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

Single Conductor, 420 Mils No Lead Ethylene Propylene Rubber (NL-EPR), 133% Insulation Level, Tape Shield, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

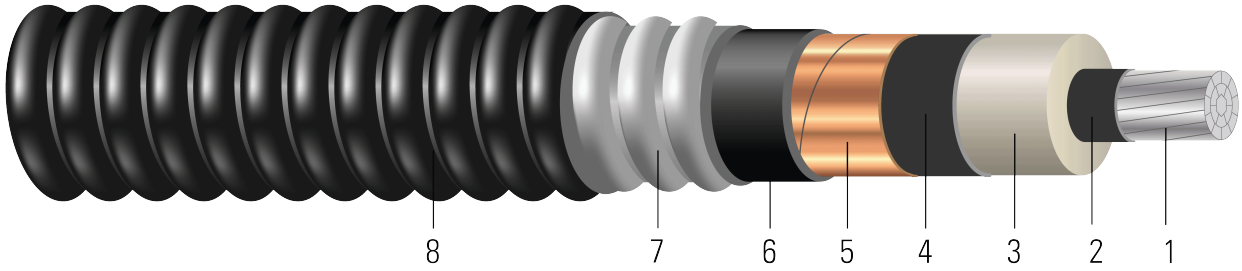

Image not to scale. See Table 1 for dimensions.

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. **Copper Tape Shield:** Helically wrapped 5 mil copper tape with 25% overlap
6. **Inner Jacket:** PVC inner jacket
7. **Armour:** Aluminum Interlocked Armour (AIA)
8. **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 25% TS SUN RES 105°C FT4 HL (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

Table 1 – Weights and Measurements

Stock Number	Cond. Size	Strand	Diameter Over Conductor	Diameter Over Insulation	Insul. Thickness	Diameter Over Insulation Shield	Inner Jacket Thickness	Dia. Over Armour	Overall Jacket Thickness	Approx. OD	Approx. Weight
	AWG/ Kcmil	No.	inch	inch	mil	inch	mil	inch	mil	inch	lb/1000ft
TBA	1/0	19	0.336	1.214	420	1.274	80	1.810	60	1.930	1454
679345	2/0	12	0.376	1.254	420	1.334	80	1.846	60	1.966	1621
TBA	3/0	19	0.422	1.300	420	1.360	80	1.896	60	2.016	1712
TBA	4/0	19	0.474	1.352	420	1.412	80	1.948	60	2.068	1822
TBA	250	37	0.520	1.406	420	1.466	80	2.002	60	2.122	1932
TBA	350	37	0.615	1.501	420	1.561	110	2.157	60	2.277	2274
TBA	500	37	0.735	1.621	420	1.681	110	2.277	75	2.427	2653
TBA	750	61	0.908	1.804	420	1.864	110	2.460	75	2.610	3151

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 @ 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	23.2	633	0.168	0.211	0.064	0.062	0.546 + j0.280	0.212 + j0.060	3978	221	219
2/0	23.6	798	0.133	0.167	0.060	0.060	0.498 + j0.269	0.168 + j0.058	4102	253	246
3/0	24.2	1006	0.105	0.133	0.056	0.058	0.460 + j0.257	0.134 + j0.056	4244	288	275
4/0	24.8	1269	0.084	0.105	0.052	0.056	0.427 + j0.245	0.106 + j0.054	4405	327	305
250	25.5	1500	0.071	0.090	0.049	0.054	0.407 + j0.234	0.091 + j0.052	4573	367	343
350	27.3	2100	0.050	0.065	0.044	0.052	0.373 + j0.215	0.066 + j0.050	4867	443	399
500	29.1	3000	0.035	0.046	0.039	0.049	0.342 + j0.194	0.047 + j0.048	5239	529	451
750	31.3	4500	0.024	0.033	0.034	0.046	0.313 + j0.168	0.034 + j0.044	5806	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)

Stock Number	Cond. Size	Strand	Diameter Over Conductor	Diameter Over Insulation	Insul. Thickness	Diameter Over Insulation Shield	Inner Jacket Thickness	Dia. Over Armour	Overall Jacket Thickness	Approx. OD	Approx. Weight
	AWG/ Kcmil	No.	mm	mm	mm	mm	mm	mm	mm	mm	kg/km
TBA	1/0	19	8.53	30.84	10.67	32.36	2.03	45.97	1.52	49.02	2164
679345	2/0	12	9.55	31.85	10.67	33.88	2.03	46.89	1.52	49.94	2412
TBA	3/0	19	10.72	33.02	10.67	34.54	2.03	48.16	1.52	51.21	2548
TBA	4/0	19	12.04	34.34	10.67	35.86	2.03	49.48	1.52	52.53	2711
TBA	250	37	13.21	35.71	10.67	37.24	2.03	50.85	1.52	53.90	2875
TBA	350	37	15.62	38.13	10.67	39.65	2.79	54.79	1.52	57.84	3384
TBA	500	37	18.67	41.17	10.67	42.70	2.79	57.84	1.91	61.65	3948
TBA	750	61	23.06	45.82	10.67	47.35	2.79	62.48	1.91	66.29	4689

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 @ 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	589.28	2817	0.5512	0.69	0.0195	0.2034	0.546 + j0.280	0.212 + j0.060	3978	221	219
2/0	599.44	3551	0.4364	0.55	0.0183	0.1969	0.498 + j0.269	0.168 + j0.058	4102	253	246
3/0	614.68	4477	0.3445	0.44	0.0171	0.1903	0.460 + j0.257	0.134 + j0.056	4244	288	275
4/0	629.92	5647	0.2756	0.34	0.0158	0.1837	0.427 + j0.245	0.106 + j0.054	4405	327	305
250	647.70	6675	0.2329	0.30	0.0149	0.1772	0.407 + j0.234	0.091 + j0.052	4573	367	343
350	693.42	9345	0.1640	0.21	0.0134	0.1706	0.373 + j0.215	0.066 + j0.050	4867	443	399
500	739.14	13350	0.1148	0.15	0.0119	0.1608	0.342 + j0.194	0.047 + j0.048	5239	529	451
750	795.02	20025	0.0787	0.11	0.0104	0.1509	0.313 + j0.168	0.034 + j0.044	5806	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