HVTECK AL 1/C 280NLEPR CB PVC AIA PVC 28kV 100% CSA

Single Conductor, 280 Mils No Lead Ethylene Propylene Rubber (NL-EPR), 100% Insulation Level, Concentric Bond, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

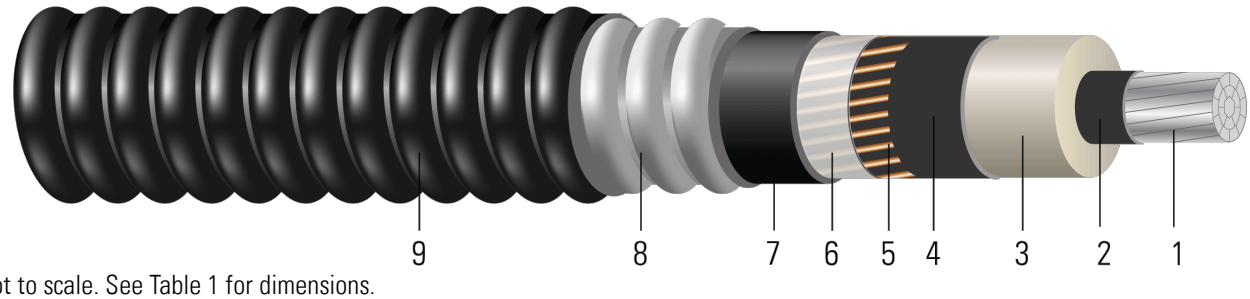

Image not to scale. See Table 1 for dimensions.

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:** 280 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 100% 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 28kV 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 280 NLEPR AIA 28kV 100% 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	0.897	280	0.957	5x12	80	1.717	60	1.837	160	1677	5
1/0	19	0.336	0.934	280	0.994	5x12	80	1.754	60	1.874	163	1750	5
2/0	19	0.376	0.974	280	1.034	7x12	80	1.794	60	1.914	214	1882	5
3/0	19	0.423	1.021	280	1.081	7x12	80	1.841	60	1.961	218	1982	5
4/0	19	0.475	1.073	280	1.133	7x12	80	1.893	60	2.013	222	2098	5.5
250	37	0.52	1.126	280	1.186	9x12	80	1.946	60	2.066	265	2252	5.5
350	37	0.616	1.222	280	1.282	11x12	110	2.102	60	2.222	310	2639	6
500	37	0.736	1.342	280	1.402	13x12	110	2.222	60	2.342	374	3015	6
750	61	0.908	1.524	280	1.584	17x12	110	2.404	75	2.554	456	3666	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.

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	12.9	502	0.211	0.289	0.051	0.063	0.584+j0.202	0.292+j0.067	2770	193	194
1/0	13.1	633	0.167	0.229	0.048	0.061	0.523+j0.200	0.232+j0.065	2770	221	219
2/0	13.4	798	0.133	0.182	0.045	0.059	0.423+j0.130	0.186+j0.062	3879	253	246
3/0	13.7	1006	0.105	0.144	0.041	0.057	0.385+j0.128	0.148+j0.060	3879	288	275
4/0	14.1	1269	0.084	0.115	0.039	0.055	0.356+j0.127	0.119+j0.058	3879	327	305
250	14.5	1500	0.07	0.096	0.036	0.053	0.296+j0.091	0.101+j0.057	4987	367	343
350	15.6	2100	0.051	0.07	0.032	0.051	0.240+j0.069	0.075+j0.054	6095	443	399
500	16.4	3000	0.036	0.05	0.028	0.048	0.197+j0.055	0.056+j0.051	7203	529	451
750	17.9	4500	0.023	0.033	0.024	0.045	0.148+j0.039	0.041+j0.047	9420	633	505

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* 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	22.78	7.11	24.31	5x12	2.03	43.61	1.52	46.66	238	2496	5
1/0	19	8.53	23.72	7.11	25.25	5x12	2.03	44.55	1.52	47.60	243	2604	5
2/0	19	9.55	24.74	7.11	26.26	7x12	2.03	45.57	1.52	48.62	318	2801	5
3/0	19	10.74	25.93	7.11	27.46	7x12	2.03	46.76	1.52	49.81	324	2950	5
4/0	19	12.07	27.25	7.11	28.78	7x12	2.03	48.08	1.52	51.13	330	3122	5.5
250	37	13.21	28.60	7.11	30.12	9x12	2.03	49.43	1.52	52.48	394	3351	5.5
350	37	15.65	31.04	7.11	32.56	11x12	2.79	53.39	1.52	56.44	461	3927	6
500	37	18.69	34.09	7.11	35.61	13x12	2.79	56.44	1.52	59.49	557	4487	6
750	61	23.06	38.71	7.11	40.23	17x12	2.79	61.06	1.91	64.87	679	5456	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.

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	327.66	2234	0.6923	0.95	0.0155	0.2067	0.584+j0.202	0.292+j0.067	2770	193	194
1/0	332.74	2817	0.5479	0.75	0.0146	0.2001	0.523+j0.200	0.232+j0.065	2770	221	219
2/0	340.36	3551	0.4364	0.60	0.0137	0.1936	0.423+j0.130	0.186+j0.062	3879	253	246
3/0	347.98	4477	0.3445	0.47	0.0125	0.1870	0.385+j0.128	0.148+j0.060	3879	288	275
4/0	358.14	5647	0.2756	0.38	0.0119	0.1804	0.356+j0.127	0.119+j0.058	3879	327	305
250	368.30	6675	0.2297	0.31	0.0110	0.1739	0.296+j0.091	0.101+j0.057	4987	367	343
350	396.24	9345	0.1673	0.23	0.0098	0.1673	0.240+j0.069	0.075+j0.054	6095	443	399
500	416.56	13350	0.1181	0.16	0.0085	0.1575	0.197+j0.055	0.056+j0.051	7203	529	451
750	454.66	20025	0.0755	0.11	0.0073	0.1476	0.148+j0.039	0.041+j0.047	9420	633	505

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