Southwire® CANADA

HVTECK SPECIFICATIONS

HVTECK AL 3/C 220TRXLPE TS PVC AIA PVC 15KV 133% CSA

PRODUCT HIGHLIGHTS

Southwire's 15KV 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
- 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
- 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.2 AWG to 250 kcmil = 0.11 inches (2.79mm)
  350 kcmil to 750 kcmil = 0.14 inches (3.56mm)

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

Overall Jacket
- Red PVC (optional colours available)
- Nominal Thickness:
  No.2 AWG to 250 kcmil = 0.075 inches (1.91mm)
  350 kcmil to 750 kcmil = 0.085 inches (2.16mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CPT AL 220 TRXLPE AIA 15KV 133% INS LEVEL 25% TS SUN RES 105° FT4 HL (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

TABLE 1 - WEIGHTS & MEASUREMENTS

HVTECK Product Code	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 **	
	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
AL220W72-002	2(7)	0.268	6.8	0.738	18.7	0.818	20.8	8	2.030	51.6	2.360	59.9	2.510	63.8	17.6	446	2414	3593	8918	4045	108/70.5	2.74/1.79	3050	930
AL220W72-001	1(19)	0.299	7.6	0.769	19.5	0.849	21.6	6	2.097	53.3	2.427	61.6	2.577	65.5	18.0	458	2577	3836	9159	4154	108/70.5	2.74/1.79	2950	899
AL220W72-010	1/0(19)	0.336	8.5	0.806	20.5	0.886	22.5	6	2.177	55.3	2.507	63.7	2.657	67.5	18.6	472	2740	4078	9227	4185	108/70.5	2.74/1.79	2800	853
AL220W72-020	2/0(19)	0.376	9.6	0.846	21.5	0.926	23.5	6	2.263	57.5	2.593	65.9	2.743	69.7	19.2	488	2927	4356	9751	4423	108/70.5	2.74/1.79	2800	853
AL220W72-030	3/0(19)	0.423	10.7	0.893	22.7	0.973	24.7	6	2.365	60.1	2.695	68.4	2.845	72.3	19.9	506	3153	4692	8806	3994	108/70.5	2.74/1.79	2300	701
AL220W72-040	4/0(19)	0.475	12.1	0.945	24.0	1.025	26.0	6	2.477	62.9	2.807	71.3	2.957	75.1	20.7	526	3418	5087	9075	4116	108/70.5	2.74/1.79	2200	671
AL220W72-250	250(37)	0.520	13.2	1.000	25.4	1.080	27.4	4	2.596	65.9	2.926	74.3	3.076	78.1	21.5	547	3736	5560	9214	4180	108/70.5	2.74/1.79	2050	625
AL220W72-350	350(37)	0.616	15.6	1.096	27.8	1.176	29.9	4	2.863	72.7	3.193	81.1	3.363	85.4	23.5	598	4530	6741	8803	3993	108/70.5	2.74/1.79	1600	488
AL220W72-500	500(37)	0.736	18.7	1.216	30.9	1.296	32.9	3	3.123	79.3	3.453	87.7	3.623	92.0	25.4	644	5335	7939	7423	3367	108/70.5	2.74/1.79	1100	335
AL220W72-750	750(61)	0.908	23.1	1.398	35.5	1.478	37.5	2	3.516	89.3	3.846	97.7	4.016	102.0	28.1	714	6634	9873	8521	3865	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

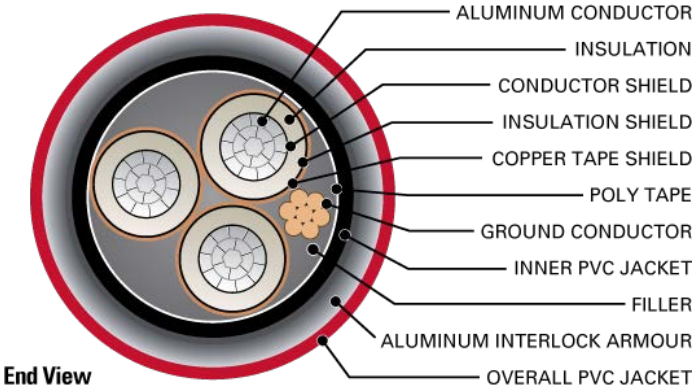
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
AL220W72-002	1194	5313	0.265	0.869	0.333	1.093	0.1193	0.3915	0.0385	0.1263	0.0450	0.1476	0.0689	0.0210	0.333 + j0.048	0.708 + j0.421	3.1	135	157
AL220W72-001	1506	6701	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 + j0.046	0.639 + j0.406	3.9	154	178
AL220W72-010	1901	8455	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 + j0.044	0.584 + j0.390	5.0	176	202
AL220W72-020	2396	10657	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 + j0.043	0.537 + j0.373	6.3	204	229
AL220W72-030	3020	13435	0.105	0.345	0.132	0.433	0.1031	0.3384	0.0522	0.1712	0.0389	0.1276	0.0509	0.0155	0.132 + j0.041	0.499 + j0.354	7.9	234	260
AL220W72-040	3809	16942	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 + j0.040	0.469 + j0.336	9.9	268	294
AL220W72-250	4500	20017	0.071	0.232	0.089	0.292	0.0974	0.3197	0.0596	0.1956	0.0367	0.1205	0.0445	0.0136	0.089 + j0.039	0.448 + j0.317	11.8	296	323
AL220W72-350	6300	28024	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 + j0.037	0.414 + j0.288	16.5	363	386
AL220W72-500	9000	40034	0.035	0.116	0.045	0.147	0.0882	0.2893	0.0776	0.2547	0.0332	0.1091	0.0342	0.0104	0.045 + j0.035	0.383 + j0.257	23.5	447	465
AL220W72-750	13500	60051	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 + j0.033	0.350 + j0.218	35.3	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

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