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

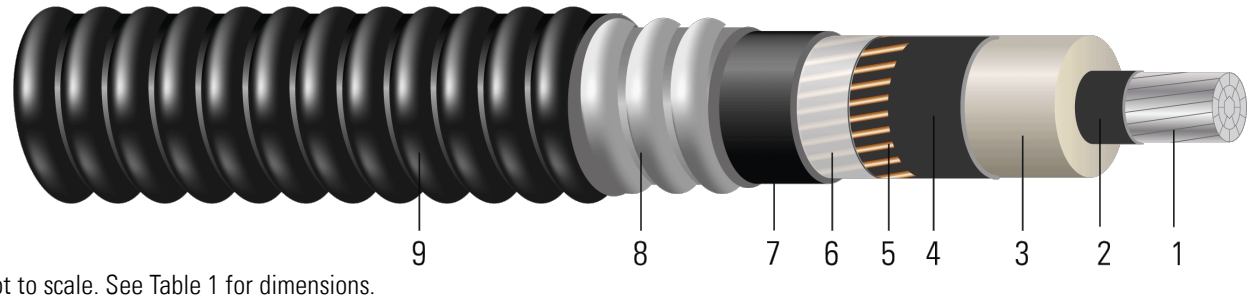

Image not to scale. See Table 1 for dimensions.

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)

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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 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	7x14	80	1.918	60	2.038	1667
2/0	19	0.376	1.254	420	1.314	11x14	80	1.958	60	2.078	1798
3/0	19	0.422	1.300	420	1.360	11x14	80	2.004	60	2.124	1890
4/0	19	0.474	1.352	420	1.412	11x14	110	2.116	60	2.236	2120
250	37	0.520	1.406	420	1.466	13x14	110	2.170	60	2.290	2259
350	37	0.615	1.501	420	1.561	17x14	110	2.299	75	2.449	2627
500	37	0.735	1.621	420	1.681	21x14	110	2.419	75	2.569	2989
750	61	0.908	1.804	420	1.864	17x12	110	2.602	75	2.752	3554

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
1/0	24.5	633	0.168	0.211	0.064	0.063	0.544 + j0.282	0.212 + j0.062	5458	221	219
2/0	24.9	798	0.133	0.167	0.060	0.061	0.497 + j0.271	0.168 + j0.059	8577	253	246
3/0	25.5	1006	0.105	0.133	0.056	0.059	0.458 + j0.259	0.134 + j0.057	8577	288	275
4/0	26.8	1269	0.084	0.105	0.052	0.057	0.425 + j0.247	0.106 + j0.056	8577	327	305
250	27.5	1500	0.071	0.090	0.049	0.056	0.405 + j0.236	0.091 + j0.054	10137	367	343
350	29.4	2100	0.050	0.065	0.044	0.053	0.371 + j0.217	0.066 + j0.052	13256	443	399
500	30.8	3000	0.035	0.046	0.039	0.050	0.341 + j0.196	0.047 + j0.049	16376	529	451
750	33.0	4500	0.024	0.033	0.034	0.047	0.312 + j0.170	0.034 + j0.046	21062	633	505

* 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	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	7x14	2.03	48.72	1.52	51.77	2481
2/0	19	9.55	31.85	10.67	33.38	11x14	2.03	49.73	1.52	52.78	2676
3/0	19	10.72	33.02	10.67	34.54	11x14	2.03	50.90	1.52	53.95	2813
4/0	19	12.04	34.34	10.67	35.86	11x14	2.79	53.75	1.52	56.79	3155
250	37	13.21	35.71	10.67	37.24	13x14	2.79	55.12	1.52	58.17	3362
350	37	15.62	38.13	10.67	39.65	17x14	2.79	58.39	1.91	62.20	3909
500	37	18.67	41.17	10.67	42.70	21x14	2.79	61.44	1.91	65.25	4448
750	61	23.06	45.82	10.67	47.35	17x12	2.79	66.09	1.91	69.90	5289

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
1/0	622.30	2817	0.5512	0.69	0.0195	0.2067	0.544 + j0.282	0.212 + j0.062	5458	221	219
2/0	632.46	3551	0.4364	0.55	0.0183	0.2001	0.497 + j0.271	0.168 + j0.059	8577	253	246
3/0	647.70	4477	0.3445	0.44	0.0171	0.1936	0.458 + j0.259	0.134 + j0.057	8577	288	275
4/0	680.72	5647	0.2756	0.34	0.0158	0.1870	0.425 + j0.247	0.106 + j0.056	8577	327	305
250	698.50	6675	0.2329	0.30	0.0149	0.1837	0.405 + j0.236	0.091 + j0.054	10137	367	343
350	746.76	9345	0.1640	0.21	0.0134	0.1739	0.371 + j0.217	0.066 + j0.052	13256	443	399
500	782.32	13350	0.1148	0.15	0.0119	0.1640	0.341 + j0.196	0.047 + j0.049	16376	529	451
750	838.20	20025	0.0787	0.11	0.0104	0.1542	0.312 + j0.170	0.034 + j0.046	21062	633	505

* 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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