Southwire® CANADA

HVTECK SPECIFICATIONS

HVTECK CU 1/C 280EPR CB PVC AIA PVC 28KV 100% CSA

PRODUCT HIGHLIGHTS

Southwire's 28KV 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. When used in a 3 phase system, the combination of each bond conductor from each single conductor cable provide a 100% bonded system to ground.

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: 0.28 inches (7.11mm) - nominal
- Insulation level: 100%
- 105°C rated

Insulation Shield
- Extruded Semi-conducting thermosetting polymeric layer
- CSA 68.10 - Shield Removal/termination requirements are printed on the surface
- Meets requirement of ICEA but built to CSA standards

Copper Full Bond Wire Shield
- Concentrically applied copper bond / shield wires
- *** Complies with greater than the minimum requirement as per Table 44, CSA Standard C68.10 and Table 16A, Canadian Electrical Code Part 1

Inner Jacket
- Black PVC
- Thickness:
  No.1 AWG to 350 kcmil = 0.08 inches (2.03mm)
  500 kcmil to 1000 kcmil = 0.11 inches (2.79mm)

Armour
- Aluminum Interlocked Armour (AIA)
- Optional Galvanized Steel Interlocked Armour (GSIA)

Overall Jacket
- Black PVC (optional colours available)
- Nominal Thickness:
  No.1 AWG to 500 kcmil = 0.06 inches (1.52mm)
  750 kcmil to 1000 kcmil = 0.075 inches (1.91mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# [#AWG or #kcmil] CU 280 EPR AIA 28KV 100% INS LEVEL CB [No. x SIZE] AWG 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		CB Shield ***	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	No. X AWG	inches	mm	inches	mm	inches	mm	inches	mm	lb / 1000ft	kg/km	lbs	kg	inches	m	feet	m
CU280K10-001	1(19)	0.322	8.2	0.912	23.2	0.992	25.2	17X16	1.203	30.6	1.523	38.7	1.643	41.7	19.7	501	1324	1970	9285	4212	104/56.5	2.64/1.44	6000	1829
CU280K10-010	1/0(19)	0.362	9.2	0.952	24.2	1.032	26.2	17X16	1.243	31.6	1.563	39.7	1.683	42.7	20.2	513	1432	2130	9932	4505	104/56.5	2.64/1.44	6000	1829
CU280K10-020	2/0(19)	0.405	10.3	0.995	25.3	1.075	27.3	17X16	1.286	32.7	1.606	40.8	1.726	43.8	20.7	526	1560	2322	10703	4855	104/56.5	2.64/1.44	6000	1829
CU280K10-030	3/0(19)	0.456	11.6	1.046	26.6	1.126	28.6	21X16	1.337	34.0	1.657	42.1	1.777	45.1	21.3	542	1738	2587	11986	5437	108/70.5	2.74/1.79	6000	1829
CU280K10-040	4/0(19)	0.512	13.0	1.102	28.0	1.182	30.0	21X16	1.393	35.4	1.713	43.5	1.833	46.6	22.0	559	1930	2872	13136	5958	108/70.5	2.74/1.79	6000	1829
CU280K10-250	250(37)	0.558	14.2	1.158	29.4	1.238	31.4	27X16	1.449	36.8	1.769	44.9	1.889	48.0	22.7	576	2079	3094	14030	6364	108/70.5	2.74/1.79	6000	1829
CU280K10-350	350(37)	0.661	16.8	1.261	32.0	1.341	34.1	21X14	1.565	39.8	1.895	48.1	2.015	51.2	24.2	614	2662	3961	16328	7406	108/70.5	2.74/1.79	5550	1692
CU280K10-500	500(37)	0.789	20.0	1.389	35.3	1.469	37.3	27X14	1.753	44.5	2.083	52.9	2.203	56.0	26.4	671	3427	5099	16460	7466	108/70.5	2.74/1.79	4350	1326
CU280K10-750	750(61)	0.968	24.6	1.578	40.1	1.658	42.1	33X14	1.942	49.3	2.272	57.7	2.422	61.5	29.1	738	4531	6743	16507	7488	108/70.5	2.74/1.79	3300	1006
CU280K10-1000	1000(61)	1.117	28.4	1.727	43.9	1.807	45.9	33X14	2.091	53.1	2.421	61.5	2.571	65.3	30.9	784	5559	8272	16285	7387	108/70.5	2.74/1.79	2650	808

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.

*** Concentric 1/3 Bond size values are available on request

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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

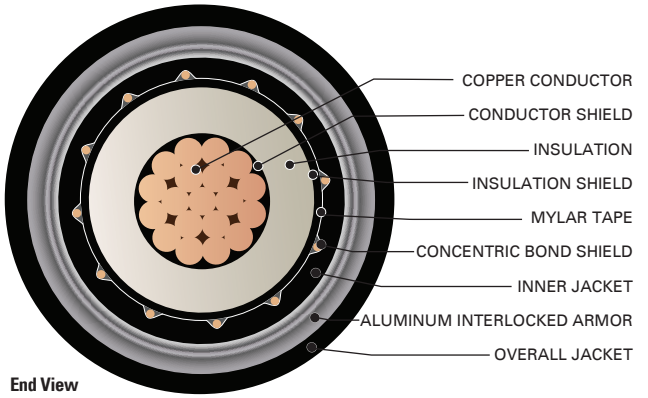
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
CU280K10-001	670	2978	0.129	0.423	0.161	0.529	0.1210	0.3971	0.0472	0.1549	0.0456	0.1497	0.0562	0.0171	0.164 + j0.059	0.383 + j0.118	5.7	245	244
CU280K10-010	845	3758	0.102	0.335	0.128	0.419	0.1165	0.3823	0.0508	0.1668	0.0439	0.1441	0.0522	0.0159	0.130 + j0.057	0.350 + j0.116	7.2	278	272
CU280K10-020	1065	4736	0.081	0.266	0.101	0.333	0.1124	0.3687	0.0547	0.1794	0.0424	0.1390	0.0485	0.0148	0.104 + j0.055	0.323 + j0.115	9.0	316	303
CU280K10-030	1342	5971	0.064	0.211	0.080	0.264	0.1082	0.3550	0.0592	0.1942	0.0408	0.1338	0.0448	0.0137	0.084 + j0.052	0.268 + j0.088	11.4	356	333
CU280K10-040	1693	7530	0.051	0.167	0.064	0.210	0.1043	0.3422	0.0641	0.2104	0.0393	0.1290	0.0414	0.0126	0.067 + j0.051	0.252 + j0.086	14.3	403	367
CU280K10-250	2000	8896	0.043	0.141	0.054	0.178	0.1021	0.3349	0.0673	0.2209	0.0385	0.1263	0.0394	0.0120	0.058 + j0.049	0.206 + j0.064	16.9	455	411
CU280K10-350	2800	12455	0.031	0.101	0.039	0.128	0.0969	0.3181	0.0761	0.2496	0.0365	0.1199	0.0349	0.0106	0.043 + j0.046	0.164 + j0.052	23.7	537	459
CU280K10-500	4000	17793	0.022	0.071	0.028	0.091	0.0921	0.3020	0.0869	0.2851	0.0347	0.1139	0.0305	0.0093	0.033 + j0.044	0.127 + j0.040	33.9	616	499
CU280K10-750	6000	26689	0.014	0.047	0.019	0.062	0.0874	0.2866	0.1006	0.3300	0.0329	0.1081	0.0264	0.0080	0.025 + j0.041	0.101 + j0.033	50.8	716	557
CU280K10-1000	8000	35586	0.011	0.035	0.015	0.049	0.0841	0.2760	0.1128	0.3701	0.0317	0.1041	0.0235	0.0072	0.021 + j0.039	0.097 + j0.032	67.8	825	608

* Calculations are based on three cables triplexed / 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 D17M of the 2015 Canadian Electrical Code Part I (40°C Ambient Air Temperature, indoor installation)

‡ Ampacities are based on Table D17A of the 2015 Canadian Electrical Code Part I

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