



## HVTECK AL 3/C 115NLEPR TS PVC AIA PVC 5kV 133% CSA

3 Conductor, 115 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:

- Conductor:** Class B compact stranded 8000 Series aluminum per ASTM B800 and ASTM B836
- Conductor Shield:** Semi-conducting cross-linked copolymer; A conductor separator is used for cable size larger than or equal to 500 Kcmil
- Insulation:** 115 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 133% insulation level
- Insulation Shield:** Strippable semi-conducting cross-linked copolymer
- Copper Tape Shield:** Helically wrapped 5 mil copper tape with 25% overlap
- Filler:** Interstices filled with non-hydroscoping/non-wicking fillers
- Grounding Conductor:** Class B compressed stranded bare copper ground per ASTM B3 and ASTM B8
- Binder:** Polypropylene tape
- Inner Jacket:** PVC inner jacket
- Armour:** Aluminum Interlocked Armour (AIA)
- Overall Jacket:** Orange Polyvinyl Chloride (PVC) Jacket

### APPLICATIONS AND FEATURES:

Southwire's 5kV 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
- 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 115 NLEPR AIA 5kV 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 Size	Inner Jacket Thickness	Dia. Over Armour	Overall Jacket Thickness	Approx. OD	Approx. Weight
AWG/ Kcmil	No.	inch	inch	mil	inch	AWG	mil	inch	mil	inch	lb/1000ft
2	7	0.268	0.536	115	0.596	8	80	1.847	60	1.967	1499
1	19	0.298	0.566	115	0.626	6	80	1.911	60	2.031	1625
1/0	19	0.336	0.604	115	0.664	6	80	1.993	60	2.113	1776
2/0	19	0.376	0.644	115	0.704	6	110	2.140	60	2.260	2072
3/0	19	0.422	0.690	115	0.750	6	110	2.239	60	2.359	2284
4/0	19	0.474	0.742	115	0.802	6	110	2.352	75	2.502	2613
250	37	0.520	0.796	115	0.856	4	110	2.468	75	2.618	2886
350	37	0.615	0.891	115	0.951	4	110	2.673	75	2.823	3419
500	37	0.735	1.011	115	1.071	3	110	2.933	75	3.083	4185
750	61	0.908	1.194	115	1.254	2	125	3.358	85	3.528	5606
1000	61	1.060	1.346	115	1.406	2	125	3.686	85	3.856	6770

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	13.8	1194	0.267	0.336	0.030	0.041	0.705 + j0.524	0.336 + j0.041	1877	135	157
1	14.2	1506	0.211	0.266	0.030	0.039	0.637 + j0.504	0.266 + j0.038	1970	154	178
1/0	14.8	1900	0.168	0.211	0.030	0.038	0.584 + j0.483	0.211 + j0.037	2088	176	202
2/0	15.8	2395	0.133	0.167	0.030	0.037	0.542 + j0.462	0.167 + j0.035	2212	204	229
3/0	16.5	3020	0.105	0.133	0.020	0.035	0.509 + j0.438	0.133 + j0.034	2354	234	260
4/0	17.5	3808	0.084	0.105	0.020	0.030	0.548 + j0.414	0.105 + j0.033	2515	268	294
250	18.3	4500	0.071	0.090	0.020	0.030	0.464 + j0.390	0.090 + j0.032	2683	296	323
350	19.8	6300	0.050	0.065	0.020	0.030	0.434 + j0.353	0.065 + j0.031	2977	363	386
500	21.6	9000	0.035	0.046	0.014	0.030	0.406 + j0.312	0.046 + j0.029	3349	447	465
750	24.7	13500	0.020	0.030	0.012	0.030	0.376 + j0.261	0.033 + j0.028	3916	566	563
1000	27.0	18000	0.020	0.030	0.011	0.030	0.354 + j0.227	0.027 + j0.027	4387	661	638

\* 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

**Table 3 – Weights and Measurements (Metric)**

Cond. Size	Strand	Diameter Over Conductor	Diameter Over Insulation	Insul. Thickness	Diameter Over Insulation Shield	Ground Size	Inner Jacket Thickness	Dia. Over Armour	Overall Jacket Thickness	Approx. OD	Approx. Weight
AWG/Kcmil	No.	mm	mm	mm	mm	AWG	mm	mm	mm	mm	kg/km
2	7	6.81	13.61	2.92	15.14	8	2.03	46.91	1.52	49.96	2231
1	19	7.57	14.38	2.92	15.90	6	2.03	48.54	1.52	51.59	2418
1/0	19	8.53	15.34	2.92	16.87	6	2.03	50.62	1.52	53.67	2643
2/0	19	9.55	16.36	2.92	17.88	6	2.79	54.36	1.52	57.40	3083
3/0	19	10.72	17.53	2.92	19.05	6	2.79	56.87	1.52	59.92	3399
4/0	19	12.04	18.85	2.92	20.37	6	2.79	59.74	1.91	63.55	3889
250	37	13.21	20.22	2.92	21.74	4	2.79	62.69	1.91	66.50	4295
350	37	15.62	22.63	2.92	24.16	4	2.79	67.89	1.91	71.70	5088
500	37	18.67	25.68	2.92	27.20	3	2.79	74.50	1.91	78.31	6228
750	61	23.06	30.33	2.92	31.85	2	3.18	85.29	2.16	89.61	8343
1000	61	26.92	34.19	2.92	35.71	2	3.18	93.62	2.16	97.94	10075

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	350.52	5313	0.8760	1.10	0.0091	0.1345	0.705 + j0.524	0.336 + j0.041	1877	135	157
1	360.68	6702	0.6923	0.87	0.0091	0.1280	0.637 + j0.504	0.266 + j0.038	1970	154	178
1/0	375.92	8455	0.5512	0.69	0.0091	0.1247	0.584 + j0.483	0.211 + j0.037	2088	176	202
2/0	401.32	10658	0.4364	0.55	0.0091	0.1214	0.542 + j0.462	0.167 + j0.035	2212	204	229
3/0	419.10	13439	0.3445	0.44	0.0061	0.1148	0.509 + j0.438	0.133 + j0.034	2354	234	260
4/0	444.50	16946	0.2756	0.34	0.0061	0.0984	0.548 + j0.414	0.105 + j0.033	2515	268	294
250	464.82	20025	0.2329	0.30	0.0061	0.0984	0.464 + j0.390	0.090 + j0.032	2683	296	323
350	502.92	28035	0.1640	0.21	0.0061	0.0984	0.434 + j0.353	0.065 + j0.031	2977	363	386
500	548.64	40050	0.1148	0.15	0.0043	0.0984	0.406 + j0.312	0.046 + j0.029	3349	447	465
750	627.38	60075	0.0656	0.10	0.0037	0.0984	0.376 + j0.261	0.033 + j0.028	3916	566	563
1000	685.80	80100	0.0656	0.10	0.0034	0.0984	0.354 + j0.227	0.027 + j0.027	4387	661	638

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

\* CEC ampacities are based on:

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3/C direct buried copper and aluminum: D17E

