HVTECK CU 1/C 345NLEPR CB PVC AIA PVC 35kV 100% CSA

Single Conductor, 345 Mils No Lead Ethylene Propylene Rubber (NL-EPR), 100% Insulation Level, Concentric Bond, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

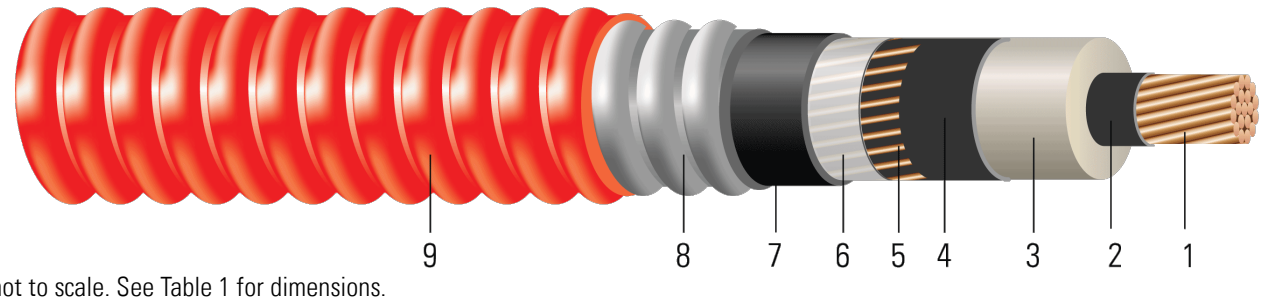

Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

1. **Conductor:** Class B compressed stranded bare copper per ASTM B3 and ASTM B8
2. **Conductor Shield:** Semi-conducting cross-linked copolymer
3. **Insulation:** 345 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 100% insulation level
4. **Insulation Shield:** Strippable semi-conducting cross-linked copolymer
5. **Concentric Shield:** Concentrically applied copper bond / shield wires. Complies with greater than the minimum requirement as per Table 44, CSA Standard C68.10 and Table 16A, Canadian Electrical Code Part 1
6. **Neutral Separator:** Mylar tape
7. **Inner Jacket:** PVC inner jacket
8. **Armour:** Aluminum Interlocked Armour (AIA)
9. **Overall Jacket:** Black Polyvinyl Chloride (PVC) Jacket

APPLICATIONS AND FEATURES:

Southwire's 35kV HVTECK is a CSA armoured cable for industrial and commercial medium voltage applications. Rated FT4, -40°C, Hazardous Locations (HL). These cables are capable of operating continuously at the conductor temperature not in excess of 105°C for normal operation, 140°C for emergency overload, and 250°C for short circuit conditions. Rated for 1000 lbs /FT maximum sidewall pressure. These cables feature sunlight and moisture resistance, exceptional corona resistance, resistance to most chemical soils and acids and are flame retardant.

SPECIFICATIONS:

- ASTM B3 Soft or Annealed Copper Wire
- ASTM B8 Concentric-Lay-Stranded Copper Conductors
- CSA C22.2 No. 174 Cables in Hazardous Locations
- CSA C22.2 No. 2556 & No. 0.3 Wire and Cable Test Methods
- 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 LTGG [-40°C] - as per C68.10 - for Cold Bend and Impact rating
- CSA HL - for Hazardous Locations rating
- CSA SUN RES - for Sunlight Resistant rating
- ICEA S-93-639 (NEMA WC 74) 5-46 KV Shielded Power Cable
- ICEA T-29-520 Flame Test (210,000 BTU/Hr)
- IEEE 383 Flame Test (70,000 btu)

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- IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test (1/0 and Larger)
- FT1 Flame Test (1,706 BTU/Hr nominal - Vertical Wire Flame Test)
- AEIC CS-8 Specification for extruded dielectric shielded power cables rated for 5 through 46KV (Qualification Test Requirements)

SAMPLE PRINT LEGEND:

(CSA) SOUTHWIRE (NESC) #P# 1/C [#AWG or #kcmil] CU 345 NLEPR AIA 35kV 100% INS LEVEL CB [No. x SIZE] AWG SUN RES 105°C FT4 HL (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

Table 1 – Weights and Measurements

Cond. Size	Strand	Diameter Over Conductor	Diameter Over Insulation	Insul. Thickness	Diameter Over Insulation Shield	Concentric Neutral	Inner Jacket Thickness	Dia. Over Armour	Overall Jacket Thickness	Approx. OD	Copper Weight	Approx. Weight	Conduit Size*
AWG/ Kcmil	No.	inch	inch	mil	inch	No. x AWG	mil	inch	mil	inch	lb/ 1000ft	lb/ 1000ft	inch
1/0	19	0.362	1.09	345	1.15	7x12	80	1.91	60	2.03	550	2297	5.5
2/0	19	0.405	1.133	345	1.193	7x12	80	1.953	60	2.073	638	2448	5.5
3/0	19	0.456	1.184	345	1.244	9x12	110	2.064	60	2.184	783	2782	5.5
4/0	19	0.512	1.24	345	1.3	9x12	110	2.12	60	2.24	923	3006	6
250	37	0.558	1.294	345	1.354	11x12	110	2.174	60	2.294	1088	3257	6
350	37	0.661	1.397	345	1.457	13x12	110	2.277	75	2.427	1459	3849	6.5
500	37	0.789	1.525	345	1.585	17x12	110	2.405	75	2.555	2000	4588	6.5
750	61	0.968	1.714	345	1.774	21x12	110	2.594	75	2.744	2873	5762	7.5

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
1 Comply with ICEA S-93-639 Appendix C for jacket thickness determination
TBA stock codes are estimations only and actual product may vary. Please wait until a stock code is assigned to purchase connectors and/or fittings.

Table 2 – Electrical and Engineering Data

Cond. Size	Min Bending Radius	Max Pull Tension	DC Resistance @ 25°C	AC Resistance @ 90°C	Capacitive Reactance @ 60Hz	Inductive Reactance @ 60Hz	Zero Sequence Impedance	Positive Sequence Impedance	Phase Short Circuit Current @ 6 Cycles	Allowable Ampacity In Air 90°C	Allowable Ampacity Directly Buried 90°C
AWG/ Kcmil	inch	lb	Ω/1000ft	Ω/1000ft	MΩ*1000ft	Ω/1000ft	Ω/1000ft	Ω/1000ft	Amp	Amp	Amp
1/0	14.2	844	0.102	0.139	0.052	0.061	0.379+j0.135	0.143+j0.067	3879	278	272
2/0	14.5	1064	0.082	0.112	0.049	0.059	0.352+j0.134	0.116+j0.064	3879	316	303
3/0	15.3	1342	0.064	0.087	0.046	0.058	0.287+j0.097	0.092+j0.063	4987	356	333
4/0	15.7	1692	0.051	0.07	0.042	0.056	0.269+j0.095	0.074+j0.061	4987	403	367
250	16.1	2000	0.043	0.059	0.04	0.054	0.228+j0.074	0.064+j0.059	6095	455	411
350	17	2800	0.031	0.043	0.036	0.052	0.190+j0.060	0.049+j0.056	7203	537	459
500	17.9	4000	0.021	0.03	0.031	0.049	0.145+j0.044	0.037+j0.052	9420	616	499
750	19.2	6000	0.014	0.021	0.027	0.046	0.115+j0.035	0.030+j0.048	11636	716	557

* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.
***** CEC ampacities are based on:
3-1/C in air copper and aluminum: D17M
3-1/C direct buried copper and aluminum: D17A

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Table 3 – Weights and Measurements (Metric)

Cond. Size	Strand	Diameter Over Conductor	Diameter Over Insulation	Insul. Thickness	Diameter Over Insulation Shield	Concentric Neutral	Inner Jacket Thickness	Dia. Over Armour	Overall Jacket Thickness	Approx. OD	Copper Weight	Approx. Weight	Conduit Size*
AWG/ Kcmil	No.	mm	mm	mm	mm	No. x AWG	mm	mm	mm	mm	kg/km	kg/km	inch
1/0	19	9.19	27.69	8.76	29.21	7x12	2.03	48.51	1.52	51.56	818	3418	5.5
2/0	19	10.29	28.78	8.76	30.30	7x12	2.03	49.61	1.52	52.65	949	3643	5.5
3/0	19	11.58	30.07	8.76	31.60	9x12	2.79	52.43	1.52	55.47	1165	4140	5.5
4/0	19	13.00	31.50	8.76	33.02	9x12	2.79	53.85	1.52	56.90	1374	4473	6
250	37	14.17	32.87	8.76	34.39	11x12	2.79	55.22	1.52	58.27	1619	4847	6
350	37	16.79	35.48	8.76	37.01	13x12	2.79	57.84	1.91	61.65	2171	5728	6.5
500	37	20.04	38.73	8.76	40.26	17x12	2.79	61.09	1.91	64.90	2976	6828	6.5
750	61	24.59	43.54	8.76	45.06	21x12	2.79	65.89	1.91	69.70	4275	8575	7.5

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
1 Comply with ICEA S-93-639 Appendix C for jacket thickness determination
TBA stock codes are estimations only and actual product may vary. Please wait until a stock code is assigned to purchase connectors and/or fittings.

Table 4 – Electrical and Engineering Data (Metric)

Cond. Size	Min Bending Radius	Max Pull Tension	DC Resistance @ 25°C	AC Resistance @ 90°C	Capacitive Reactance @ 60Hz	Inductive Reactance @ 60Hz	Zero Sequence Impedance	Positive Sequence Impedance	Phase Short Circuit Current @ 6 Cycles	Allowable Ampacity In Air 90°C	Allowable Ampacity Directly Buried 90°C
AWG/ Kcmil	mm	newton	Ω/km	Ω/km	MΩ*km	Ω/km	Ω/1000ft	Ω/1000ft	Amp	Amp	Amp
1/0	360.68	3756	0.3346	0.46	0.0158	0.2001	0.379+j0.135	0.143+j0.067	3879	278	272
2/0	368.30	4735	0.2690	0.37	0.0149	0.1936	0.352+j0.134	0.116+j0.064	3879	316	303
3/0	388.62	5972	0.2100	0.29	0.0140	0.1903	0.287+j0.097	0.092+j0.063	4987	356	333
4/0	398.78	7529	0.1673	0.23	0.0128	0.1837	0.269+j0.095	0.074+j0.061	4987	403	367
250	408.94	8900	0.1411	0.19	0.0122	0.1772	0.228+j0.074	0.064+j0.059	6095	455	411
350	431.80	12460	0.1017	0.14	0.0110	0.1706	0.190+j0.060	0.049+j0.056	7203	537	459
500	454.66	17800	0.0689	0.10	0.0094	0.1608	0.145+j0.044	0.037+j0.052	9420	616	499
750	487.68	26700	0.0459	0.07	0.0082	0.1509	0.115+j0.035	0.030+j0.048	11636	716	557

* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.
***** CEC ampacities are based on:
3-1/C in air copper and aluminum: D17M
3-1/C direct buried copper and aluminum: D17A

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