Southwire® CANADA

HVTECK SPECIFICATIONS

HVTECK AL 3/C 175TRXLPE TS PVC AIA PVC 15KV 100% 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: 0.175 inches (4.45mm) - 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.2 AWG to 350 kcmil = 0.11 inches (2.79mm)
  500 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 No.1 AWG = 0.06 inches (1.52mm)
  No.1/0 AWG to 350 kcmil = 0.075 inches (1.91mm)
  500 kcmil to 750 kcmil = 0.085 inches (2.16mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CPT AL 175 TRXLPE AIA 15KV 100% 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
AL175Q25-002	2(7)	0.268	6.8	0.648	16.5	0.728	18.5	8	1.836	46.6	2.166	55.0	2.286	58.1	16.0	406	1993	2966	9228	4186	108/70.5	2.74/1.79	3850	1173
AL175Q25-001	1(19)	0.299	7.6	0.679	17.2	0.759	19.3	6	1.903	48.3	2.233	56.7	2.353	59.8	16.5	418	2147	3194	9497	4308	108/70.5	2.74/1.79	3700	1128
AL175Q25-010	1/0(19)	0.336	8.5	0.716	18.2	0.796	20.2	6	1.983	50.4	2.313	58.7	2.463	62.5	17.2	438	2366	3521	9955	4515	108/70.5	2.74/1.79	3550	1082
AL175Q25-020	2/0(19)	0.376	9.6	0.756	19.2	0.836	21.2	6	2.069	52.6	2.399	60.9	2.549	64.7	17.8	453	2626	3908	9303	4220	108/70.5	2.74/1.79	2950	899
AL175Q25-030	3/0(19)	0.423	10.7	0.803	20.4	0.883	22.4	6	2.170	55.1	2.500	63.5	2.650	67.3	18.6	471	2844	4232	9518	4317	108/70.5	2.74/1.79	2800	853
AL175Q25-040	4/0(19)	0.475	12.1	0.855	21.7	0.935	23.7	6	2.283	58.0	2.613	66.4	2.763	70.2	19.3	491	3101	4614	10237	4644	108/70.5	2.74/1.79	2800	853
AL175Q25-250	250(37)	0.520	13.2	0.910	23.1	0.990	25.1	4	2.402	61.0	2.732	69.4	2.882	73.2	20.2	512	3410	5074	9397	4262	108/70.5	2.74/1.79	2300	701
AL175Q25-350	350(37)	0.616	15.6	1.006	25.6	1.086	27.6	4	2.609	66.3	2.939	74.6	3.089	78.5	21.6	549	3939	5861	9629	4368	108/70.5	2.74/1.79	2050	625
AL175Q25-500	500(37)	0.736	18.7	1.126	28.6	1.206	30.6	3	2.928	74.4	3.258	82.8	3.428	87.1	24.0	610	4957	7377	8990	4078	108/70.5	2.74/1.79	1500	457
AL175Q25-750	750(61)	0.908	23.1	1.308	33.2	1.388	35.3	2	3.321	84.4	3.651	92.7	3.821	97.1	26.7	679	6225	9264	8092	3670	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

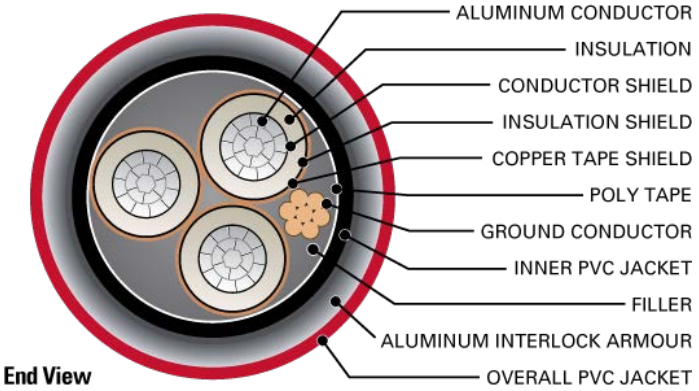
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
AL175Q25-002	1194	5313	0.265	0.869	0.333	1.093	0.1114	0.3655	0.0441	0.1448	0.0420	0.1378	0.0601	0.0183	0.333 + j0.045	0.709 + j0.459	3.1	135	157
AL175Q25-001	1506	6701	0.211	0.692	0.265	0.870	0.1076	0.3530	0.0475	0.1559	0.0406	0.1331	0.0558	0.0170	0.266 + j0.044	0.641 + j0.443	3.9	154	178
AL175Q25-010	1901	8455	0.168	0.551	0.211	0.693	0.1037	0.3402	0.0515	0.1690	0.0391	0.1283	0.0515	0.0157	0.212 + j0.042	0.587 + j0.425	5.0	176	202
AL175Q25-020	2396	10657	0.133	0.436	0.167	0.549	0.1002	0.3286	0.0558	0.1831	0.0378	0.1239	0.0475	0.0145	0.168 + j0.041	0.542 + j0.406	6.3	204	229
AL175Q25-030	3020	13435	0.105	0.345	0.132	0.433	0.0966	0.3171	0.0608	0.1995	0.0364	0.1195	0.0436	0.0133	0.132 + j0.039	0.505 + j0.386	7.9	234	260
AL175Q25-040	3809	16942	0.084	0.274	0.105	0.345	0.0934	0.3065	0.0663	0.2176	0.0352	0.1155	0.0400	0.0122	0.106 + j0.038	0.475 + j0.364	9.9	268	294
AL175Q25-250	4500	20017	0.071	0.232	0.089	0.292	0.0917	0.3008	0.0697	0.2285	0.0346	0.1134	0.0381	0.0116	0.089 + j0.037	0.455 + j0.344	11.8	296	323
AL175Q25-350	6300	28024	0.051	0.166	0.064	0.209	0.0875	0.2870	0.0795	0.2607	0.0330	0.1082	0.0334	0.0102	0.064 + j0.035	0.422 + j0.312	16.5	363	386
AL175Q25-500	9000	40034	0.035	0.116	0.045	0.148	0.0835	0.2739	0.0917	0.3008	0.0315	0.1033	0.0289	0.0088	0.045 + j0.033	0.392 + j0.277	23.5	447	465
AL175Q25-750	13500	60051	0.024	0.077	0.030	0.100	0.0798	0.2619	0.1068	0.3504	0.0301	0.0987	0.0248	0.0076	0.031 + j0.032	0.360 + j0.234	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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