HVTECK SPECIFICATIONS

HVTECK AL 3/C 280EPR TS PVC AIA PVC 28KV 100% CSA

PRODUCT HIGHLIGHTS

Southwire's 28KV HVTECK is a CSA armoured cable for industrial and commercial medium voltage applications. Rated FT4, -40°C, Hazardous Locations (HL) and 105°C for use in harsh Canadian environments. For installation in cable trays, duct banks, direct burial, troughs, continuous rigid cable supports and concrete encaseable.

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
- 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

Inner Jacket
- Black PVC
- Thickness:
  No.1 AWG to No.3/0 AWG = 0.11 inches (2.79mm)
  No.4/0 AWG to 500 kcmil = 0.14 inches (3.56mm)

Armour
- Aluminum Interlocked Armour (AIA)
- Optional Galvanized Steel Interlocked Armour (GSIA)

Overall Jacket
- Black PVC (optional colours available)
- Nominal Thickness:
  No.1 AWG to No.3/0 AWG = 0.075 inches (1.91mm)
  No.4/0 AWG to 500 kcmil = 0.085 inches (2.16mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CPT AL 280 EPR AIA 28KV 100% INS LEVEL 25% TS SUN RES 105° FT4 HL (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

TABLE 1 - WEIGHTS & MEASUREMENTS

	Conductor Size *	Conductor Diameter		Diameter Over Insulation		Diameter Over Insulation Shield		Bonding Cond. Size	Diameter Over Inner Jacket		Diameter Over Armour		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 **	
HVTECK Product Code	AWG or Kcmil	inches	mm	inches	mm	inches	mm	AWG	inches	mm	inches	mm	inches	mm	inches	mm	lb / 1000ft	kg/km	lbs	kg	inches	m	feet	m
AL280V64-001	1(19)	0.299	7.6	0.889	22.6	0.969	24.6	6	2.356	59.8	2.686	68.2	2.836	72.0	19.9	504	3131	4660	8757	3972	108/70.5	2.74/1.79	2300	701
AL280V64-010	1/0(19)	0.336	8.5	0.926	23.5	1.006	25.6	6	2.436	61.9	2.766	70.3	2.916	74.1	20.4	518	3311	4927	8839	4009	108/70.5	2.74/1.79	2200	671
AL280V64-020	2/0(19)	0.376	9.6	0.966	24.5	1.046	26.6	6	2.523	64.1	2.853	72.5	3.003	76.3	21.0	534	3517	5233	9116	4135	108/70.5	2.74/1.79	2150	655
AL280V64-030	3/0(19)	0.423	10.7	1.013	25.7	1.093	27.8	6	2.624	66.7	2.954	75.0	3.104	78.8	21.7	552	3764	5602	9272	4206	108/70.5	2.74/1.79	2050	625
AL280V64-040	4/0(19)	0.475	12.1	1.065	27.1	1.145	29.1	6	2.796	71.0	3.126	79.4	3.296	83.7	23.1	586	4298	6395	8431	3824	108/70.5	2.74/1.79	1600	488
AL280V64-250	250(37)	0.520	13.2	1.120	28.4	1.200	30.5	4	2.915	74.0	3.245	82.4	3.415	86.7	23.9	607	4650	6920	8530	3869	108/70.5	2.74/1.79	1500	457
AL280V64-350	350(37)	0.616	15.6	1.216	30.9	1.296	32.9	4	3.123	79.3	3.453	87.7	3.623	92.0	25.4	644	5256	7821	7336	3328	108/70.5	2.74/1.79	1100	335
AL280V64-500	500(37)	0.736	18.7	1.336	33.9	1.416	36.0	3	3.382	85.9	3.712	94.3	3.882	98.6	27.2	690	6117	9102	7977	3618	108/70.5	2.74/1.79	1050	320

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. 174 - Cables in Hazardous Locations
- ICEA S-93-639 (NEMA WC 74) 5 to 46 kV - Shielded Power Cable
- AEIC CS-8 - Qualification Testing Requirements

Flame Test Ratings

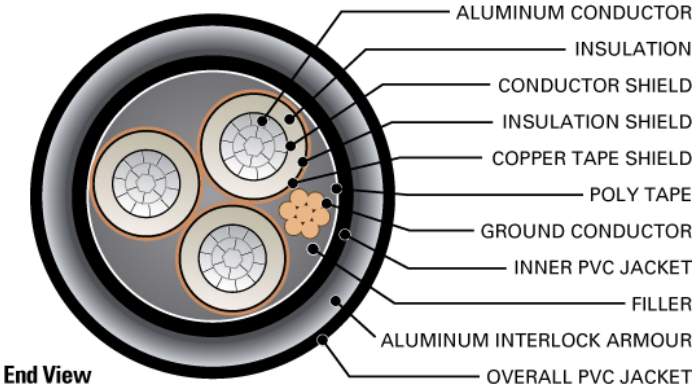
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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 HL - for Hazardous Locations rating
- CSA FT4 - for Flame Retardancy rating
- CSA SUN RES - for Sunlight Resistant rating

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

HVTECK 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 Buries 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
AL280V64-001	1506	6701	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 + j0.049	0.633 + j0.364	3.7	158	177
AL280V64-010	1901	8455	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 + j0.047	0.576 + j0.349	4.7	181	200
AL280V64-020	2396	10657	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 + j0.046	0.529 + j0.335	5.9	208	228
AL280V64-030	3020	13435	0.105	0.345	0.132	0.433	0.1108	0.3636	0.0563	0.1846	0.0418	0.1371	0.0471	0.0144	0.132 + j0.044	0.490 + j0.319	7.4	239	258
AL280V64-040	3809	16942	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 + j0.042	0.458 + j0.302	9.4	273	292
AL280V64-250	4500	20017	0.071	0.232	0.089	0.292	0.1043	0.3424	0.0641	0.2102	0.0393	0.1291	0.0414	0.0126	0.089 + j0.041	0.437 + j0.286	11.1	302	321
AL280V64-350	6300	28024	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 + j0.039	0.402 + j0.261	15.5	368	385
AL280V64-500	9000	40034	0.035	0.116	0.045	0.147	0.0939	0.3081	0.0824	0.2705	0.0354	0.1162	0.0322	0.0098	0.045 + j0.037	0.371 + j0.234	22.2	454	462

* 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

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SPS_V64_INDUSTRIAL-E(06/23/2016) Rev: 3.05R