



## HVTECK AL 1/C 220NLEPR TS PVC AIA PVC 15kV 133% CSA

Single Conductor, 220 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

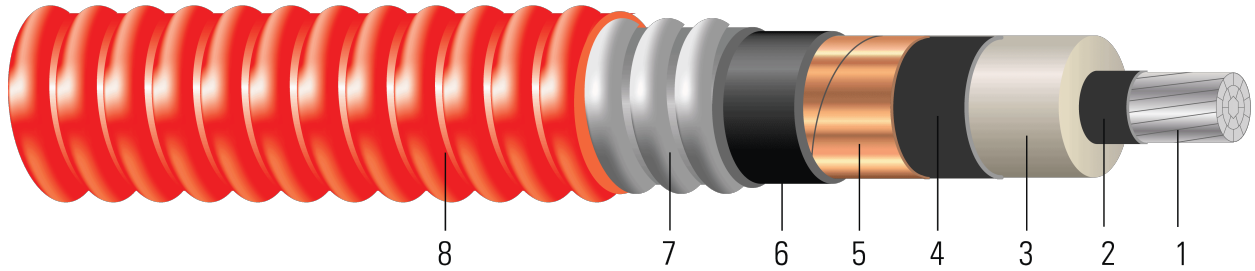


Image not to scale. See Table 1 for dimensions.

### 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:** 220 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:** Red Polyvinyl Chloride (PVC) Jacket

### APPLICATIONS AND FEATURES:

Southwire's 15kV 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 220 NLEPR AIA 15kV 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	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
2	7	0.268	0.746	220	0.806	80	1.208	50	1.308	743
1	19	0.298	0.776	220	0.836	80	1.348	50	1.448	797
1/0	19	0.336	0.814	220	0.874	80	1.386	50	1.486	852
2/0	19	0.376	0.854	220	0.914	80	1.426	50	1.526	913
3/0	19	0.422	0.900	220	0.960	80	1.472	50	1.572	987
4/0	19	0.474	0.952	220	1.012	80	1.524	60	1.644	1105
250	37	0.520	1.006	220	1.066	80	1.578	60	1.698	1193
350	37	0.615	1.101	220	1.161	80	1.697	60	1.817	1406
500	37	0.735	1.221	220	1.281	80	1.817	60	1.937	1659
750	61	0.908	1.404	220	1.464	80	2.000	60	2.120	2170
1000	61	1.060	1.556	220	1.616	110	2.212	60	2.332	2685

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
2	15.7	398	0.267	0.336	0.049	0.058	0.700 + j0.424	0.337 + j0.058	2528	169	176
1	17.4	502	0.211	0.266	0.046	0.058	0.628 + j0.409	0.267 + j0.056	2621	194	198
1/0	17.8	633	0.168	0.211	0.043	0.056	0.572 + j0.392	0.212 + j0.054	2738	222	223
2/0	18.3	798	0.133	0.167	0.040	0.054	0.527 + j0.376	0.168 + j0.052	2862	255	250
3/0	18.9	1006	0.105	0.133	0.037	0.052	0.491 + j0.358	0.134 + j0.050	3005	290	278
4/0	19.7	1269	0.084	0.105	0.034	0.050	0.460 + j0.339	0.106 + j0.049	3166	329	309
250	20.4	1500	0.071	0.090	0.032	0.049	0.442 + j0.321	0.091 + j0.047	3333	370	347
350	21.8	2100	0.050	0.065	0.028	0.047	0.409 + j0.292	0.066 + j0.045	3628	446	402
500	23.2	3000	0.035	0.046	0.024	0.044	0.380 + j0.261	0.047 + j0.042	3999	533	451
750	25.4	4500	0.024	0.033	0.021	0.041	0.350 + j0.221	0.034 + j0.040	4566	631	500
1000	28.0	6000	0.018	0.026	0.018	0.040	0.328 + j0.195	0.027 + j0.039	5037	707	539

\* 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	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
2	7	6.81	18.95	5.59	20.47	2.03	30.68	1.27	33.22	1106
1	19	7.57	19.71	5.59	21.23	2.03	34.24	1.27	36.78	1186
1/0	19	8.53	20.68	5.59	22.20	2.03	35.20	1.27	37.74	1268
2/0	19	9.55	21.69	5.59	23.22	2.03	36.22	1.27	38.76	1359
3/0	19	10.72	22.86	5.59	24.38	2.03	37.39	1.27	39.93	1469
4/0	19	12.04	24.18	5.59	25.70	2.03	38.71	1.52	41.76	1644
250	37	13.21	25.55	5.59	27.08	2.03	40.08	1.52	43.13	1775
350	37	15.62	27.97	5.59	29.49	2.03	43.10	1.52	46.15	2092
500	37	18.67	31.01	5.59	32.54	2.03	46.15	1.52	49.20	2469
750	61	23.06	35.66	5.59	37.19	2.03	50.80	1.52	53.85	3229
1000	61	26.92	39.52	5.59	41.05	2.79	56.18	1.52	59.23	3996

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
2	398.78	1771	0.8760	1.10	0.0149	0.1903	0.700 + j0.424	0.337 + j0.058	2528	169	176
1	441.96	2234	0.6923	0.87	0.0140	0.1903	0.628 + j0.409	0.267 + j0.056	2621	194	198
1/0	452.12	2817	0.5512	0.69	0.0131	0.1837	0.572 + j0.392	0.212 + j0.054	2738	222	223
2/0	464.82	3551	0.4364	0.55	0.0122	0.1772	0.527 + j0.376	0.168 + j0.052	2862	255	250
3/0	480.06	4477	0.3445	0.44	0.0113	0.1706	0.491 + j0.358	0.134 + j0.050	3005	290	278
4/0	500.38	5647	0.2756	0.34	0.0104	0.1640	0.460 + j0.339	0.106 + j0.049	3166	329	309
250	518.16	6675	0.2329	0.30	0.0098	0.1608	0.442 + j0.321	0.091 + j0.047	3333	370	347
350	553.72	9345	0.1640	0.21	0.0085	0.1542	0.409 + j0.292	0.066 + j0.045	3628	446	402
500	589.28	13350	0.1148	0.15	0.0073	0.1444	0.380 + j0.261	0.047 + j0.042	3999	533	451
750	645.16	20025	0.0787	0.11	0.0064	0.1345	0.350 + j0.221	0.034 + j0.040	4566	631	500
1000	711.20	26700	0.0591	0.09	0.0055	0.1312	0.328 + j0.195	0.027 + j0.039	5037	707	539

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

\* CEC ampacities are based on:

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