Southwire® CANADA

HVTECK SPECIFICATIONS

HVTECK CU 3/C 220EPR TS PVC AIA PVC 15KV 133% CSA

PRODUCT HIGHLIGHTS

Southwire's 15KV 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: 0.22 inches (5.59mm) - 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.2 AWG to 250 kcmil = 0.11 inches (2.79mm)
  350 kcmil to 750 kcmil = 0.14 inches (3.56mm)

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

Overall Jacket
- Red PVC (optional colours available)
- Nominal Thickness:
  No.2 AWG to No.4/0 AWG = 0.075 inches (1.91mm)
  250 kcmil to 750 kcmil = 0.085 inches (2.16mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CU 220 EPR AIA 15KV 133% 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
CU220Z72-002	2(7)	0.283	7.2	0.753	19.1	0.833	21.2	6	2.062	52.4	2.392	60.8	2.542	64.6	17.8	452	3014	4485	10446	4738	108/70.5	2.74/1.79	2950	899
CU220Z72-001	1(19)	0.322	8.2	0.792	20.1	0.872	22.1	6	2.147	54.5	2.477	62.9	2.627	66.7	18.4	467	3288	4894	11256	5106	108/70.5	2.74/1.79	2950	899
CU220Z72-010	1/0(19)	0.362	9.2	0.832	21.1	0.912	23.2	6	2.233	56.7	2.563	65.1	2.713	68.9	19.0	482	3607	5368	11656	5287	108/70.5	2.74/1.79	2800	853
CU220Z72-020	2/0(19)	0.405	10.3	0.875	22.2	0.955	24.3	6	2.326	59.1	2.656	67.5	2.806	71.3	19.6	499	3988	5935	10728	4866	108/70.5	2.74/1.79	2300	701
CU220Z72-030	3/0(19)	0.456	11.6	0.926	23.5	1.006	25.6	4	2.436	61.9	2.766	70.3	2.916	74.1	20.4	518	4507	6707	11470	5203	108/70.5	2.74/1.79	2200	671
CU220Z72-040	4/0(19)	0.512	13.0	0.982	24.9	1.062	27.0	4	2.557	65.0	2.887	73.3	3.037	77.1	21.3	540	5076	7554	12468	5656	108/70.5	2.74/1.79	2150	655
CU220Z72-250	250(37)	0.558	14.2	1.038	26.4	1.118	28.4	4	2.678	68.0	3.008	76.4	3.178	80.7	22.2	565	5488	8166	10884	4937	108/70.5	2.74/1.79	1700	518
CU220Z72-350	350(37)	0.661	16.8	1.141	29.0	1.221	31.0	3	2.961	75.2	3.291	83.6	3.461	87.9	24.2	615	7128	10608	12247	5555	108/70.5	2.74/1.79	1500	457
CU220Z72-500	500(37)	0.789	20.0	1.269	32.2	1.349	34.3	3	3.237	82.2	3.567	90.6	3.737	94.9	26.2	664	8915	13267	11361	5153	108/70.5	2.74/1.79	1100	335
CU220Z72-750	750(61)	0.968	24.6	1.458	37.0	1.538	39.1	2	3.645	92.6	3.975	101.0	4.145	105.3	29.0	737	11883	17684	9873	4478	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

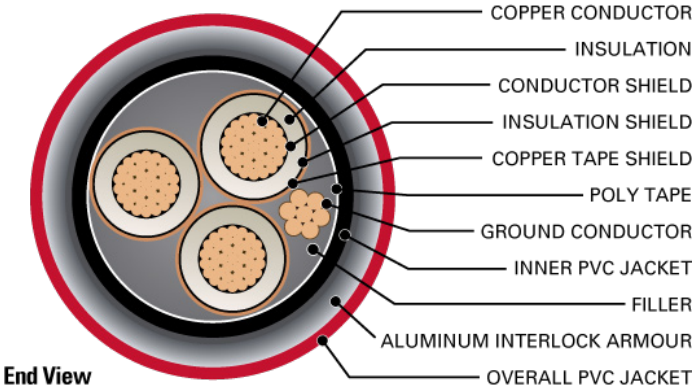
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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
CU220Z72-002	1593	7084	0.162	0.532	0.203	0.665	0.1172	0.3847	0.0502	0.1648	0.0442	0.1450	0.0528	0.0161	0.203 + j0.047	0.577 + j0.414	4.5	172	201
CU220Z72-001	2009	8935	0.129	0.423	0.161	0.530	0.1124	0.3689	0.0546	0.1792	0.0424	0.1391	0.0486	0.0148	0.162 + j0.045	0.534 + j0.396	5.7	197	228
CU220Z72-010	2534	11274	0.102	0.335	0.128	0.419	0.1083	0.3554	0.0591	0.1938	0.0408	0.1340	0.0449	0.0137	0.128 + j0.043	0.499 + j0.379	7.2	225	257
CU220Z72-020	3194	14209	0.081	0.266	0.101	0.333	0.1045	0.3430	0.0638	0.2093	0.0394	0.1293	0.0416	0.0127	0.102 + j0.042	0.470 + j0.361	9.0	260	292
CU220Z72-030	4027	17914	0.064	0.211	0.081	0.264	0.1008	0.3306	0.0694	0.2276	0.0380	0.1246	0.0382	0.0117	0.081 + j0.040	0.445 + j0.342	11.4	297	330
CU220Z72-040	5078	22590	0.051	0.167	0.064	0.210	0.0973	0.3192	0.0755	0.2476	0.0367	0.1203	0.0352	0.0107	0.065 + j0.039	0.424 + j0.323	14.3	342	372
CU220Z72-250	6000	26689	0.043	0.141	0.054	0.178	0.0954	0.3130	0.0792	0.2598	0.0360	0.1180	0.0335	0.0102	0.055 + j0.038	0.410 + j0.305	16.9	376	410
CU220Z72-350	8400	37365	0.031	0.101	0.039	0.128	0.0909	0.2981	0.0900	0.2954	0.0343	0.1124	0.0295	0.0090	0.040 + j0.036	0.385 + j0.276	23.7	460	487
CU220Z72-500	12000	53379	0.022	0.071	0.028	0.092	0.0865	0.2839	0.1034	0.3393	0.0326	0.1070	0.0256	0.0078	0.028 + j0.034	0.361 + j0.244	33.9	556	573
CU220Z72-750	18000	80068	0.014	0.047	0.020	0.064	0.0825	0.2708	0.1200	0.3937	0.0311	0.1021	0.0221	0.0067	0.020 + j0.033	0.333 + j0.207	50.8	678	668

* 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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