Southwire® CANADA

HVTECK SPECIFICATIONS

HVTECK CU 3/C 420EPR TS PVC AIA PVC 35KV 133% 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: 0.42 inches (10.67mm) - 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.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 420 EPR AIA 35KV 133% 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
CU420D64-010	1/0(19)	0.362	9.2	1.232	31.3	1.312	33.3	6	3.157	80.2	3.487	88.6	3.657	92.9	25.6	650	5566	8282	7677	3482	108/70.5	2.74/1.79	1100	335
CU420D64-020	2/0(19)	0.405	10.3	1.275	32.4	1.355	34.4	6	3.250	82.6	3.580	90.9	3.750	95.3	26.3	667	5993	8919	8148	3696	108/70.5	2.74/1.79	1100	335
CU420D64-030	3/0(19)	0.456	11.6	1.326	33.7	1.406	35.7	4	3.360	85.3	3.690	93.7	3.860	98.0	27.0	686	6567	9773	8450	3833	108/70.5	2.74/1.79	1050	320
CU420D64-040	4/0(19)	0.512	13.0	1.382	35.1	1.462	37.1	4	3.481	88.4	3.811	96.8	3.981	101.1	27.9	708	7197	10710	9112	4133	108/70.5	2.74/1.79	1050	320
CU420D64-250	250(37)	0.558	14.2	1.438	36.5	1.518	38.6	4	3.602	91.5	3.932	99.9	4.102	104.2	28.7	729	7610	11325	8785	3985	108/70.5	2.74/1.79	950	290
CU420D64-350	350(37)	0.661	16.8	1.541	39.1	1.621	41.2	3	3.825	97.1	4.155	105.5	4.325	109.8	30.3	769	9166	13641	7972	3616	108/70.5	2.74/1.79	700	213

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

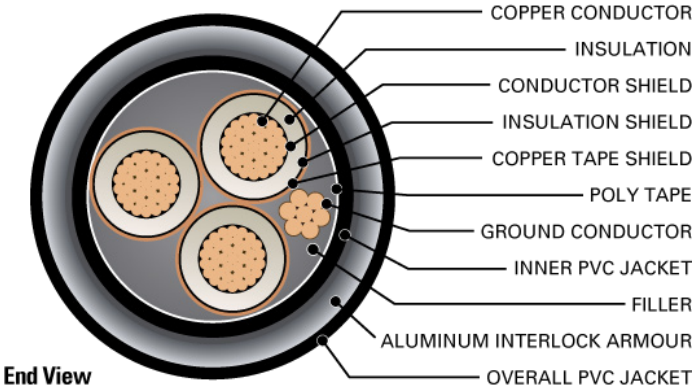
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
CU420D64-010	2534	11274	0.102	0.335	0.128	0.419	0.1322	0.4339	0.0401	0.1317	0.0499	0.1636	0.0661	0.0201	0.128 + j0.052	0.464 + j0.270	7.2	231	256
CU420D64-020	3194	14209	0.081	0.266	0.101	0.333	0.1275	0.4183	0.0429	0.1406	0.0481	0.1577	0.0619	0.0189	0.102 + j0.050	0.434 + j0.259	9.0	265	290
CU420D64-030	4027	17914	0.064	0.211	0.080	0.264	0.1227	0.4024	0.0460	0.1511	0.0462	0.1517	0.0576	0.0176	0.081 + j0.048	0.408 + j0.246	11.4	303	327
CU420D64-040	5078	22590	0.051	0.167	0.064	0.210	0.1181	0.3875	0.0495	0.1624	0.0445	0.1461	0.0536	0.0163	0.065 + j0.046	0.386 + j0.234	14.3	348	369
CU420D64-250	6000	26689	0.043	0.141	0.054	0.178	0.1153	0.3783	0.0519	0.1703	0.0435	0.1426	0.0511	0.0156	0.055 + j0.045	0.370 + j0.223	16.9	384	408
CU420D64-350	8400	37365	0.031	0.101	0.039	0.128	0.1092	0.3582	0.0581	0.1905	0.0412	0.1350	0.0457	0.0139	0.040 + j0.043	0.345 + j0.204	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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