

## HVTECK AL 1/C 420NLEPR CB PVC AIA PVC 35kV 133% CSA

Single Conductor, 420 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

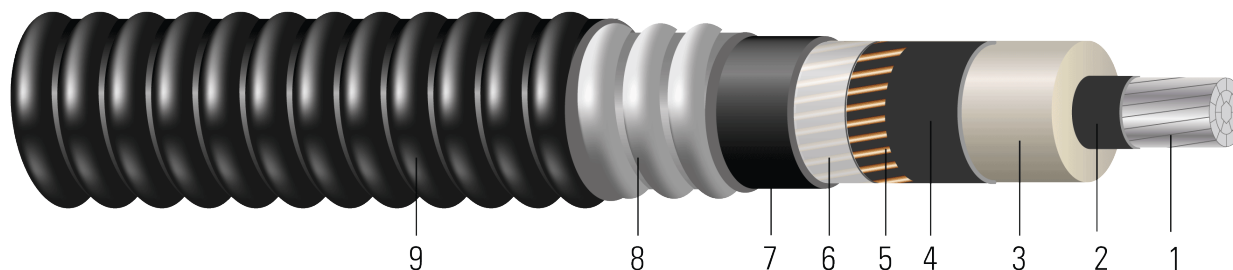


Image not to scale. See Table 1 for dimensions.

### 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:** 420 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:** 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 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 420 NLEPR AIA 35kV 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
1/0	19	0.336	1.214	420	1.274	7 x 14	80	1.924	60	2.044	1668
2/0	19	0.376	1.254	420	1.314	11 x 14	80	1.964	60	2.084	1800
3/0	19	0.422	1.300	420	1.360	11 x 14	110	2.070	60	2.190	2010
4/0	19	0.474	1.352	420	1.412	11 x 14	110	2.122	60	2.242	2120
250	37	0.520	1.406	420	1.466	13 x 14	110	2.176	60	2.296	2260
350	37	0.615	1.501	420	1.561	17 x 14	110	2.271	75	2.421	2607
500	37	0.735	1.621	420	1.681	21 x 14	110	2.391	75	2.541	2969
750	61	0.908	1.804	420	1.864	17 x 12	110	2.608	75	2.758	3555

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
1/0	14.3	633	0.168	0.211	0.067	0.063	0.193 + j0.038	0.199 + j0.046	5458	221	219
2/0	14.5	798	0.133	0.167	0.062	0.061	0.149 + j0.036	0.155 + j0.044	8577	253	246
3/0	15.3	1006	0.105	0.133	0.058	0.060	0.115 + j0.034	0.121 + j0.042	8577	288	275
4/0	15.6	1269	0.084	0.105	0.054	0.057	0.087 + j0.032	0.093 + j0.04	8577	327	305
250	16	1500	0.071	0.090	0.051	0.056	0.072 + j0.031	0.078 + j0.039	10137	367	343
350	16.9	2100	0.050	0.065	0.046	0.053	0.047 + j0.028	0.053 + j0.036	13256	443	399
500	17.7	3000	0.035	0.046	0.041	0.050	0.028 + j0.026	0.035 + j0.034	16376	529	451
750	19.3	4500	0.024	0.033	0.035	0.047	0.015 + j0.023	0.022 + j0.032	21062	633	505

\* 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
1/0	19	8.53	30.84	10.67	32.36	7 x 14	2.03	48.87	1.52	51.92	2482
2/0	19	9.55	31.85	10.67	33.38	11 x 14	2.03	49.89	1.52	52.93	2679
3/0	19	10.72	33.02	10.67	34.54	11 x 14	2.79	52.58	1.52	55.63	2991
4/0	19	12.04	34.34	10.67	35.86	11 x 14	2.79	53.90	1.52	56.95	3155
250	37	13.21	35.71	10.67	37.24	13 x 14	2.79	55.27	1.52	58.32	3363
350	37	15.62	38.13	10.67	39.65	17 x 14	2.79	57.68	1.91	61.49	3880
500	37	18.67	41.17	10.67	42.70	21 x 14	2.79	60.73	1.91	64.54	4418
750	61	23.06	45.82	10.67	47.35	17 x 12	2.79	66.24	1.91	70.05	5290

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
1/0	363.22	2817	0.5512	0.69	0.0204	0.2067	0.193 + j0.038	0.199 + j0.046	5458	221	219
2/0	368.30	3551	0.4364	0.55	0.0189	0.2001	0.149 + j0.036	0.155 + j0.044	8577	253	246
3/0	388.62	4477	0.3445	0.44	0.0177	0.1969	0.115 + j0.034	0.121 + j0.042	8577	288	275
4/0	396.24	5647	0.2756	0.34	0.0165	0.1870	0.087 + j0.032	0.093 + j0.04	8577	327	305
250	406.40	6675	0.2329	0.30	0.0155	0.1837	0.072 + j0.031	0.078 + j0.039	10137	367	343
350	429.26	9345	0.1640	0.21	0.0140	0.1739	0.047 + j0.028	0.053 + j0.036	13256	443	399
500	449.58	13350	0.1148	0.15	0.0125	0.1640	0.028 + j0.026	0.035 + j0.034	16376	529	451
750	490.22	20025	0.0787	0.11	0.0107	0.1542	0.015 + j0.023	0.022 + j0.032	21062	633	505

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

