

## HVTECK AL 1/C 220NLEPR CB PVC AIA PVC 15kV 133% CSA

Single Conductor, 220 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

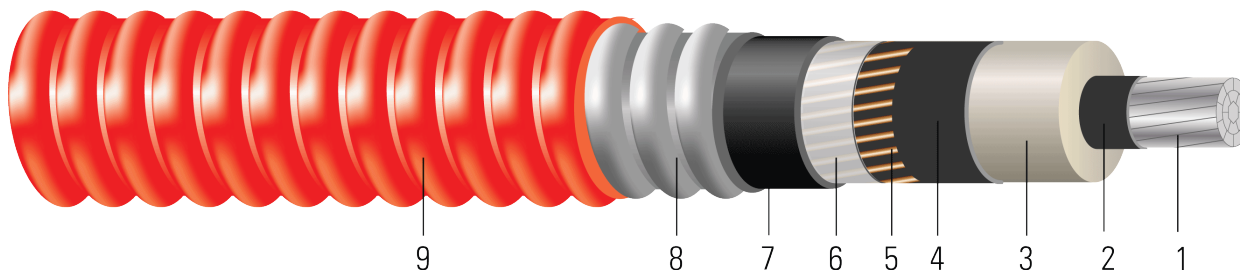


Image not to scale. See Table 1 for dimensions.

### CONSTRUCTION:

- Conductor:** Class B compact stranded 8000 Series aluminum per ASTM B800 and ASTM B836
- Conductor Shield:** Semi-conducting cross-linked copolymer; A conductor separator is used for cable size larger than or equal to 500 Kcmil
- Insulation:** 220 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 133% insulation level
- Insulation Shield:** Strippable semi-conducting cross-linked copolymer
- 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
- Neutral Separator:** Mylar tape
- Inner Jacket:** PVC inner jacket
- Armour:** Aluminum Interlocked Armour (AIA)
- Overall Jacket:** Red Polyvinyl Chloride (PVC) Jacket

### APPLICATIONS AND FEATURES:

Southwire's 15kV 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)



- 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 220 NLEPR AIA 15kV 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	Approx. Weight
AWG/ Kcmil	No.	inch	inch	mil	inch	No. x AWG	mil	inch	mil	inch	lb/1000ft
2	7	0.268	0.746	220	0.806	7 x 14	80	1.432	50	1.532	880
1	19	0.298	0.776	220	0.836	7 x 14	80	1.462	50	1.562	921
1/0	19	0.336	0.814	220	0.874	7 x 14	80	1.500	50	1.600	975
2/0	19	0.376	0.854	220	0.914	11 x 14	80	1.540	60	1.660	1122
3/0	19	0.422	0.900	220	0.960	11 x 14	80	1.586	60	1.706	1195
4/0	19	0.474	0.952	220	1.012	11 x 14	80	1.662	60	1.782	1315
250	37	0.520	1.006	220	1.066	13 x 14	80	1.716	60	1.836	1431
350	37	0.615	1.101	220	1.161	17 x 14	80	1.811	60	1.931	1665
500	37	0.735	1.221	220	1.281	21 x 14	80	1.931	60	2.051	2064
750	61	0.908	1.404	220	1.464	17 x 12	110	2.208	60	2.328	2698
1000	61	1.060	1.556	220	1.616	17 x 12	110	2.360	75	2.510	3164

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



**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 @ 60Hz	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	10.7	398	0.267	0.336	0.053	0.062	0.318 + j0.035	0.323 + j0.043	5458	169	176
1	10.9	502	0.211	0.266	0.049	0.060	0.248 + j0.032	0.254 + j0.04	5458	194	198
1/0	11.2	633	0.168	0.211	0.046	0.058	0.193 + j0.03	0.199 + j0.038	5458	222	223
2/0	11.6	798	0.133	0.167	0.042	0.056	0.149 + j0.028	0.155 + j0.036	8577	255	250
3/0	11.9	1006	0.105	0.133	0.039	0.054	0.115 + j0.027	0.121 + j0.035	8577	290	278
4/0	12.4	1269	0.084	0.105	0.036	0.052	0.087 + j0.025	0.093 + j0.033	8577	329	309
250	12.8	1500	0.071	0.090	0.034	0.051	0.072 + j0.024	0.078 + j0.032	10137	370	347
350	13.5	2100	0.050	0.065	0.030	0.048	0.047 + j0.022	0.053 + j0.03	13256	446	402
500	14.3	3000	0.035	0.046	0.026	0.045	0.028 + j0.02	0.034 + j0.028	16376	533	451
750	16.2	4500	0.024	0.033	0.022	0.043	0.015 + j0.018	0.021 + j0.026	21062	631	500
1000	17.5	6000	0.018	0.026	0.020	0.042	0.008 + j0.017	0.015 + j0.025	21062	707	539

\* Inductive impedance is based on non-ferrous conduit with one diameter spacing.

**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	Approx. Weight
AWG/Kcmil	No.	mm	mm	mm	mm	No. x AWG	mm	mm	mm	mm	kg/km
2	7	6.81	18.95	5.59	20.47	7 x 14	2.03	36.37	1.27	38.91	1310
1	19	7.57	19.71	5.59	21.23	7 x 14	2.03	37.13	1.27	39.67	1371
1/0	19	8.53	20.68	5.59	22.20	7 x 14	2.03	38.10	1.27	40.64	1451
2/0	19	9.55	21.69	5.59	23.22	11 x 14	2.03	39.12	1.52	42.16	1670
3/0	19	10.72	22.86	5.59	24.38	11 x 14	2.03	40.28	1.52	43.33	1778
4/0	19	12.04	24.18	5.59	25.70	11 x 14	2.03	42.21	1.52	45.26	1957
250	37	13.21	25.55	5.59	27.08	13 x 14	2.03	43.59	1.52	46.63	2130
350	37	15.62	27.97	5.59	29.49	17 x 14	2.03	46.00	1.52	49.05	2478
500	37	18.67	31.01	5.59	32.54	21 x 14	2.03	49.05	1.52	52.10	3072
750	61	23.06	35.66	5.59	37.19	17 x 12	2.79	56.08	1.52	59.13	4015
1000	61	26.92	39.52	5.59	41.05	17 x 12	2.79	59.94	1.91	63.75	4709

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



**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 @ 60Hz	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	271.78	1771	0.8760	1.10	0.0162	0.2034	0.318 + j0.035	0.323 + j0.043	5458	169	176
1	276.86	2234	0.6923	0.87	0.0149	0.1969	0.248 + j0.032	0.254 + j0.04	5458	194	198
1/0	284.48	2817	0.5512	0.69	0.0140	0.1903	0.193 + j0.03	0.199 + j0.038	5458	222	223
2/0	294.64	3551	0.4364	0.55	0.0128	0.1837	0.149 + j0.028	0.155 + j0.036	8577	255	250
3/0	302.26	4477	0.3445	0.44	0.0119	0.1772	0.115 + j0.027	0.121 + j0.035	8577	290	278
4/0	314.96	5647	0.2756	0.34	0.0110	0.1706	0.087 + j0.025	0.093 + j0.033	8577	329	309
250	325.12	6675	0.2329	0.30	0.0104	0.1673	0.072 + j0.024	0.078 + j0.032	10137	370	347
350	342.90	9345	0.1640	0.21	0.0091	0.1575	0.047 + j0.022	0.053 + j0.03	13256	446	402
500	363.22	13350	0.1148	0.15	0.0079	0.1476	0.028 + j0.02	0.034 + j0.028	16376	533	451
750	411.48	20025	0.0787	0.11	0.0067	0.1411	0.015 + j0.018	0.021 + j0.026	21062	631	500
1000	444.50	26700	0.0591	0.09	0.0061	0.1378	0.008 + j0.017	0.015 + j0.025	21062	707	539

\* Inductive impedance is based on non-ferrous conduit with one diameter spacing.

