



## HVTECK SPECIFICATIONS

# HVTECK CU 3/C 220TRXLPE 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

- TR-XLPE - (Tree Retardent Cross Linked Polyethylene)
- 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 TRXLPE 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	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	lb / 1000ft	kg/km	lbs	kg	inches	m	feet	m
CU220P91-002	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	2913	4335	10149	4604	108/70.5	2.74/1.79	2950	899	
CU220P91-001	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	3180	4733	10937	4961	108/70.5	2.74/1.79	2950	899	
CU220P91-010	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	3492	5196	11332	5140	108/70.5	2.74/1.79	2800	853	
CU220P91-020	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	3865	5751	10443	4737	108/70.5	2.74/1.79	2300	701	
CU220P91-030	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	4373	6508	11176	5069	108/70.5	2.74/1.79	2200	671	
CU220P91-040	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	4932	7339	12159	5515	108/70.5	2.74/1.79	2150	655	
CU220P91-250	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	5333	7936	10621	4818	108/70.5	2.74/1.79	1700	518	
CU220P91-350	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	6954	10349	11986	5437	108/70.5	2.74/1.79	1500	457	
CU220P91-500	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	8717	12972	11143	5055	108/70.5	2.74/1.79	1100	335	
CU220P91-750	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	11649	17336	9709	4404	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

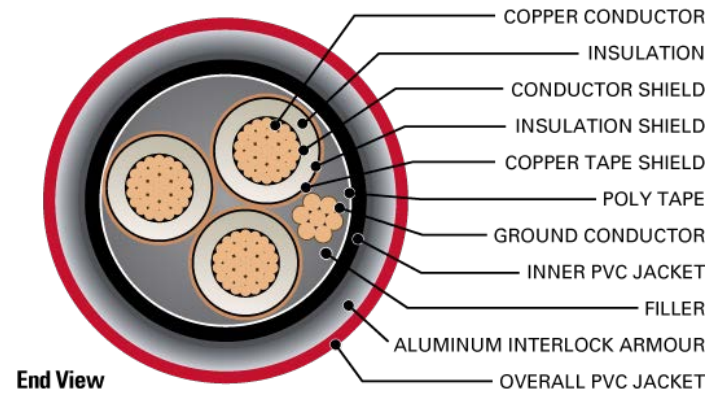
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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



**TABLE 2 - ENGINEERING SPECIFICATIONS**

HVTECK Product Code	Maximum Pulling Tension		DC Resistance @ 25°C R <sub>DC</sub>		AC Resistance @ 90°C 60 Hz (triplex formation) R <sub>AC</sub>		Inductance L		Capacitance C		Inductive Reactance @ 60Hz (triplexed) X <sub>L</sub>		Capacitive Reactance @ 60Hz (triplexed) X <sub>C</sub>		Positive - Sequence Impedance*	Zero - Sequence Impedance*	Short Circuit Current (each phase conductor) @ 60Hz	Allowable Ampacities in Ventilated Cable Tray †	Allowable Ampacities Directly Buried 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					
CU220P91-002	1593	7084	0.162	0.532	0.203	0.665	0.1172	0.3847	0.0398	0.1307	0.0442	0.1450	0.0666	0.0203	0.203 + j0.047	0.577 + j0.414	4.8	172	201
CU220P91-001	2009	8935	0.129	0.423	0.161	0.530	0.1124	0.3689	0.0433	0.1421	0.0424	0.1391	0.0612	0.0187	0.162 + j0.045	0.534 + j0.396	6.0	197	228
CU220P91-010	2534	11274	0.102	0.335	0.128	0.419	0.1083	0.3554	0.0468	0.1537	0.0408	0.1340	0.0566	0.0173	0.128 + j0.043	0.499 + j0.379	7.6	225	257
CU220P91-020	3194	14209	0.081	0.266	0.101	0.333	0.1045	0.3430	0.0506	0.1660	0.0394	0.1293	0.0524	0.0160	0.102 + j0.042	0.470 + j0.361	9.6	260	292
CU220P91-030	4027	17914	0.064	0.211	0.081	0.264	0.1008	0.3306	0.0550	0.1805	0.0380	0.1246	0.0482	0.0147	0.081 + j0.040	0.445 + j0.342	12.1	297	330
CU220P91-040	5078	22590	0.051	0.167	0.064	0.210	0.0973	0.3192	0.0598	0.1964	0.0367	0.1203	0.0443	0.0135	0.065 + j0.039	0.424 + j0.323	15.2	342	372
CU220P91-250	6000	26689	0.043	0.141	0.054	0.178	0.0954	0.3130	0.0628	0.2060	0.0360	0.1180	0.0422	0.0129	0.055 + j0.038	0.410 + j0.305	18.0	376	410
CU220P91-350	8400	37365	0.031	0.101	0.039	0.128	0.0909	0.2981	0.0714	0.2343	0.0343	0.1124	0.0372	0.0113	0.040 + j0.036	0.385 + j0.276	25.2	460	487
CU220P91-500	12000	53379	0.022	0.071	0.028	0.092	0.0865	0.2839	0.0820	0.2691	0.0326	0.1070	0.0323	0.0099	0.028 + j0.034	0.361 + j0.244	36.0	556	573
CU220P91-750	18000	80068	0.014	0.047	0.020	0.064	0.0825	0.2708	0.0952	0.3122	0.0311	0.1021	0.0279	0.0085	0.020 + j0.033	0.333 + j0.207	53.9	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