0.288	15.5	363	386
AL220Q50-500	9000	40034	0.035	0.116	0.045	0.147	0.0882	0.2893	0.0979	0.3212	0.0332	0.1091	0.0271	0.0083	0.045 + j0.035	0.383 + j0.257	22.2	447	465
AL220Q50-750	13500	60051	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 + j0.033	0.350 + j0.218	33.2	566	563

\* 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.

