Southwire® CANADA

HVTECK SPECIFICATIONS

HVTECK CU 3/C 345EPR TS PVC AIA PVC 35KV 100% CSA

PRODUCT HIGHLIGHTS

Southwire's 35KV 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
- No-lead EPR (Ethylene Propylene Rubber)
- Thickness: 0.345 inches (8.76mm) - 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.1/0 AWG to 350 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.1/0 AWG to 350 kcmil = 0.085 inches (2.16mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CU 345 EPR AIA 35KV 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
CU345N83-010	1/0(19)	0.362	9.2	1.082	27.5	1.162	29.5	6	2.833	72.0	3.163	80.3	3.333	84.7	23.3	593	4865	7240	9339	4236	108/70.5	2.74/1.79	1600	488
CU345N83-020	2/0(19)	0.405	10.3	1.125	28.6	1.205	30.6	6	2.926	74.3	3.256	82.7	3.426	87.0	24.0	609	5278	7854	9472	4296	108/70.5	2.74/1.79	1500	457
CU345N83-030	3/0(19)	0.456	11.6	1.176	29.9	1.256	31.9	4	3.036	77.1	3.366	85.5	3.536	89.8	24.8	629	5834	8682	10306	4675	108/70.5	2.74/1.79	1500	457
CU345N83-040	4/0(19)	0.512	13.0	1.232	31.3	1.312	33.3	4	3.157	80.2	3.487	88.6	3.657	92.9	25.6	650	6445	9590	8644	3921	108/70.5	2.74/1.79	1100	335
CU345N83-250	250(37)	0.558	14.2	1.288	32.7	1.368	34.7	4	3.278	83.3	3.608	91.6	3.778	96.0	26.4	672	6838	10177	9077	4117	108/70.5	2.74/1.79	1100	335
CU345N83-350	350(37)	0.661	16.8	1.391	35.3	1.471	37.4	3	3.501	88.9	3.831	97.3	4.001	101.6	28.0	711	8359	12439	10332	4686	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_N83_INDUSTRIAL-E(06/23/2016) Rev: 3.05R

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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

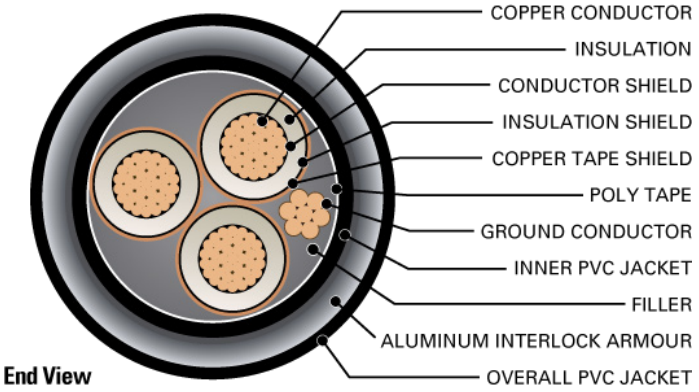
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
CU345N83-010	2534	11274	0.102	0.335	0.128	0.419	0.1243	0.4079	0.0449	0.1473	0.0469	0.1538	0.0591	0.0180	0.128 + j0.049	0.479 + j0.304	7.2	231	256
CU345N83-020	3194	14209	0.081	0.266	0.101	0.333	0.1199	0.3933	0.0481	0.1578	0.0452	0.1483	0.0551	0.0168	0.102 + j0.047	0.449 + j0.291	9.0	265	290
CU345N83-030	4027	17914	0.064	0.211	0.080	0.264	0.1153	0.3784	0.0519	0.1702	0.0435	0.1427	0.0511	0.0156	0.081 + j0.045	0.423 + j0.276	11.4	303	327
CU345N83-040	5078	22590	0.051	0.167	0.064	0.210	0.1111	0.3645	0.0560	0.1836	0.0419	0.1374	0.0474	0.0144	0.065 + j0.044	0.401 + j0.262	14.3	348	369
CU345N83-250	6000	26689	0.043	0.141	0.054	0.178	0.1086	0.3562	0.0588	0.1928	0.0409	0.1343	0.0451	0.0138	0.055 + j0.043	0.385 + j0.249	16.9	384	408
CU345N83-350	8400	37365	0.031	0.101	0.039	0.128	0.1029	0.3377	0.0661	0.2167	0.0388	0.1273	0.0402	0.0122	0.040 + j0.040	0.360 + j0.226	23.7	468	485

* 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_N83_INDUSTRIAL-E(06/23/2016) Rev: 3.05R