HVTECK CU 1/C 90NLEPR TS PVC AIA PVC 5kV 100% CSA

Single Conductor, 90 Mils No Lead Ethylene Propylene Rubber (NL-EPR), 100% Insulation Level, Tape Shield, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

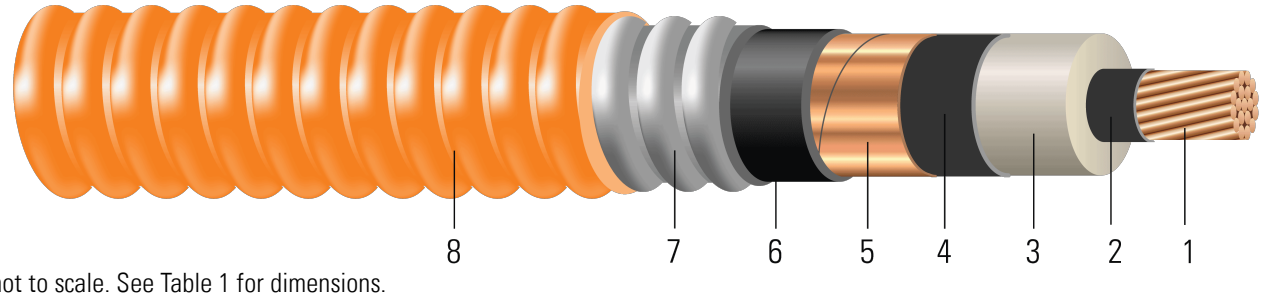


Image not to scale. See Table 1 for dimensions.

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:** 90 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 100% 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:** 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
- 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)

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- 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] CU 90 NLEPR AIA 5kV 100% 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	Copper Weight	Approx. Weight	Conduit Size*
AWG/ Kcmil	No.	inch	inch	mil	inch	mil	inch	mil	inch	lb/1000ft	lb/1000ft	inch
2	7	0.283	0.501	90	0.561	65	0.921	50	1.021	251	667	2.5
1	19	0.322	0.54	90	0.6	65	0.96	50	1.06	308	749	2.5
1/0	19	0.362	0.58	90	0.64	65	1	50	1.1	379	845	3
2/0	19	0.405	0.623	90	0.683	80	1.073	50	1.173	467	992	3
3/0	19	0.456	0.674	90	0.734	80	1.124	50	1.224	579	1137	3
4/0	19	0.512	0.73	90	0.79	80	1.18	50	1.28	718	1314	3.5
250	37	0.558	0.784	90	0.844	80	1.234	50	1.334	842	1477	3.5
350	37	0.661	0.887	90	0.947	80	1.337	50	1.437	1159	1863	3.5
500	37	0.789	1.015	90	1.075	80	1.565	60	1.685	1632	2595	4.5
750	61	0.968	1.204	90	1.264	80	1.754	60	1.874	2420	3538	5
1000	61	1.117	1.353	90	1.413	80	1.903	60	2.023	3204	4439	5.5

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
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	7.1	530	0.162	0.221	0.023	0.051	0.548+j0.565	0.222+j0.058	1769	215	221
1	7.4	669	0.128	0.175	0.021	0.049	0.509+j0.544	0.176+j0.055	1890	245	247
1/0	7.7	844	0.102	0.139	0.019	0.047	0.478+j0.525	0.140+j0.053	2014	278	275
2/0	8.2	1064	0.082	0.112	0.018	0.046	0.456+j0.504	0.113+j0.052	2147	317	306
3/0	8.6	1342	0.064	0.087	0.016	0.044	0.435+j0.481	0.088+j0.050	2305	357	335
4/0	9	1692	0.051	0.07	0.015	0.043	0.422+j0.456	0.071+j0.048	2479	404	369
250	9.3	2000	0.043	0.059	0.014	0.042	0.413+j0.435	0.060+j0.047	2646	456	412
350	10.1	2800	0.031	0.043	0.012	0.04	0.398+j0.396	0.044+j0.045	2965	537	456
500	11.8	4000	0.021	0.03	0.01	0.039	0.381+j0.353	0.031+j0.045	3362	616	497
750	13.1	6000	0.014	0.021	0.008	0.037	0.363+j0.300	0.022+j0.042	3947	706	551
1000	14.2	8000	0.011	0.018	0.007	0.035	0.350+j0.265	0.020+j0.041	4409	813	596

* 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	Copper Weight	Approx. Weight	Conduit Size*
AWG/ Kcmil	No.	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km	inch
2	7	7.19	12.73	2.29	14.25	1.65	23.39	1.27	25.93	374	993	2.5
1	19	8.18	13.72	2.29	15.24	1.65	24.38	1.27	26.92	458	1115	2.5
1/0	19	9.19	14.73	2.29	16.26	1.65	25.40	1.27	27.94	564	1257	3
2/0	19	10.29	15.82	2.29	17.35	2.03	27.25	1.27	29.79	695	1476	3
3/0	19	11.58	17.12	2.29	18.64	2.03	28.55	1.27	31.09	862	1692	3
4/0	19	13.00	18.54	2.29	20.07	2.03	29.97	1.27	32.51	1069	1955	3.5
250	37	14.17	19.91	2.29	21.44	2.03	31.34	1.27	33.88	1253	2198	3.5
350	37	16.79	22.53	2.29	24.05	2.03	33.96	1.27	36.50	1725	2772	3.5
500	37	20.04	25.78	2.29	27.30	2.03	39.75	1.52	42.80	2429	3862	4.5
750	61	24.59	30.58	2.29	32.11	2.03	44.55	1.52	47.60	3601	5265	5
1000	61	28.37	34.37	2.29	35.89	2.03	48.34	1.52	51.38	4768	6606	5.5

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
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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	180.34	2359	0.5315	0.73	0.0070	0.1673	0.548+j0.565	0.222+j0.058	1769	215	221
1	187.96	2977	0.4199	0.57	0.0064	0.1608	0.509+j0.544	0.176+j0.055	1890	245	247
1/0	195.58	3756	0.3346	0.46	0.0058	0.1542	0.478+j0.525	0.140+j0.053	2014	278	275
2/0	208.28	4735	0.2690	0.37	0.0055	0.1509	0.456+j0.504	0.113+j0.052	2147	317	306
3/0	218.44	5972	0.2100	0.29	0.0049	0.1444	0.435+j0.481	0.088+j0.050	2305	357	335
4/0	228.60	7529	0.1673	0.23	0.0046	0.1411	0.422+j0.456	0.071+j0.048	2479	404	369
250	236.22	8900	0.1411	0.19	0.0043	0.1378	0.413+j0.435	0.060+j0.047	2646	456	412
350	256.54	12460	0.1017	0.14	0.0037	0.1312	0.398+j0.396	0.044+j0.045	2965	537	456
500	299.72	17800	0.0689	0.10	0.0030	0.1280	0.381+j0.353	0.031+j0.045	3362	616	497
750	332.74	26700	0.0459	0.07	0.0024	0.1214	0.363+j0.300	0.022+j0.042	3947	706	551
1000	360.68	35600	0.0361	0.06	0.0021	0.1148	0.350+j0.265	0.020+j0.041	4409	813	596

* 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

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