



**CSA TRAY RATED**

**HVTC SPECIFICATIONS**  
**HVTC AL 1/C 220TRXLPE 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**

- TR-XLPE - (Tree Retardent Cross Linked Polyethylene)
- 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 TRXLPE 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
AL220X83-002	2(7)	0.268	6.8	0.738	18.7	0.818	20.8	0.998	25.3	12.0	304	461	687	2968	1346	72/42	1.83/1.07	6000	1829
AL220X83-001	1(19)	0.299	7.6	0.769	19.5	0.849	21.6	1.029	26.1	12.3	314	496	738	3175	1440	72/42	1.83/1.07	6000	1829
AL220X83-010	1/0(19)	0.336	8.5	0.806	20.5	0.886	22.5	1.066	27.1	12.8	325	538	801	3979	1805	78/54	1.98/1.37	6000	1829
AL220X83-020	2/0(19)	0.376	9.6	0.846	21.5	0.926	23.5	1.106	28.1	13.3	337	588	874	4276	1939	78/54	1.98/1.37	6000	1829
AL220X83-030	3/0(19)	0.423	10.7	0.893	22.7	0.973	24.7	1.153	29.3	13.8	351	648	964	4636	2103	78/54	1.98/1.37	6000	1829
AL220X83-040	4/0(19)	0.475	12.1	0.945	24.0	1.025	26.0	1.205	30.6	14.5	367	719	1071	5067	2298	78/54	1.98/1.37	6000	1829
AL220X83-250	250(37)	0.520	13.2	1.000	25.4	1.080	27.4	1.260	32.0	15.1	384	792	1178	5501	2495	78/54	1.98/1.37	6000	1829
AL220X83-350	350(37)	0.616	15.6	1.096	27.8	1.176	29.9	1.356	34.4	16.3	413	943	1403	6815	3091	96/54.5	2.44/1.38	6000	1829
AL220X83-500	500(37)	0.736	18.7	1.216	30.9	1.296	32.9	1.476	37.5	17.7	450	1155	1718	8087	3668	96/54.5	2.44/1.38	6000	1829
AL220X83-750	750(61)	0.908	23.1	1.398	35.5	1.478	37.5	1.658	42.1	19.9	505	1505	2240	10374	4706	104/56.5	2.64/1.44	6000	1829
AL220X83-1000	1000(61)	1.060	26.9	1.550	39.4	1.630	41.4	1.870	47.5	22.4	570	1934	2878	13159	5969	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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**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

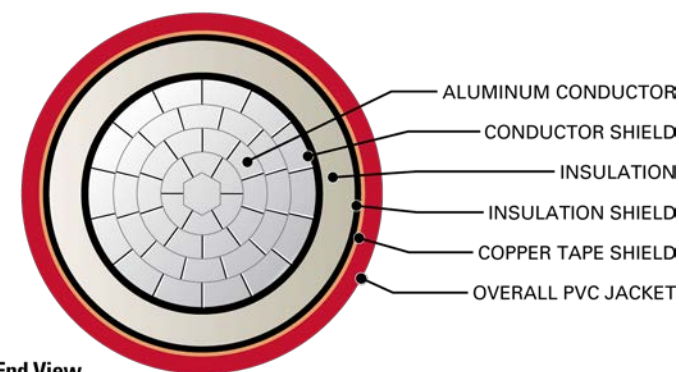
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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	Ω / 1000ft	Ω / 1000ft	kAmps	Amps	Amps
AL220X83-002	398	1771	0.265	0.869	0.333	1.093	0.1193	0.3915	0.0385	0.1263	0.0450	0.1476	0.0689	0.0210	0.334 + j0.052	0.704 + j0.420	3.1	169	176
AL220X83-001	502	2234	0.211	0.692	0.265	0.870	0.1152	0.3779	0.0413	0.1354	0.0434	0.1424	0.0643	0.0196	0.266 + j0.050	0.635 + j0.406	3.9	194	198
AL220X83-010	634	2818	0.168	0.551	0.211	0.693	0.1109	0.3639	0.0445	0.1462	0.0418	0.1372	0.0595	0.0181	0.212 + j0.048	0.580 + j0.389	5.0	222	223
AL220X83-020	799	3552	0.133	0.436	0.167	0.549	0.1070	0.3511	0.0481	0.1577	0.0403	0.1324	0.0552	0.0168	0.168 + j0.046	0.534 + j0.373	6.3	255	250
AL220X83-030	1007	4478	0.105	0.345	0.132	0.433	0.1031	0.3384	0.0522	0.1712	0.0389	0.1276	0.0509	0.0155	0.133 + j0.045	0.496 + j0.354	7.9	290	278
AL220X83-040	1270	5647	0.084	0.274	0.105	0.345	0.0995	0.3265	0.0567	0.1859	0.0375	0.1231	0.0468	0.0143	0.106 + j0.043	0.466 + j0.336	9.9	329	309
AL220X83-250	1500	6672	0.071	0.232	0.089	0.292	0.0974	0.3197	0.0596	0.1956	0.0367	0.1205	0.0445	0.0136	0.090 + j0.042	0.445 + j0.318	11.8	370	347
AL220X83-350	2100	9341	0.051	0.166	0.064	0.209	0.0927	0.3041	0.0676	0.2220	0.0349	0.1147	0.0392	0.0120	0.064 + j0.040	0.412 + j0.288	16.5	446	402
AL220X83-500	3000	13345	0.035	0.116	0.045	0.147	0.0882	0.2893	0.0776	0.2547	0.0332	0.1091	0.0342	0.0104	0.046 + j0.038	0.382 + j0.257	23.5	533	451
AL220X83-750	4500	20017	0.024	0.077	0.030	0.100	0.0839	0.2752	0.0903	0.2963	0.0316	0.1038	0.0294	0.0090	0.031 + j0.035	0.349 + j0.218	35.3	631	500
AL220X83-1000	6000	26689	0.018	0.058	0.023	0.076	0.0807	0.2649	0.1026	0.3366	0.0304	0.0999	0.0259	0.0079	0.024 + j0.035	0.327 + j0.192	47.0	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.

