HVTECK AL 1/C 140NLEPR CB PVC AIA PVC 8kV 133% CSA

Single Conductor, 140 Mils No Lead Ethylene Propylene Rubber (NL-EPR), 133% Insulation Level, Concentric Bond, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

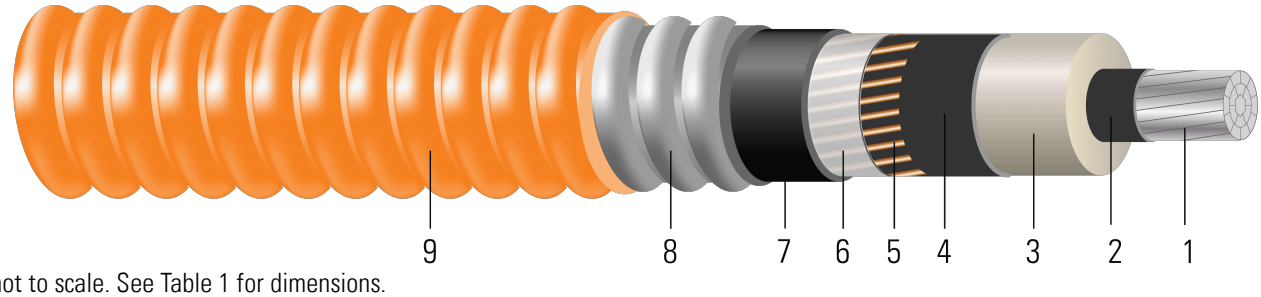


Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

1. **Conductor:** Class B compact stranded 8000 Series aluminum per ASTM B800 and ASTM B836
2. **Conductor Shield:** Semi-conducting cross-linked copolymer; A conductor separator is used for cable size larger than or equal to 500 Kcmil
3. **Insulation:** 140 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 133% 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:** Orange Polyvinyl Chloride (PVC) Jacket

APPLICATIONS AND FEATURES:

Southwire's 8kV 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 B801 Concentric-Lay-Stranded Conductors of 8000 Series Aluminum Alloy
- ASTM B836 Compact Rounded Stranded Aluminum 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)

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- IEEE 383 Flame Test (70,000 btu)
- 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] CPT AL 140 NLEPR AIA 8kV 133% 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
2	7	0.268	0.586	140	0.646	5x12	80	1.306	50	1.406	134	1030	3.5
1	19	0.299	0.617	140	0.677	5x12	80	1.337	50	1.437	137	1079	3.5
1/0	19	0.336	0.654	140	0.714	5x12	80	1.374	50	1.474	140	1139	4
2/0	19	0.376	0.694	140	0.754	7x12	80	1.414	50	1.514	191	1257	4
3/0	19	0.423	0.741	140	0.801	7x12	80	1.561	60	1.681	195	1513	4.5
4/0	19	0.475	0.793	140	0.853	7x12	80	1.613	60	1.733	199	1615	4.5
250	37	0.52	0.846	140	0.906	9x12	80	1.666	60	1.786	242	1756	4.5
350	37	0.616	0.942	140	1.002	11x12	80	1.762	60	1.882	287	2003	5
500	37	0.736	1.062	140	1.122	13x12	80	1.882	60	2.002	351	2342	5
750	61	0.908	1.244	140	1.304	17x12	110	2.124	60	2.244	433	2989	6
1000	61	1.117	1.453	140	1.513	17x12	110	2.333	75	2.483	450	3552	6.5

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
* Strand count meets minimum number per ASTM
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.

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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
2	9.8	398	0.266	0.365	0.034	0.06	0.665+j0.195	0.368+j0.065	2770	169	176
1	10.1	502	0.211	0.289	0.032	0.058	0.589+j0.192	0.292+j0.061	2770	194	198
1/0	10.3	633	0.167	0.229	0.029	0.056	0.528+j0.191	0.232+j0.059	2770	222	223
2/0	10.6	798	0.133	0.182	0.027	0.054	0.426+j0.121	0.186+j0.057	3879	255	250
3/0	11.8	1006	0.105	0.144	0.025	0.053	0.387+j0.120	0.148+j0.057	3879	290	278
4/0	12.1	1269	0.084	0.115	0.023	0.051	0.358+j0.119	0.119+j0.055	3879	329	309
250	12.5	1500	0.07	0.096	0.021	0.05	0.297+j0.084	0.101+j0.053	4987	370	347
350	13.2	2100	0.051	0.07	0.018	0.047	0.240+j0.062	0.076+j0.050	6095	446	402
500	14	3000	0.036	0.05	0.016	0.045	0.197+j0.049	0.057+j0.047	7203	533	451
750	15.7	4500	0.023	0.033	0.013	0.042	0.148+j0.034	0.041+j0.044	9420	631	500
1000	17.4	6000	0.017	0.025	0.011	0.04	0.140+j0.035	0.033+j0.043	9420	707	539

* 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

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
2	7	6.81	14.88	3.56	16.41	5x12	2.03	33.17	1.27	35.71	199	1533	3.5
1	19	7.59	15.67	3.56	17.20	5x12	2.03	33.96	1.27	36.50	204	1606	3.5
1/0	19	8.53	16.61	3.56	18.14	5x12	2.03	34.90	1.27	37.44	208	1695	4
2/0	19	9.55	17.63	3.56	19.15	7x12	2.03	35.92	1.27	38.46	284	1871	4
3/0	19	10.74	18.82	3.56	20.35	7x12	2.03	39.65	1.52	42.70	290	2252	4.5
4/0	19	12.07	20.14	3.56	21.67	7x12	2.03	40.97	1.52	44.02	296	2403	4.5
250	37	13.21	21.49	3.56	23.01	9x12	2.03	42.32	1.52	45.36	360	2613	4.5
350	37	15.65	23.93	3.56	25.45	11x12	2.03	44.75	1.52	47.80	427	2981	5
500	37	18.69	26.97	3.56	28.50	13x12	2.03	47.80	1.52	50.85	522	3485	5
750	61	23.06	31.60	3.56	33.12	17x12	2.79	53.95	1.52	57.00	644	4448	6
1000	61	28.37	36.91	3.56	38.43	17x12	2.79	59.26	1.91	63.07	670	5286	6.5

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
* Strand count meets minimum number per ASTM
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.

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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
2	248.92	1771	0.8727	1.20	0.0104	0.1969	0.665+j0.195	0.368+j0.065	2770	169	176
1	256.54	2234	0.6923	0.95	0.0098	0.1903	0.589+j0.192	0.292+j0.061	2770	194	198
1/0	261.62	2817	0.5479	0.75	0.0088	0.1837	0.528+j0.191	0.232+j0.059	2770	222	223
2/0	269.24	3551	0.4364	0.60	0.0082	0.1772	0.426+j0.121	0.186+j0.057	3879	255	250
3/0	299.72	4477	0.3445	0.47	0.0076	0.1739	0.387+j0.120	0.148+j0.057	3879	290	278
4/0	307.34	5647	0.2756	0.38	0.0070	0.1673	0.358+j0.119	0.119+j0.055	3879	329	309
250	317.50	6675	0.2297	0.31	0.0064	0.1640	0.297+j0.084	0.101+j0.053	4987	370	347
350	335.28	9345	0.1673	0.23	0.0055	0.1542	0.240+j0.062	0.076+j0.050	6095	446	402
500	355.60	13350	0.1181	0.16	0.0049	0.1476	0.197+j0.049	0.057+j0.047	7203	533	451
750	398.78	20025	0.0755	0.11	0.0040	0.1378	0.148+j0.034	0.041+j0.044	9420	631	500
1000	441.96	26700	0.0558	0.08	0.0034	0.1312	0.140+j0.035	0.033+j0.043	9420	707	539

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

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