HVTECK AL 3/C 420NLEPR TS PVC AIA PVC 35kV 133% CSA

3 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

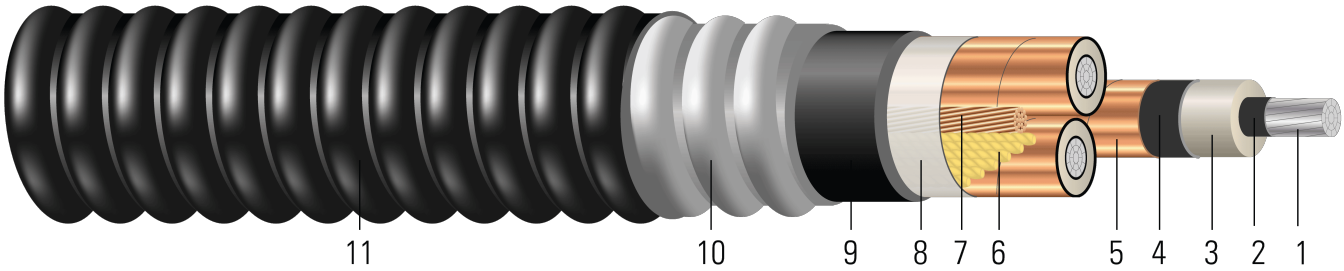

Image not to scale. See Table 1 for dimensions.

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. **Filler:** Interstices filled with non-hydroscoping/non-wicking fillers
7. **Grounding Conductor:** Class B compressed stranded bare copper ground per ASTM B3 and ASTM B8
8. **Binder:** Polypropylene tape
9. **Inner Jacket:** PVC inner jacket
10. **Armour:** Aluminum Interlocked Armour (AIA)
11. **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

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- 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
- 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# 3/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

Cond. Size	Strand	Diameter Over Conductor	Diameter Over Insulation	Insul. Thickness	Diameter Over Insulation Shield	Ground	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
1/0	19	0.336	1.214	420	1.274	1x6	125	3.338	85	3.508	401	3985	4.5
2/0	19	0.376	1.254	420	1.314	1x6	125	3.424	85	3.594	411	4212	4.5
3/0	19	0.423	1.301	420	1.361	1x6	125	3.526	85	3.696	423	4487	5
4/0	19	0.475	1.353	420	1.413	1x6	125	3.638	85	3.808	436	4804	5
250	37	0.52	1.406	420	1.466	1x4	125	3.753	85	3.923	496	5169	5
350	37	0.616	1.502	420	1.562	1x4	125	3.96	85	4.13	520	5812	5.5

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
1/0	24.6	1900	0.167	0.229	0.061	0.037	0.581+j0.320	0.229+j0.051	3978	181	200
2/0	25.2	2395	0.133	0.182	0.058	0.035	0.531+j0.309	0.182+j0.049	4102	208	228
3/0	25.9	3020	0.105	0.144	0.054	0.033	0.490+j0.296	0.144+j0.047	4248	239	258
4/0	26.7	3808	0.084	0.115	0.051	0.031	0.456+j0.282	0.115+j0.046	4409	273	292
250	27.5	4500	0.07	0.096	0.047	0.03	0.433+j0.270	0.096+j0.044	4573	302	321
350	28.9	6300	0.051	0.07	0.043	0.027	0.399+j0.249	0.071+j0.042	4871	368	385

* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.
***** CEC ampacities are based on:
3/C in air copper and aluminum: D17N
3/C direct buried copper and aluminum: D17E

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Table 3 – Weights and Measurements (Metric)

Cond. Size	Strand	Diameter Over Conductor	Diameter Over Insulation	Insul. Thickness	Diameter Over Insulation Shield	Ground	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
1/0	19	8.53	30.84	10.67	32.36	1x6	3.18	84.79	2.16	89.10	597	5930	4.5
2/0	19	9.55	31.85	10.67	33.38	1x6	3.18	86.97	2.16	91.29	612	6268	4.5
3/0	19	10.74	33.05	10.67	34.57	1x6	3.18	89.56	2.16	93.88	629	6677	5
4/0	19	12.07	34.37	10.67	35.89	1x6	3.18	92.41	2.16	96.72	649	7149	5
250	37	13.21	35.71	10.67	37.24	1x4	3.18	95.33	2.16	99.64	738	7692	5
350	37	15.65	38.15	10.67	39.67	1x4	3.18	100.58	2.16	104.90	774	8649	5.5

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
1/0	624.84	8455	0.5479	0.75	0.0186	0.1214	0.581+j0.320	0.229+j0.051	3978	181	200
2/0	640.08	10658	0.4364	0.60	0.0177	0.1148	0.531+j0.309	0.182+j0.049	4102	208	228
3/0	657.86	13439	0.3445	0.47	0.0165	0.1083	0.490+j0.296	0.144+j0.047	4248	239	258
4/0	678.18	16946	0.2756	0.38	0.0155	0.1017	0.456+j0.282	0.115+j0.046	4409	273	292
250	698.50	20025	0.2297	0.31	0.0143	0.0984	0.433+j0.270	0.096+j0.044	4573	302	321
350	734.06	28035	0.1673	0.23	0.0131	0.0886	0.399+j0.249	0.071+j0.042	4871	368	385

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