



## HVTECK AL 3/C 140NLEPR TS PVC AIA PVC 8kV 133% CSA

3 Conductor, 140 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:** 140 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 8kV 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)
- 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:**

{SQMTR} {CSA} SOUTHWIRE POWER CABLE {NESC} 3/C XXX AWG COMPACT AL. --- {ALUMAFLEX}® AA8176 X.XX mm (140 mils) TR-XLPE AIA 8KV 133% INS LEVEL 25%TS SUN. RES. 90°C FT4 HL (-40°C) LTGG RoHS

**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	0.586	140	0.646	8	80	1.955	60	2.075	1651
1	19	0.298	0.616	140	0.676	6	110	2.079	60	2.199	1901
1/0	19	0.336	0.654	140	0.714	6	110	2.161	60	2.281	2061
2/0	19	0.376	0.694	140	0.754	6	110	2.248	60	2.368	2245
3/0	19	0.422	0.740	140	0.800	6	110	2.347	75	2.497	2537
4/0	19	0.474	0.792	140	0.852	6	110	2.460	75	2.610	2804
250	37	0.520	0.846	140	0.906	4	110	2.576	75	2.726	3084
350	37	0.615	0.941	140	1.001	4	110	2.781	75	2.931	3633
500	37	0.735	1.061	140	1.121	3	110	3.041	85	3.211	4479
750	61	0.908	1.244	140	1.304	2	125	3.466	85	3.636	5870
1000	61	1.060	1.396	140	1.456	2	125	3.794	85	3.964	7056

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	14.5	1194	0.267	0.336	0.037	0.043	0.708 + j0.498	0.336 + j0.042	2032	135	157
1	15.4	1506	0.211	0.266	0.030	0.041	0.640 + j0.48	0.266 + j0.040	2125	154	178
1/0	16.0	1900	0.168	0.211	0.030	0.040	0.586 + j0.46	0.211 + j0.038	2243	176	202
2/0	16.6	2395	0.133	0.167	0.030	0.038	0.543 + j0.439	0.167 + j0.037	2367	204	229
3/0	17.5	3020	0.105	0.133	0.030	0.037	0.508 + j0.417	0.133 + j0.035	2509	234	260
4/0	18.3	3808	0.084	0.105	0.020	0.036	0.479 + j0.394	0.105 + j0.034	2670	268	294
250	19.1	4500	0.071	0.090	0.020	0.030	0.461 + j0.372	0.090 + j0.033	2838	296	323
350	20.5	6300	0.050	0.065	0.020	0.030	0.430 + j0.337	0.065 + j0.032	3132	363	386
500	22.5	9000	0.035	0.046	0.020	0.030	0.401 + j0.298	0.046 + j0.030	3504	447	465
750	25.5	13500	0.020	0.030	0.014	0.030	0.371 + j0.250	0.033 + j0.029	4071	566	563
1000	27.7	18000	0.020	0.030	0.013	0.030	0.349 + j0.218	0.027 + j0.028	4542	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	14.88	3.56	16.41	8	2.03	49.66	1.52	52.71	2457
1	19	7.57	15.65	3.56	17.17	6	2.79	52.81	1.52	55.85	2829
1/0	19	8.53	16.61	3.56	18.14	6	2.79	54.89	1.52	57.94	3067
2/0	19	9.55	17.63	3.56	19.15	6	2.79	57.10	1.52	60.15	3341
3/0	19	10.72	18.80	3.56	20.32	6	2.79	59.61	1.91	63.42	3775
4/0	19	12.04	20.12	3.56	21.64	6	2.79	62.48	1.91	66.29	4173
250	37	13.21	21.49	3.56	23.01	4	2.79	65.43	1.91	69.24	4589
350	37	15.62	23.90	3.56	25.43	4	2.79	70.64	1.91	74.45	5406
500	37	18.67	26.95	3.56	28.47	3	2.79	77.24	2.16	81.56	6665
750	61	23.06	31.60	3.56	33.12	2	3.18	88.04	2.16	92.35	8736
1000	61	26.92	35.46	3.56	36.98	2	3.18	96.37	2.16	100.69	10500

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	368.30	5313	0.8760	1.10	0.0113	0.1411	0.708 + j0.498	0.336 + j0.042	2032	135	157
1	391.16	6702	0.6923	0.87	0.0091	0.1345	0.640 + j0.48	0.266 + j0.040	2125	154	178
1/0	406.40	8455	0.5512	0.69	0.0091	0.1312	0.586 + j0.46	0.211 + j0.038	2243	176	202
2/0	421.64	10658	0.4364	0.55	0.0091	0.1247	0.543 + j0.439	0.167 + j0.037	2367	204	229
3/0	444.50	13439	0.3445	0.44	0.0091	0.1214	0.508 + j0.417	0.133 + j0.035	2509	234	260
4/0	464.82	16946	0.2756	0.34	0.0061	0.1181	0.479 + j0.394	0.105 + j0.034	2670	268	294
250	485.14	20025	0.2329	0.30	0.0061	0.0984	0.461 + j0.372	0.090 + j0.033	2838	296	323
350	520.70	28035	0.1640	0.21	0.0061	0.0984	0.430 + j0.337	0.065 + j0.032	3132	363	386
500	571.50	40050	0.1148	0.15	0.0061	0.0984	0.401 + j0.298	0.046 + j0.030	3504	447	465
750	647.70	60075	0.0656	0.10	0.0043	0.0984	0.371 + j0.250	0.033 + j0.029	4071	566	563
1000	703.58	80100	0.0656	0.10	0.0040	0.0984	0.349 + j0.218	0.027 + j0.028	4542	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

