Southwire® CANADA

HVTECK SPECIFICATIONS

HVTECK CU 3/C 320TRXLPE TS PVC AIA PVC 25KV 133% CSA

PRODUCT HIGHLIGHTS

Southwire's 25KV 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: 0.32 inches (8.13mm) - 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 AWG to No.1/0 AWG = 0.11 inches (2.79mm)
  No.2/0 AWG to 500 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 AWG to No.1/0 AWG = 0.075 inches (1.91mm)
  No.2/0 AWG to 500 kcmil = 0.085 inches (2.16mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CU 320 TRXLPE AIA 25KV 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
CU320D98-001	1(19)	0.322	8.2	0.992	25.2	1.072	27.2	6	2.579	65.5	2.909	73.9	3.059	77.7	21.4	544	3883	5778	9515	4316	108/70.5	2.74/1.79	2050	625
CU320D98-010	1/0(19)	0.362	9.2	1.032	26.2	1.112	28.2	6	2.665	67.7	2.995	76.1	3.145	79.9	22.0	559	4209	6264	8711	3951	108/70.5	2.74/1.79	1700	518
CU320D98-020	2/0(19)	0.405	10.3	1.075	27.3	1.155	29.3	6	2.818	71.6	3.148	80.0	3.318	84.3	23.2	590	4843	7208	9304	4220	108/70.5	2.74/1.79	1600	488
CU320D98-030	3/0(19)	0.456	11.6	1.126	28.6	1.206	30.6	4	2.928	74.4	3.258	82.8	3.428	87.1	24.0	610	5380	8006	9624	4366	108/70.5	2.74/1.79	1500	457
CU320D98-040	4/0(19)	0.512	13.0	1.182	30.0	1.262	32.1	4	3.049	77.4	3.379	85.8	3.549	90.1	24.8	631	5968	8882	10507	4766	108/70.5	2.74/1.79	1500	457
CU320D98-250	250(37)	0.558	14.2	1.238	31.4	1.318	33.5	4	3.170	80.5	3.500	88.9	3.670	93.2	25.7	653	6340	9435	8529	3869	108/70.5	2.74/1.79	1100	335
CU320D98-350	350(37)	0.661	16.8	1.341	34.1	1.421	36.1	3	3.393	86.2	3.723	94.6	3.893	98.9	27.2	692	7820	11638	9766	4430	108/70.5	2.74/1.79	1050	320
CU320D98-500	500(37)	0.789	20.0	1.469	37.3	1.549	39.3	3	3.669	93.2	3.999	101.6	4.169	105.9	29.2	741	9631	14333	8297	3763	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

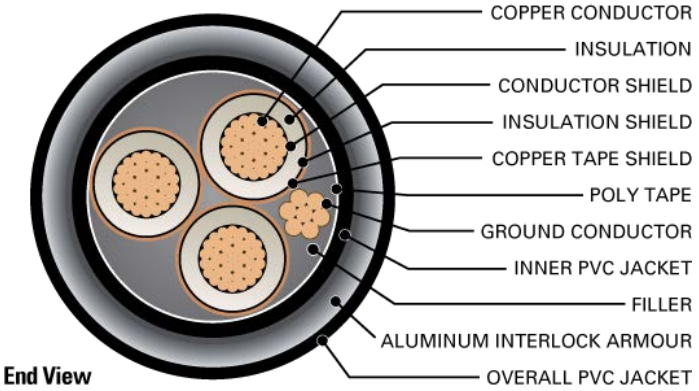
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
CU320D98-001	2009	8935	0.129	0.423	0.161	0.529	0.1262	0.4140	0.0346	0.1137	0.0476	0.1561	0.0766	0.0233	0.162 + j0.050	0.521 + j0.331	6.0	202	226
CU320D98-010	2534	11274	0.102	0.335	0.128	0.419	0.1214	0.3985	0.0372	0.1221	0.0458	0.1502	0.0713	0.0217	0.128 + j0.048	0.484 + j0.317	7.6	231	256
CU320D98-020	3194	14209	0.081	0.266	0.101	0.333	0.1171	0.3842	0.0399	0.1310	0.0441	0.1448	0.0664	0.0202	0.102 + j0.046	0.454 + j0.303	9.6	265	290
CU320D98-030	4027	17914	0.064	0.211	0.080	0.264	0.1127	0.3697	0.0431	0.1415	0.0425	0.1394	0.0615	0.0187	0.081 + j0.044	0.428 + j0.288	12.1	303	327
CU320D98-040	5078	22590	0.051	0.167	0.064	0.210	0.1086	0.3562	0.0466	0.1529	0.0409	0.1343	0.0569	0.0174	0.065 + j0.043	0.406 + j0.272	15.2	348	369
CU320D98-250	6000	26689	0.043	0.141	0.054	0.178	0.1062	0.3483	0.0489	0.1605	0.0400	0.1313	0.0542	0.0165	0.055 + j0.042	0.390 + j0.259	18.0	384	408
CU320D98-350	8400	37365	0.031	0.101	0.039	0.128	0.1007	0.3304	0.0551	0.1808	0.0380	0.1246	0.0481	0.0147	0.040 + j0.040	0.365 + j0.235	25.2	468	485
CU320D98-500	12000	53379	0.022	0.071	0.028	0.091	0.0955	0.3132	0.0627	0.2057	0.0360	0.1181	0.0423	0.0129	0.028 + j0.037	0.341 + j0.210	36.0	565	571

* 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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