HVTECK SPECIFICATIONS

HVTECK CU 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 compressed stranded copper
  - in accordance with ASTM B3 and ASTM B8

Options
- Class B compact stranded -8000 Series Aluminum -ACM
- Class B compact stranded copper

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 = 0.06 inches (1.52mm)
  No.1 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] CU 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
CU175E35-002	2(7)	0.283	7.2	0.663	16.8	0.743	18.9	6	1.868	47.4	2.198	55.8	2.318	58.9	16.2	412	2487	3702	11132	5049	108/70.5	2.74/1.79	3850	1173
CU175E35-001	1(19)	0.322	8.2	0.702	17.8	0.782	19.9	6	1.952	49.6	2.282	58.0	2.432	61.8	17.0	432	2810	4182	11530	5230	108/70.5	2.74/1.79	3550	1082
CU175E35-010	1/0(19)	0.362	9.2	0.742	18.8	0.822	20.9	6	2.039	51.8	2.369	60.2	2.519	64.0	17.6	448	3193	4752	11295	5123	108/70.5	2.74/1.79	3050	930
CU175E35-020	2/0(19)	0.405	10.3	0.785	19.9	0.865	22.0	6	2.132	54.1	2.462	62.5	2.612	66.3	18.3	464	3559	5296	12054	5468	108/70.5	2.74/1.79	2950	899
CU175E35-030	3/0(19)	0.456	11.6	0.836	21.2	0.916	23.3	4	2.242	56.9	2.572	65.3	2.722	69.1	19.1	484	4059	6041	12920	5861	108/70.5	2.74/1.79	2800	853
CU175E35-040	4/0(19)	0.512	13.0	0.892	22.7	0.972	24.7	4	2.363	60.0	2.693	68.4	2.843	72.2	19.9	505	4608	6858	12154	5513	108/70.5	2.74/1.79	2300	701
CU175E35-250	250(37)	0.558	14.2	0.948	24.1	1.028	26.1	4	2.484	63.1	2.814	71.5	2.964	75.3	20.7	527	4941	7352	12424	5636	108/70.5	2.74/1.79	2200	671
CU175E35-350	350(37)	0.661	16.8	1.051	26.7	1.131	28.7	3	2.706	68.7	3.036	77.1	3.206	81.4	22.4	570	6408	9535	11807	5356	108/70.5	2.74/1.79	1600	488
CU175E35-500	500(37)	0.789	20.0	1.179	29.9	1.259	32.0	3	3.043	77.3	3.373	85.7	3.543	90.0	24.8	630	8330	12396	14050	6373	108/70.5	2.74/1.79	1500	457
CU175E35-750	750(61)	0.968	24.6	1.368	34.7	1.448	36.8	2	3.451	87.7	3.781	96.0	3.951	100.4	27.7	702	11230	16712	13347	6054	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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SPS_E35_INDUSTRIAL-E(07/21/2016) Rev: 3.06R

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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

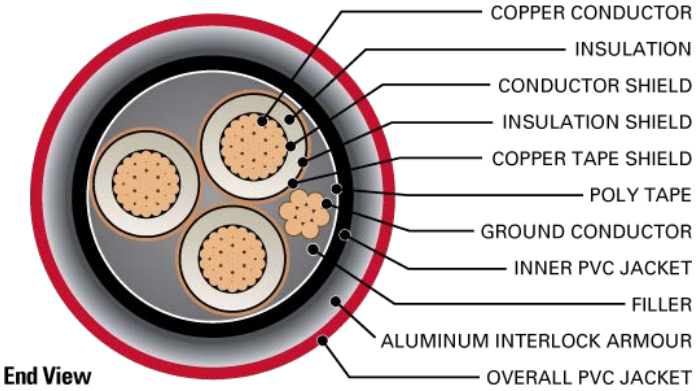
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
CU175E35-002	1593	7084	0.162	0.532	0.203	0.665	0.1095	0.3592	0.0458	0.1502	0.0413	0.1354	0.0579	0.0177	0.203 + j0.044	0.578 + j0.451	4.8	172	201
CU175E35-001	2009	8935	0.129	0.423	0.161	0.530	0.1051	0.3448	0.0500	0.1641	0.0396	0.1300	0.0530	0.0162	0.162 + j0.043	0.537 + j0.431	6.0	197	228
CU175E35-010	2534	11274	0.102	0.335	0.128	0.419	0.1013	0.3325	0.0543	0.1782	0.0382	0.1253	0.0488	0.0149	0.128 + j0.041	0.502 + j0.412	7.6	225	257
CU175E35-020	3194	14209	0.081	0.266	0.101	0.333	0.0979	0.3213	0.0589	0.1932	0.0369	0.1211	0.0450	0.0137	0.102 + j0.040	0.475 + j0.393	9.6	260	292
CU175E35-030	4027	17914	0.064	0.211	0.081	0.264	0.0945	0.3101	0.0643	0.2110	0.0356	0.1169	0.0412	0.0126	0.081 + j0.038	0.451 + j0.372	12.1	297	330
CU175E35-040	5078	22590	0.051	0.167	0.064	0.210	0.0914	0.2999	0.0702	0.2304	0.0345	0.1131	0.0378	0.0115	0.065 + j0.037	0.431 + j0.350	15.2	342	372
CU175E35-250	6000	26689	0.043	0.141	0.054	0.178	0.0899	0.2949	0.0735	0.2413	0.0339	0.1112	0.0361	0.0110	0.055 + j0.036	0.417 + j0.331	18.0	376	410
CU175E35-350	8400	37365	0.031	0.101	0.039	0.129	0.0858	0.2816	0.0841	0.2758	0.0324	0.1062	0.0316	0.0096	0.040 + j0.034	0.394 + j0.298	25.2	460	487
CU175E35-500	12000	53379	0.022	0.071	0.028	0.092	0.0821	0.2692	0.0970	0.3184	0.0309	0.1015	0.0273	0.0083	0.029 + j0.033	0.370 + j0.263	36.0	556	573
CU175E35-750	18000	80068	0.014	0.047	0.020	0.064	0.0787	0.2581	0.1127	0.3698	0.0297	0.0973	0.0235	0.0072	0.020 + j0.031	0.343 + j0.222	53.9	678	668

* 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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