



**CSA TRAY RATED**

**HVTC SPECIFICATIONS**

# HVTC AL 1/C 280EPR TS PVC 28KV 100% CSA



## PRODUCT HIGHLIGHTS

Southwire's 28KV 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: 0.28 inches (7.11mm) - nominal
- Insulation level: 100% - grounded system
- 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.1 AWG to 500 kcmil = 0.08 inches (2.03mm)  
750 kcmil = 0.11 inches (2.79mm)

### Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CPT AL 280 EPR 28KV 100% 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	
AL280U49-001	1(19)	0.299	7.6	0.889	22.6	0.969	24.6	1.149	29.2	13.8	350	642	955	4601	2087	78/54	1.98/1.37	6000	1829	
AL280U49-010	1/0(19)	0.336	8.5	0.926	23.5	1.006	25.6	1.186	30.1	14.2	361	690	1027	4889	2218	78/54	1.98/1.37	6000	1829	
AL280U49-020	2/0(19)	0.376	9.6	0.966	24.5	1.046	26.6	1.226	31.1	14.7	374	746	1109	5223	2369	78/54	1.98/1.37	6000	1829	
AL280U49-030	3/0(19)	0.423	10.7	1.013	25.7	1.093	27.8	1.273	32.3	15.3	388	813	1210	5628	2553	78/54	1.98/1.37	6000	1829	
AL280U49-040	4/0(19)	0.475	12.1	1.065	27.1	1.145	29.1	1.325	33.7	15.9	404	893	1329	6107	2770	78/54	1.98/1.37	6000	1829	
AL280U49-250	250(37)	0.520	13.2	1.120	28.4	1.200	30.5	1.380	35.1	16.6	421	974	1449	7001	3176	96/54.5	2.44/1.38	6000	1829	
AL280U49-350	350(37)	0.616	15.6	1.216	30.9	1.296	32.9	1.476	37.5	17.7	450	1140	1696	7996	3627	96/54.5	2.44/1.38	6000	1829	
AL280U49-500	500(37)	0.736	18.7	1.336	33.9	1.416	36.0	1.596	40.5	19.2	486	1370	2039	9563	4338	104/56.5	2.64/1.44	6000	1829	
AL280U49-750	750(61)	0.908	23.1	1.518	38.6	1.598	40.6	1.838	46.7	22.1	560	1850	2754	12657	5741	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

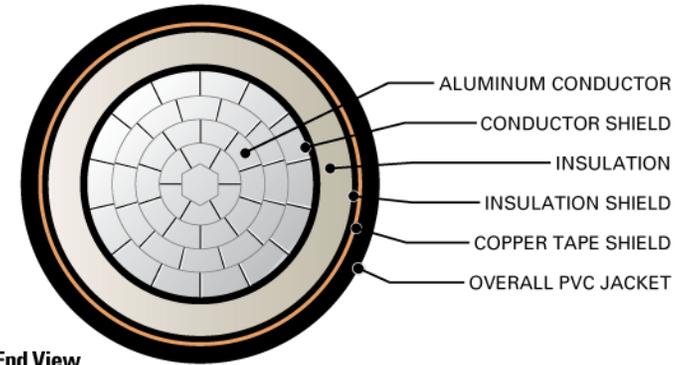
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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 <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					
AL280U49-001	502	2234	0.211	0.692	0.265	0.870	0.1240	0.4069	0.0451	0.1480	0.0467	0.1534	0.0588	0.0179	0.266 + j0.053	0.630 + j0.364	3.7	193	194
AL280U49-010	634	2818	0.168	0.551	0.211	0.693	0.1194	0.3917	0.0485	0.1591	0.0450	0.1477	0.0547	0.0167	0.212 + j0.051	0.573 + j0.349	4.7	221	219
AL280U49-020	799	3552	0.133	0.436	0.167	0.549	0.1151	0.3776	0.0521	0.1709	0.0434	0.1424	0.0509	0.0155	0.168 + j0.049	0.526 + j0.335	5.9	253	246
AL280U49-030	1007	4478	0.105	0.345	0.132	0.433	0.1108	0.3636	0.0563	0.1846	0.0418	0.1371	0.0471	0.0144	0.133 + j0.047	0.487 + j0.319	7.4	288	275
AL280U49-040	1270	5647	0.084	0.274	0.105	0.345	0.1068	0.3504	0.0609	0.1997	0.0403	0.1321	0.0436	0.0133	0.106 + j0.045	0.456 + j0.302	9.4	327	305
AL280U49-250	1500	6672	0.071	0.232	0.089	0.292	0.1043	0.3424	0.0641	0.2102	0.0393	0.1291	0.0414	0.0126	0.090 + j0.044	0.435 + j0.287	11.1	367	343
AL280U49-350	2100	9341	0.051	0.166	0.064	0.209	0.0990	0.3249	0.0723	0.2371	0.0373	0.1225	0.0367	0.0112	0.064 + j0.042	0.400 + j0.261	15.5	443	399
AL280U49-500	3000	13345	0.035	0.116	0.045	0.147	0.0939	0.3081	0.0824	0.2705	0.0354	0.1162	0.0322	0.0098	0.046 + j0.039	0.370 + j0.234	22.2	529	451
AL280U49-750	4500	20017	0.024	0.077	0.030	0.099	0.0889	0.2917	0.0956	0.3138	0.0335	0.1100	0.0277	0.0085	0.031 + j0.038	0.337 + j0.200	33.2	633	505

\* 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.

