HVTECK SPECIFICATIONS

HVTECK CU 3/C 280TRXLPE TS 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.

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: 0.28 inches (7.11mm) - 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 AWG to No.3/0 AWG = 0.11 inches (2.79mm)
  No.4/0 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.2/0 AWG = 0.075 inches (1.91mm)
  No.3/0 AWG to 500 kcmil = 0.085 inches (2.16mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CU 280 TRXLPE AIA 28KV 100% 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
CU280F78-001	1(19)	0.322	8.2	0.912	23.2	0.992	25.2	6	2.406	61.1	2.736	69.5	2.886	73.3	20.2	513	3593	5347	9818	4454	108/70.5	2.74/1.79	2300	701
CU280F78-010	1/0(19)	0.362	9.2	0.952	24.2	1.032	26.2	6	2.492	63.3	2.822	71.7	2.972	75.5	20.8	528	3913	5824	10164	4610	108/70.5	2.74/1.79	2200	671
CU280F78-020	2/0(19)	0.405	10.3	0.995	25.3	1.075	27.3	6	2.585	65.7	2.915	74.0	3.065	77.9	21.5	545	4296	6393	10361	4700	108/70.5	2.74/1.79	2050	625
CU280F78-030	3/0(19)	0.456	11.6	1.046	26.6	1.126	28.6	4	2.695	68.5	3.025	76.8	3.195	81.2	22.4	568	4876	7256	9843	4465	108/70.5	2.74/1.79	1700	518
CU280F78-040	4/0(19)	0.512	13.0	1.102	28.0	1.182	30.0	4	2.876	73.1	3.206	81.4	3.376	85.8	23.6	600	5637	8388	10574	4796	108/70.5	2.74/1.79	1600	488
CU280F78-250	250(37)	0.558	14.2	1.158	29.4	1.238	31.4	4	2.997	76.1	3.327	84.5	3.497	88.8	24.5	622	6000	8929	10555	4788	108/70.5	2.74/1.79	1500	457
CU280F78-350	350(37)	0.661	16.8	1.261	32.0	1.341	34.1	3	3.220	81.8	3.550	90.2	3.720	94.5	26.0	661	7465	11109	9766	4430	108/70.5	2.74/1.79	1100	335
CU280F78-500	500(37)	0.789	20.0	1.389	35.3	1.469	37.3	3	3.496	88.8	3.826	97.2	3.996	101.5	28.0	711	9256	13775	11274	5114	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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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

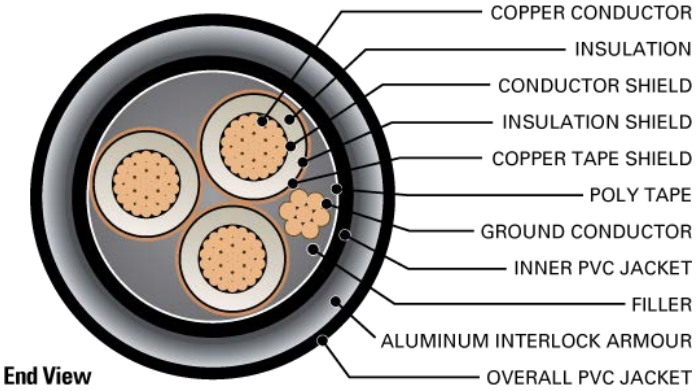
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
CU280F78-001	2009	8935	0.129	0.423	0.161	0.529	0.1210	0.3971	0.0374	0.1228	0.0456	0.1497	0.0708	0.0216	0.162 + j0.048	0.527 + j0.355	6.0	202	226
CU280F78-010	2534	11274	0.102	0.335	0.128	0.419	0.1165	0.3823	0.0403	0.1323	0.0439	0.1441	0.0658	0.0201	0.128 + j0.046	0.490 + j0.340	7.6	231	256
CU280F78-020	3194	14209	0.081	0.266	0.101	0.333	0.1124	0.3687	0.0434	0.1423	0.0424	0.1390	0.0612	0.0186	0.102 + j0.045	0.461 + j0.325	9.6	265	290
CU280F78-030	4027	17914	0.064	0.211	0.080	0.264	0.1082	0.3550	0.0469	0.1540	0.0408	0.1338	0.0565	0.0172	0.081 + j0.043	0.435 + j0.308	12.1	303	327
CU280F78-040	5078	22590	0.051	0.167	0.064	0.210	0.1043	0.3422	0.0508	0.1668	0.0393	0.1290	0.0522	0.0159	0.065 + j0.041	0.414 + j0.291	15.2	348	369
CU280F78-250	6000	26689	0.043	0.141	0.054	0.178	0.1021	0.3349	0.0534	0.1752	0.0385	0.1263	0.0497	0.0151	0.055 + j0.040	0.398 + j0.276	18.0	384	408
CU280F78-350	8400	37365	0.031	0.101	0.039	0.128	0.0969	0.3181	0.0603	0.1980	0.0365	0.1199	0.0440	0.0134	0.040 + j0.038	0.373 + j0.250	25.2	468	485
CU280F78-500	12000	53379	0.022	0.071	0.028	0.091	0.0921	0.3020	0.0689	0.2261	0.0347	0.1139	0.0385	0.0117	0.028 + j0.036	0.349 + j0.223	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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