HVTECK CU 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

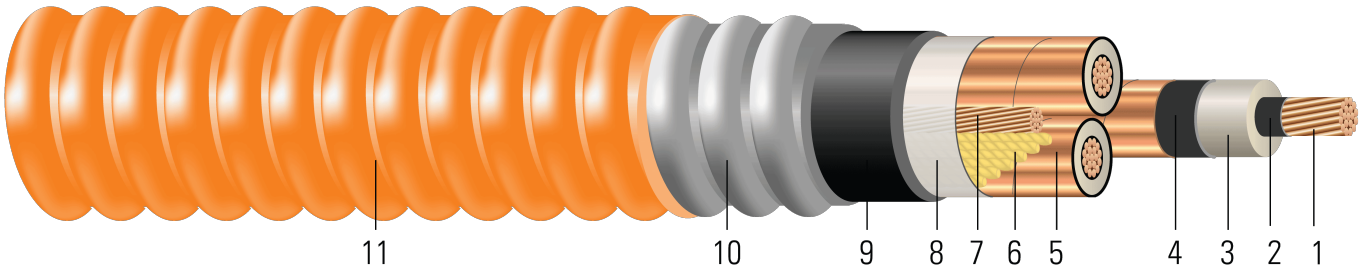

Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

1. **Conductor:** Class B compressed stranded bare copper per ASTM B3 and ASTM B8
2. **Conductor Shield:** Semi-conducting cross-linked copolymer
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 B3 Soft or Annealed Copper Wire
- ASTM B8 Concentric-Lay-Stranded Copper 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)

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- 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] CU 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
582464^	2	7	0.283	0.551	115	0.611	1x6	80	1.797	65	1.929	856	1925	2.5
646923	2	7	0.283	0.551	115	0.611	1x6	80	1.874	60	1.994	878	2155	2.5
TBA	1	19	0.322	0.59	115	0.65	1x6	80	1.9	60	2.02	1026	2000	2.5
644322^	1/0	19	0.362	0.63	115	0.69	1x6	110	2.104	60	2.224	1262	2826	3
457129	1/0	19	0.362	0.63	115	0.69	1x6	110	2.104	60	2.224	1262	2824	3
582463^	2/0	19	0.405	0.673	115	0.733	1x4	110	2.081	65	2.213	1571	2893	3
599626	2/0	19	0.405	0.674	115	0.734	1x4	110	2.199	60	2.319	1571	3242	3
TBA	3/0	19	0.456	0.724	115	0.784	1x4	110	2.249	60	2.369	1895	3095	3
TBA	4/0	19	0.512	0.78	115	0.84	1x4	110	2.37	75	2.52	2318	3672	3
646655^	250	37	0.558	0.834	115	0.894	1x4	110	2.545	75	2.695	2707	4827	3.5
646924	250	37	0.558	0.834	115	0.894	1x4	110	2.545	75	2.695	2707	4823	3.5
646645^	350	37	0.661	0.917	115	0.977	1x3	110	2.724	75	2.874	3695	6044	3.5
646640^	500	37	0.789	1.042	115	1.102	1x3	110	2.994	75	3.144	5128	7807	4
675407	500	37	0.789	1.042	115	1.102	1x3	110	2.994	75	3.144	5128	7841	4
671532	750	61	0.968	1.254	115	1.314	1x2	125	3.502	85	3.672	7559	11077	5
TBA	1000	61	1.117	1.403	115	1.463	1x1	125	3.746	85	3.916	9980	12482	5

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
1 Comply with ICEA S-93-639 Appendix C for jacket thickness determination
^Yellow outer jacket
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	13.5	1592	0.162	0.221	0.028	0.024	0.577+j0.556	0.221+j0.041	1924	172	201
2	14	1592	0.162	0.221	0.028	0.024	0.577+j0.556	0.221+j0.041	1924	172	201
1	14.1	2008	0.128	0.175	0.026	0.022	0.536+j0.534	0.175+j0.039	2045	197	228
1/0	15.6	2534	0.102	0.139	0.024	0.021	0.503+j0.513	0.139+j0.037	2169	225	257
1/0	15.6	2534	0.102	0.139	0.024	0.021	0.503+j0.513	0.139+j0.037	2169	225	257
2/0	15.5	3194	0.082	0.112	0.022	0.02	0.479+j0.492	0.112+j0.036	2302	260	292
2/0	16.2	3194	0.082	0.112	0.022	0.02	0.479+j0.492	0.112+j0.036	2305	260	292
3/0	16.6	4027	0.064	0.087	0.02	0.019	0.457+j0.468	0.087+j0.035	2460	297	330
4/0	17.6	5078	0.051	0.07	0.018	0.017	0.441+j0.443	0.070+j0.034	2634	342	372
250	18.9	6000	0.043	0.059	0.017	0.017	0.430+j0.421	0.059+j0.033	2801	376	410
250	18.9	6000	0.043	0.059	0.017	0.017	0.430+j0.421	0.059+j0.033	2801	376	410
350	20.1	8400	0.031	0.043	0.014	0.015	0.412+j0.389	0.043+j0.031	3058	460	487
500	22	12000	0.021	0.03	0.012	0.014	0.394+j0.347	0.030+j0.030	3445	556	573
500	22	12000	0.021	0.03	0.012	0.014	0.394+j0.347	0.030+j0.030	3445	556	573
750	25.7	18000	0.014	0.021	0.011	0.013	0.370+j0.288	0.021+j0.029	4102	678	668
1000	27.4	24000	0.011	0.018	0.009	0.012	0.355+j0.255	0.018+j0.028	4564	798	772

* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.
* Calculations are based on 5 mil 25 % over lapping copper tape shield / Conductor temperature of 90°C / Shield temperature of 45°C / Earth resistivity of 100 ohms-meter
* Ampacities are based on Table D17N of the Canadian Electrical Code Part I (40°C Ambient Air Temperature, indoor installation)
* Ampacities are based on Table D17E of the Canadian Electrical Code Part I
***** 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)

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
582464^	2	7	7.19	14.00	2.92	15.52	1x6	2.03	45.64	1.65	49.00	1274	2865	2.5
646923	2	7	7.19	14.00	2.92	15.52	1x6	2.03	47.60	1.52	50.65	1307	3207	2.5
TBA	1	19	8.18	14.99	2.92	16.51	1x6	2.03	48.26	1.52	51.31	1527	2976	2.5
644322^	1/0	19	9.19	16.00	2.92	17.53	1x6	2.79	53.44	1.52	56.49	1878	4206	3
457129	1/0	19	9.19	16.00	2.92	17.53	1x6	2.79	53.44	1.52	56.49	1878	4203	3
582463^	2/0	19	10.29	17.09	2.92	18.62	1x4	2.79	52.86	1.65	56.21	2338	4305	3
599626	2/0	19	10.29	17.12	2.92	18.64	1x4	2.79	55.85	1.52	58.90	2338	4825	3
TBA	3/0	19	11.58	18.39	2.92	19.91	1x4	2.79	57.12	1.52	60.17	2820	4606	3
TBA	4/0	19	13.00	19.81	2.92	21.34	1x4	2.79	60.20	1.91	64.01	3450	5465	3
646655^	250	37	14.17	21.18	2.92	22.71	1x4	2.79	64.64	1.91	68.45	4028	7183	3.5
646924	250	37	14.17	21.18	2.92	22.71	1x4	2.79	64.64	1.91	68.45	4028	7177	3.5
646645^	350	37	16.79	23.29	2.92	24.82	1x3	2.79	69.19	1.91	73.00	5499	8994	3.5
646640^	500	37	20.04	26.47	2.92	27.99	1x3	2.79	76.05	1.91	79.86	7631	11618	4
675407	500	37	20.04	26.47	2.92	27.99	1x3	2.79	76.05	1.91	79.86	7631	11669	4
671532	750	61	24.59	31.85	2.92	33.38	1x2	3.18	88.95	2.16	93.27	11249	16484	5
TBA	1000	61	28.37	35.64	2.92	37.16	1x1	3.18	95.15	2.16	99.47	14852	18575	5

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
1 Comply with ICEA S-93-639 Appendix C for jacket thickness determination
^Yellow outer jacket
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	342.90	7084	0.5315	0.73	0.0085	0.0787	0.577+j0.556	0.221+j0.041	1924	172	201
2	355.60	7084	0.5315	0.73	0.0085	0.0787	0.577+j0.556	0.221+j0.041	1924	172	201
1	358.14	8936	0.4199	0.57	0.0079	0.0722	0.536+j0.534	0.175+j0.039	2045	197	228
1/0	396.24	11276	0.3346	0.46	0.0073	0.0689	0.503+j0.513	0.139+j0.037	2169	225	257
1/0	396.24	11276	0.3346	0.46	0.0073	0.0689	0.503+j0.513	0.139+j0.037	2169	225	257
2/0	393.70	14213	0.2690	0.37	0.0067	0.0656	0.479+j0.492	0.112+j0.036	2302	260	292
2/0	411.48	14213	0.2690	0.37	0.0067	0.0656	0.479+j0.492	0.112+j0.036	2305	260	292
3/0	421.64	17920	0.2100	0.29	0.0061	0.0623	0.457+j0.468	0.087+j0.035	2460	297	330
4/0	447.04	22597	0.1673	0.23	0.0055	0.0558	0.441+j0.443	0.070+j0.034	2634	342	372
250	480.06	26700	0.1411	0.19	0.0052	0.0558	0.430+j0.421	0.059+j0.033	2801	376	410
250	480.06	26700	0.1411	0.19	0.0052	0.0558	0.430+j0.421	0.059+j0.033	2801	376	410
350	510.54	37380	0.1017	0.14	0.0043	0.0492	0.412+j0.389	0.043+j0.031	3058	460	487
500	558.80	53400	0.0689	0.10	0.0037	0.0459	0.394+j0.347	0.030+j0.030	3445	556	573
500	558.80	53400	0.0689	0.10	0.0037	0.0459	0.394+j0.347	0.030+j0.030	3445	556	573
750	652.78	80100	0.0459	0.07	0.0034	0.0427	0.370+j0.288	0.021+j0.029	4102	678	668
1000	695.96	106800	0.0361	0.06	0.0027	0.0394	0.355+j0.255	0.018+j0.028	4564	798	772

* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.
* Calculations are based on 5 mil 25 % over lapping copper tape shield / Conductor temperature of 90°C / Shield temperature of 45°C / Earth resistivity of 100 ohms-meter
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3/C direct buried copper and aluminum: D17E

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