CSA TRAY RATED

HVTC SPECIFICATIONS

HVTC CU 3/C 140EPR TS PVC 8KV 133% CSA

Southwire® CANADA

PRODUCT HIGHLIGHTS

Southwire's 8KV 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: 0.14 inches (3.56mm) - 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
- Black PVC (optional colours available)
- Nominal Thickness:
  No.2 AWG = 0.08 inches (2.03mm)
  No.1 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 140 EPR 8KV 133% INS LEVEL 25% TS SUN RES TC-ER 105° FT4 (-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	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 **	
HVTC Product Code	AWG or Kcmil	inches	mm	inches	mm	inches	mm	AWG	inches	mm	inches	mm	lb / 1000ft	kg/km	lbs	kg	inches	m	feet	m
CU140W94-002	2(7)	0.283	7.2	0.593	15.1	0.673	17.1	6	1.657	42.1	11.6	295	1657	2466	9445	4284	96/54.5	2.44/1.38	5000	1524
CU140W94-001	1(19)	0.322	8.2	0.632	16.1	0.712	18.1	6	1.801	45.7	12.6	320	1990	2961	11290	5121	104/56.5	2.64/1.44	5000	1524
CU140W94-010	1/0(19)	0.362	9.2	0.672	17.1	0.752	19.1	6	1.888	47.9	13.2	336	2272	3381	12702	5761	104/56.5	2.64/1.44	5000	1524
CU140W94-020	2/0(19)	0.405	10.3	0.715	18.2	0.795	20.2	6	1.980	50.3	13.9	352	2614	3891	14627	6635	108/70.5	2.74/1.79	5000	1524
CU140W94-030	3/0(19)	0.456	11.6	0.766	19.5	0.846	21.5	4	2.091	53.1	14.6	372	3089	4597	16535	7500	108/70.5	2.74/1.79	4850	1478
CU140W94-040	4/0(19)	0.512	13.0	0.822	20.9	0.902	22.9	4	2.212	56.2	15.5	393	3611	5374	16541	7503	108/70.5	2.74/1.79	4150	1265
CU140W94-250	250(37)	0.558	14.2	0.878	22.3	0.958	24.3	4	2.332	59.2	16.3	415	3919	5831	16446	7460	108/70.5	2.74/1.79	3800	1158
CU140W94-350	350(37)	0.661	16.8	0.981	24.9	1.061	26.9	3	2.555	64.9	17.9	454	5285	7864	16352	7417	108/70.5	2.74/1.79	2800	853
CU140W94-500	500(37)	0.789	20.0	1.109	28.2	1.189	30.2	3	2.891	73.4	20.2	514	7122	10599	16511	7489	108/70.5	2.74/1.79	2100	640
CU140W94-750	750(61)	0.968	24.6	1.298	33.0	1.378	35.0	2	3.300	83.8	23.1	587	9968	14834	16507	7488	108/70.5	2.74/1.79	1500	457
CU140W94-1000	1000(61)	1.117	28.4	1.447	36.8	1.527	38.8	1	3.622	92.0	25.4	644	12722	18932	15549	7053	108/70.5	2.74/1.79	1100	335

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

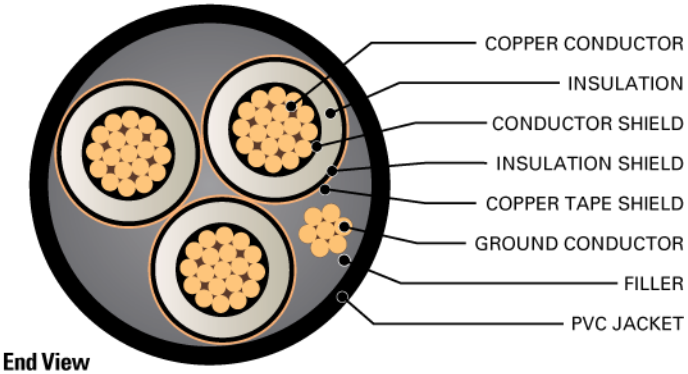
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000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



End View

TABLE 2 - ENGINEERING SPECIFICATIONS

HVTC 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
CU140W94-002	1593	7084	0.162	0.532	0.203	0.665	0.1027	0.3369	0.0664	0.2180	0.0387	0.1270	0.0399	0.0122	0.203 + j0.042	0.577 + j0.483	4.5	172	201
CU140W94-001	2009	8935	0.129	0.423	0.161	0.530	0.0987	0.3238	0.0729	0.2391	0.0372	0.1221	0.0364	0.0111	0.162 + j0.041	0.537 + j0.462	5.7	197	228
CU140W94-010	2534	11274	0.102	0.335	0.128	0.419	0.0953	0.3126	0.0794	0.2607	0.0359	0.1179	0.0334	0.0102	0.128 + j0.039	0.504 + j0.441	7.2	225	257
CU140W94-020	3194	14209	0.081	0.266	0.101	0.333	0.0922	0.3026	0.0865	0.2837	0.0348	0.1141	0.0307	0.0094	0.102 + j0.038	0.477 + j0.421	9.0	260	292
CU140W94-030	4027	17914	0.064	0.211	0.081	0.264	0.0892	0.2926	0.0948	0.3109	0.0336	0.1103	0.0280	0.0085	0.081 + j0.036	0.455 + j0.398	11.4	297	330
CU140W94-040	5078	22590	0.051	0.167	0.064	0.211	0.0864	0.2836	0.1038	0.3406	0.0326	0.1069	0.0256	0.0078	0.065 + j0.035	0.436 + j0.374	14.3	342	372
CU140W94-250	6000	26689	0.043	0.141	0.054	0.178	0.0852	0.2796	0.1084	0.3557	0.0321	0.1054	0.0245	0.0075	0.055 + j0.035	0.423 + j0.353	16.9	376	410
CU140W94-350	8400	37365	0.031	0.101	0.039	0.129	0.0816	0.2679	0.1245	0.4084	0.0308	0.1010	0.0213	0.0065	0.040 + j0.033	0.400 + j0.317	23.7	460	487
CU140W94-500	12000	53379	0.022	0.071	0.028	0.092	0.0783	0.2570	0.1444	0.4736	0.0295	0.0969	0.0184	0.0056	0.029 + j0.031	0.377 + j0.279	33.9	556	573
CU140W94-750	18000	80068	0.014	0.047	0.020	0.065	0.0755	0.2476	0.1675	0.5497	0.0284	0.0933	0.0158	0.0048	0.020 + j0.030	0.350 + j0.234	50.8	678	668
CU140W94-1000	24000	106757	0.011	0.035	0.016	0.052	0.0733	0.2407	0.1899	0.6230	0.0277	0.0907	0.0140	0.0043	0.016 + j0.029	0.331 + j0.205	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.

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