HVTECK AL 1/C 320NLEPR CB PVC AIA PVC 25kV 133% CSA

Single Conductor, 320 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

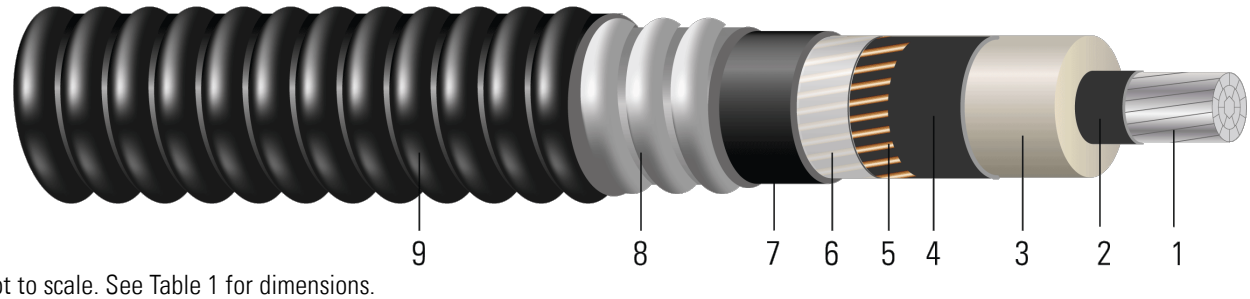

Image not to scale. See Table 1 for dimensions.

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:** 320 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 25kV 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 320 NLEPR AIA 25kV 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
1	19	0.299	0.977	320	1.037	5x12	80	1.797	60	1.917	166	1816	5
1/0	19	0.336	1.014	320	1.074	5x12	80	1.834	60	1.954	169	1891	5
2/0	19	0.376	1.054	320	1.114	7x12	80	1.874	60	1.994	221	2026	5
3/0	19	0.423	1.101	320	1.161	7x12	80	1.921	60	2.041	225	2129	5.5
4/0	19	0.475	1.153	320	1.213	7x12	110	2.033	60	2.153	229	2361	5.5
250	37	0.52	1.206	320	1.266	9x12	110	2.086	60	2.206	271	2522	6
350	37	0.616	1.302	320	1.362	11x12	110	2.182	60	2.302	317	2805	6
500	37	0.736	1.422	320	1.482	13x12	110	2.302	75	2.452	381	3253	6.5
750	61	0.908	1.604	320	1.664	17x12	110	2.484	75	2.634	463	3855	7
1000	61	1.117	1.813	320	1.873	17x12	110	2.693	75	2.843	480	4425	7.5

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
1	13.4	502	0.211	0.289	0.056	0.064	0.583+j0.204	0.292+j0.068	2770	193	194
1/0	13.7	633	0.167	0.229	0.052	0.062	0.522+j0.202	0.232+j0.066	2770	221	219
2/0	14	798	0.133	0.182	0.049	0.06	0.423+j0.132	0.186+j0.063	3879	253	246
3/0	14.3	1006	0.105	0.144	0.045	0.058	0.384+j0.130	0.148+j0.061	3879	288	275
4/0	15.1	1269	0.084	0.115	0.042	0.056	0.355+j0.129	0.119+j0.060	3879	327	305
250	15.4	1500	0.07	0.096	0.039	0.055	0.296+j0.093	0.101+j0.058	4987	367	343
350	16.1	2100	0.051	0.07	0.035	0.052	0.239+j0.070	0.075+j0.055	6095	443	399
500	17.2	3000	0.036	0.05	0.031	0.049	0.196+j0.056	0.056+j0.052	7203	529	451
750	18.4	4500	0.023	0.033	0.027	0.046	0.148+j0.040	0.040+j0.048	9420	633	505
1000	19.9	6000	0.017	0.025	0.023	0.043	0.140+j0.040	0.032+j0.047	9420	711	544

* 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
1	19	7.59	24.82	8.13	26.34	5x12	2.03	45.64	1.52	48.69	247	2703	5
1/0	19	8.53	25.76	8.13	27.28	5x12	2.03	46.58	1.52	49.63	251	2814	5
2/0	19	9.55	26.77	8.13	28.30	7x12	2.03	47.60	1.52	50.65	329	3015	5
3/0	19	10.74	27.97	8.13	29.49	7x12	2.03	48.79	1.52	51.84	335	3168	5.5
4/0	19	12.07	29.29	8.13	30.81	7x12	2.79	51.64	1.52	54.69	341	3514	5.5
250	37	13.21	30.63	8.13	32.16	9x12	2.79	52.98	1.52	56.03	403	3753	6
350	37	15.65	33.07	8.13	34.59	11x12	2.79	55.42	1.52	58.47	472	4174	6
500	37	18.69	36.12	8.13	37.64	13x12	2.79	58.47	1.91	62.28	567	4841	6.5
750	61	23.06	40.74	8.13	42.27	17x12	2.79	63.09	1.91	66.90	689	5737	7
1000	61	28.37	46.05	8.13	47.57	17x12	2.79	68.40	1.91	72.21	714	6585	7.5

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
1	340.36	2234	0.6923	0.95	0.0171	0.2100	0.583+j0.204	0.292+j0.068	2770	193	194
1/0	347.98	2817	0.5479	0.75	0.0158	0.2034	0.522+j0.202	0.232+j0.066	2770	221	219
2/0	355.60	3551	0.4364	0.60	0.0149	0.1969	0.423+j0.132	0.186+j0.063	3879	253	246
3/0	363.22	4477	0.3445	0.47	0.0137	0.1903	0.384+j0.130	0.148+j0.061	3879	288	275
4/0	383.54	5647	0.2756	0.38	0.0128	0.1837	0.355+j0.129	0.119+j0.060	3879	327	305
250	391.16	6675	0.2297	0.31	0.0119	0.1804	0.296+j0.093	0.101+j0.058	4987	367	343
350	408.94	9345	0.1673	0.23	0.0107	0.1706	0.239+j0.070	0.075+j0.055	6095	443	399
500	436.88	13350	0.1181	0.16	0.0094	0.1608	0.196+j0.056	0.056+j0.052	7203	529	451
750	467.36	20025	0.0755	0.11	0.0082	0.1509	0.148+j0.040	0.040+j0.048	9420	633	505
1000	505.46	26700	0.0558	0.08	0.0070	0.1411	0.140+j0.040	0.032+j0.047	9420	711	544

* 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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