



**CSA TRAY RATED**

**HVTC SPECIFICATIONS**

# HVTC CU 3/C 115EPR TS PVC 5KV 133% CSA



## PRODUCT HIGHLIGHTS

Southwire's 5KV HVTC is a CSA approved copper tape shielded cable for Industrial and Commercial medium voltage applications. FT4, -40°C, and 105°C rated for use in harsh Canadian environments. Rated for installation in cable trays, duct banks, direct burial, troughs, continuous rigid cable supports and concrete encaseable. For use in cable trays, exposed run and hazardous locations as per the limitations in the Canadian Electrical Code Part I, particularly Table 19.

## 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: 0.115 inches (2.92mm) - 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

### Overall Jacket

- Orange PVC (optional colours available)
- Nominal Thickness:  
No.2 AWG to No.1 AWG = 0.08 inches (2.03mm)  
No.1/0 AWG to 350 kcmil = 0.11 inches (2.79mm)  
500 kcmil to 1000 kcmil = 0.14 inches (3.56mm)

### Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# 3/C [#AWG or #kcmil] CU 115 EPR 5KV 133% INS LEVEL 25% TS SUN RES TC-ER 105° FT4 (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

**TABLE 1 - WEIGHTS & MEASUREMENTS**

HVTC Product Code	Conductor Size *		Conductor Diameter		Diameter Over Insulation		Diameter Over Insulation Shield		Bonding Cond. Size	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	lb / 1000ft	kg/km	lbs	kg	inches	m	feet	m
CU115W19-002	2(7)		0.283	7.2	0.543	13.8	0.623	15.8	6	1.549	39.3	10.8	275	1536	2285	8837	4008	96/54.5	2.44/1.38	5000	1524
CU115W19-001	1(19)		0.322	8.2	0.582	14.8	0.662	16.8	6	1.633	41.5	11.4	290	1763	2624	9974	4524	96/54.5	2.44/1.38	5000	1524
CU115W19-010	1/0(19)		0.362	9.2	0.622	15.8	0.702	17.8	6	1.780	45.2	12.5	316	2133	3174	12006	5446	104/56.5	2.64/1.44	5000	1524
CU115W19-020	2/0(19)		0.405	10.3	0.665	16.9	0.745	18.9	6	1.872	47.6	13.1	333	2469	3675	13688	6209	104/56.5	2.64/1.44	5000	1524
CU115W19-030	3/0(19)		0.456	11.6	0.716	18.2	0.796	20.2	4	1.983	50.4	13.9	352	2936	4369	16236	7364	108/70.5	2.74/1.79	5000	1524
CU115W19-040	4/0(19)		0.512	13.0	0.772	19.6	0.852	21.6	4	2.104	53.4	14.7	374	3451	5135	16392	7435	108/70.5	2.74/1.79	4300	1311
CU115W19-250	250(37)		0.558	14.2	0.828	21.0	0.908	23.1	4	2.224	56.5	15.6	396	3750	5581	16555	7509	108/70.5	2.74/1.79	4000	1219
CU115W19-350	350(37)		0.661	16.8	0.931	23.6	1.011	25.7	3	2.447	62.2	17.1	435	5101	7591	16348	7415	108/70.5	2.74/1.79	2900	884
CU115W19-500	500(37)		0.789	20.0	1.059	26.9	1.139	28.9	3	2.783	70.7	19.5	495	6914	10289	16420	7448	108/70.5	2.74/1.79	2150	655
CU115W19-750	750(61)		0.968	24.6	1.248	31.7	1.328	33.7	2	3.192	81.1	22.3	567	9733	14484	16155	7328	108/70.5	2.74/1.79	1500	457
CU115W19-1000	1000(61)		1.117	28.4	1.397	35.5	1.477	37.5	1	3.514	89.2	24.6	625	12465	18551	16513	7490	108/70.5	2.74/1.79	1200	366

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. 230 - Tray Cables
- ICEA S-93-639 (NEMA WC 74) 5 to 46 kV - Shielded Power Cable
- AEIC CS-8 - Qualification Testing Requirements

### Flame Test Ratings

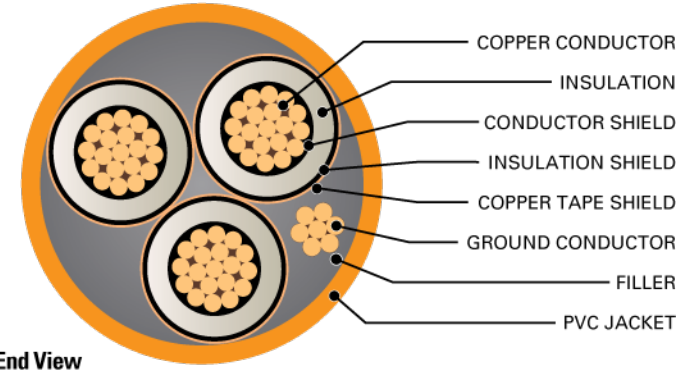
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 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 FT4 - for Flame Retardancy rating
- CSA SUN RES - for Sunlight Resistant rating
- CSA TC-ER \*\*\*

### 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**

HVTC 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	Ω / 1000ft	Ω / 1000ft	kAmps	Amps	Amps
CU115W19-002	1593	7084	0.162	0.532	0.203	0.665	0.0973	0.3192	0.0754	0.2474	0.0367	0.1204	0.0352	0.0107	0.203 + j0.041	0.574 + j0.507	4.5	172	201
CU115W19-001	2009	8935	0.129	0.423	0.161	0.530	0.0937	0.3073	0.0830	0.2724	0.0353	0.1158	0.0319	0.0097	0.162 + j0.039	0.535 + j0.485	5.7	197	228
CU115W19-010	2534	11274	0.102	0.335	0.128	0.419	0.0906	0.2972	0.0908	0.2979	0.0341	0.1120	0.0292	0.0089	0.128 + j0.038	0.503 + j0.464	7.2	225	257
CU115W19-020	3194	14209	0.081	0.266	0.102	0.333	0.0878	0.2881	0.0991	0.3252	0.0331	0.1086	0.0268	0.0082	0.102 + j0.036	0.477 + j0.442	9.0	260	292
CU115W19-030	4027	17914	0.064	0.211	0.081	0.264	0.0851	0.2791	0.1089	0.3574	0.0321	0.1052	0.0244	0.0074	0.081 + j0.035	0.456 + j0.418	11.4	297	330
CU115W19-040	5078	22590	0.051	0.167	0.064	0.211	0.0826	0.2710	0.1197	0.3927	0.0311	0.1022	0.0222	0.0068	0.065 + j0.034	0.438 + j0.393	14.3	342	372
CU115W19-250	6000	26689	0.043	0.141	0.054	0.179	0.0816	0.2678	0.1245	0.4086	0.0308	0.1010	0.0213	0.0065	0.055 + j0.033	0.426 + j0.370	16.9	376	410
CU115W19-350	8400	37365	0.031	0.101	0.039	0.129	0.0784	0.2574	0.1435	0.4708	0.0296	0.0970	0.0185	0.0056	0.040 + j0.032	0.404 + j0.332	23.7	460	487
CU115W19-500	12000	53379	0.022	0.071	0.028	0.093	0.0755	0.2477	0.1670	0.5479	0.0285	0.0934	0.0159	0.0048	0.029 + j0.030	0.382 + j0.292	33.9	556	573
CU115W19-750	18000	80068	0.014	0.047	0.020	0.065	0.0731	0.2397	0.1934	0.6347	0.0275	0.0904	0.0137	0.0042	0.020 + j0.029	0.355 + j0.244	50.8	678	668
CU115W19-1000	24000	106757	0.011	0.035	0.016	0.052	0.0712	0.2336	0.2197	0.7209	0.0268	0.0881	0.0121	0.0037	0.016 + j0.028	0.336 + j0.213	67.8	798	772

\* 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

\*\*\* For use in cable trays, exposed run and hazardous locations as per the limitations in the Canadian Electrical Code Part I, particularly Table 19.

