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

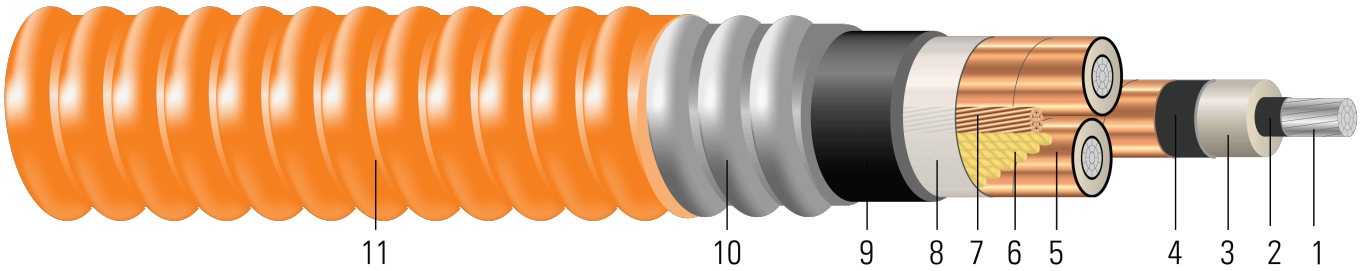

Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

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:** 115 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:** 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

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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 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

Stock Number	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
TBA	2	7	0.268	0.536	115	0.596	1x8	80	1.783	60	1.903	203	1284	2.5
TBA	1	19	0.299	0.567	115	0.627	1x6	80	1.85	60	1.97	240	1417	2.5
TBA	1/0	19	0.336	0.604	115	0.664	1x6	80	1.93	60	2.05	249	1545	2.5
TBA	2/0	19	0.376	0.644	115	0.704	1x6	110	2.077	60	2.197	259	1714	3
TBA	3/0	19	0.423	0.691	115	0.751	1x6	110	2.178	60	2.298	271	1899	3
TBA	4/0	19	0.475	0.743	115	0.803	1x6	110	2.29	75	2.44	284	2182	3
TBA	250	37	0.52	0.796	115	0.856	1x4	110	2.405	75	2.555	344	2449	3.5
TBA	350	37	0.616	0.892	115	0.952	1x4	110	2.612	75	2.762	368	2916	3.5
TBA	500	37	0.736	1.012	115	1.072	1x3	110	2.872	75	3.022	436	3612	4
TBA	750	61	0.908	1.194	115	1.254	1x2	125	3.295	85	3.465	519	4803	4.5
137966	750	58	0.908	1.206	115	1.266	1x2	125	3.398	85	3.568	531	5840	4.5
TBA	1000	61	1.117	1.403	115	1.463	1x2	125	3.746	85	3.916	571	5925	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.

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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	13.3	1194	0.266	0.365	0.029	0.025	0.719+j0.563	0.365+j0.041	1878	135	157
1	13.8	1506	0.211	0.289	0.027	0.023	0.647+j0.545	0.289+j0.038	1974	154	178
1/0	14.4	1900	0.167	0.229	0.025	0.022	0.591+j0.525	0.229+j0.037	2088	176	202
2/0	15.4	2395	0.133	0.182	0.023	0.021	0.547+j0.505	0.182+j0.035	2212	204	229
3/0	16.1	3020	0.105	0.144	0.021	0.019	0.512+j0.482	0.144+j0.034	2358	234	260
4/0	17.1	3808	0.084	0.115	0.019	0.018	0.485+j0.458	0.115+j0.033	2519	268	294
250	17.9	4500	0.07	0.096	0.018	0.017	0.467+j0.435	0.096+j0.032	2683	296	323
350	19.3	6300	0.051	0.07	0.016	0.016	0.440+j0.397	0.070+j0.031	2981	363	386
500	21.2	9000	0.036	0.05	0.013	0.015	0.415+j0.355	0.050+j0.029	3352	447	465
750	24.3	13500	0.023	0.033	0.011	0.013	0.387+j0.302	0.033+j0.028	3916	566	563
750	25	13500	0.023	0.033	0.012	0.014	0.386+j0.299	0.033+j0.028	3954	566	563
1000	27.4	18000	0.017	0.025	0.009	0.012	0.362+j0.255	0.025+j0.028	4564	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)

Stock Number	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
TBA	2	7	6.81	13.61	2.92	15.14	1x8	2.03	45.29	1.52	48.34	302	1911	2.5
TBA	1	19	7.59	14.40	2.92	15.93	1x6	2.03	46.99	1.52	50.04	357	2109	2.5
TBA	1/0	19	8.53	15.34	2.92	16.87	1x6	2.03	49.02	1.52	52.07	371	2299	2.5
TBA	2/0	19	9.55	16.36	2.92	17.88	1x6	2.79	52.76	1.52	55.80	385	2551	3
TBA	3/0	19	10.74	17.55	2.92	19.08	1x6	2.79	55.32	1.52	58.37	403	2826	3
TBA	4/0	19	12.07	18.87	2.92	20.40	1x6	2.79	58.17	1.91	61.98	423	3247	3
TBA	250	37	13.21	20.22	2.92	21.74	1x4	2.79	61.09	1.91	64.90	512	3645	3.5
TBA	350	37	15.65	22.66	2.92	24.18	1x4	2.79	66.34	1.91	70.15	548	4339	3.5
TBA	500	37	18.69	25.70	2.92	27.23	1x3	2.79	72.95	1.91	76.76	649	5375	4
TBA	750	61	23.06	30.33	2.92	31.85	1x2	3.18	83.69	2.16	88.01	772	7148	4.5
137966	750	58	23.06	30.63	2.92	32.16	1x2	3.18	86.31	2.16	90.63	790	8691	4.5
TBA	1000	61	28.37	35.64	2.92	37.16	1x2	3.18	95.15	2.16	99.47	850	8817	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.

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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	337.82	5313	0.8727	1.20	0.0088	0.0820	0.719+j0.563	0.365+j0.041	1878	135	157
1	350.52	6702	0.6923	0.95	0.0082	0.0755	0.647+j0.545	0.289+j0.038	1974	154	178
1/0	365.76	8455	0.5479	0.75	0.0076	0.0722	0.591+j0.525	0.229+j0.037	2088	176	202
2/0	391.16	10658	0.4364	0.60	0.0070	0.0689	0.547+j0.505	0.182+j0.035	2212	204	229
3/0	408.94	13439	0.3445	0.47	0.0064	0.0623	0.512+j0.482	0.144+j0.034	2358	234	260
4/0	434.34	16946	0.2756	0.38	0.0058	0.0591	0.485+j0.458	0.115+j0.033	2519	268	294
250	454.66	20025	0.2297	0.31	0.0055	0.0558	0.467+j0.435	0.096+j0.032	2683	296	323
350	490.22	28035	0.1673	0.23	0.0049	0.0525	0.440+j0.397	0.070+j0.031	2981	363	386
500	538.48	40050	0.1181	0.16	0.0040	0.0492	0.415+j0.355	0.050+j0.029	3352	447	465
750	617.22	60075	0.0755	0.11	0.0034	0.0427	0.387+j0.302	0.033+j0.028	3916	566	563
750	635.00	60075	0.0755	0.11	0.0037	0.0459	0.386+j0.299	0.033+j0.028	3954	566	563
1000	695.96	80100	0.0558	0.08	0.0027	0.0394	0.362+j0.255	0.025+j0.028	4564	661	638

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