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

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

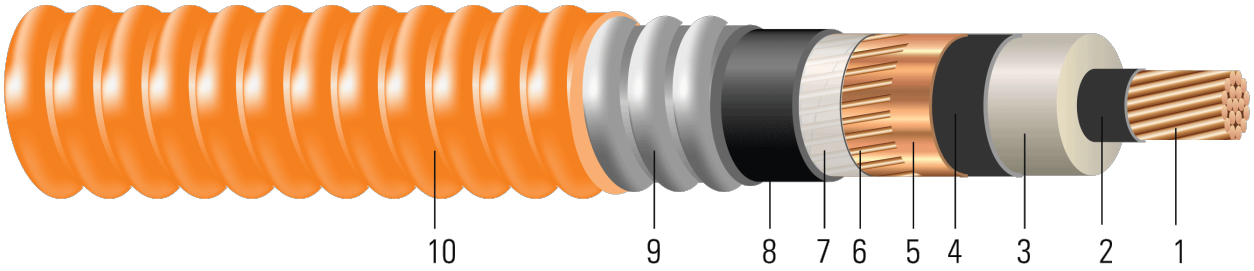

Image not to scale. See Table 1 for dimensions.

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. **Tape Shield:** 5 mil tape shield
6. **Concentric Shield:** Concentrically applied copper bond / shield wires. Complies with greater than the minimum requirement as per Table 44, CSA Standard C68.10 and Table 16A, Canadian Electrical Code Part 1
7. **Neutral Separator:** Mylar tape
8. **Inner Jacket:** PVC inner jacket
9. **Armour:** Aluminum Interlocked Armour (AIA)
10. **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 (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:

{SQMTR} {CSA} SOUTHWIRE® POWER CABLE {NESC} 1/C XXX KCMIL CU X.XX mm (90 mils) NL-EPR AIA 5KV 100% INS LEVEL 25%TS CB XX X XX AWG SUN RES 105°C FT4 (-40°C) LTGG RoHS

Table 1 – Weights and Measurements

Stock Number	Cond. Size	Strand	Diameter Over Conductor	Diameter Over Insulation	Insul. Thickness	Diameter Over Insulation Shield	Concentric Neutral	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	0.283	0.501	90	0.561	5x12	80	1.221	50	1.321	332	1059	3.5
TBA	1	19	0.322	0.54	90	0.6	7x12	80	1.26	50	1.36	437	1200	3.5
TBA	1/0	19	0.362	0.58	90	0.64	7x12	80	1.3	50	1.4	508	1307	3.5
TBA	2/0	19	0.405	0.623	90	0.683	7x12	80	1.343	50	1.443	596	1433	3.5
TBA	3/0	19	0.456	0.674	90	0.734	9x12	80	1.394	50	1.494	742	1625	4
TBA	4/0	19	0.512	0.73	90	0.79	9x12	80	1.45	50	1.55	881	1815	4
TBA	250	37	0.558	0.784	90	0.844	11x12	80	1.604	60	1.724	1047	2211	4.5
TBA	350	37	0.661	0.887	90	0.947	13x12	80	1.707	60	1.827	1417	2685	5
587711	500	37	0.789	0.992	90	1.052	17x12	80	1.732	60	1.852	1993	2907	5
589126	750	61	0.968	1.204	90	1.264	21x12	110	1.956	60	2.076	2866	3994	5.5
TBA	1000	61	1.117	1.353	90	1.413	21x12	110	2.233	60	2.353	3615	5490	6

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	9.2	530	0.162	0.221	0.023	0.057	0.523+j0.191	0.224+j0.063	2770	215	221
1	9.5	669	0.128	0.175	0.021	0.055	0.420+j0.121	0.180+j0.060	3879	245	247
1/0	9.8	844	0.102	0.139	0.019	0.053	0.384+j0.120	0.143+j0.058	3879	278	275
2/0	10.1	1064	0.082	0.112	0.018	0.051	0.356+j0.119	0.116+j0.056	3879	317	306
3/0	10.5	1342	0.064	0.087	0.016	0.049	0.289+j0.083	0.092+j0.054	4987	357	335
4/0	10.9	1692	0.051	0.07	0.015	0.047	0.272+j0.082	0.075+j0.052	4987	404	369
250	12.1	2000	0.043	0.059	0.014	0.048	0.230+j0.062	0.066+j0.052	6095	456	412
350	12.8	2800	0.031	0.043	0.012	0.045	0.190+j0.049	0.050+j0.049	7203	537	456
500	13	4000	0.021	0.03	0.009	0.041	0.145+j0.034	0.038+j0.045	9420	616	497
750	14.5	6000	0.014	0.021	0.008	0.039	0.116+j0.026	0.030+j0.042	11636	706	551
1000	16.5	8000	0.011	0.018	0.007	0.039	0.112+j0.026	0.027+j0.041	11636	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)

Stock Number	Cond. Size	Strand	Diameter Over Conductor	Diameter Over Insulation	Insul. Thickness	Diameter Over Insulation Shield	Concentric Neutral	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	7.19	12.73	2.29	14.25	5x12	2.03	31.01	1.27	33.55	494	1576	3.5
TBA	1	19	8.18	13.72	2.29	15.24	7x12	2.03	32.00	1.27	34.54	650	1786	3.5
TBA	1/0	19	9.19	14.73	2.29	16.26	7x12	2.03	33.02	1.27	35.56	756	1945	3.5
TBA	2/0	19	10.29	15.82	2.29	17.35	7x12	2.03	34.11	1.27	36.65	887	2133	3.5
TBA	3/0	19	11.58	17.12	2.29	18.64	9x12	2.03	35.41	1.27	37.95	1104	2418	4
TBA	4/0	19	13.00	18.54	2.29	20.07	9x12	2.03	36.83	1.27	39.37	1311	2701	4
TBA	250	37	14.17	19.91	2.29	21.44	11x12	2.03	40.74	1.52	43.79	1558	3290	4.5
TBA	350	37	16.79	22.53	2.29	24.05	13x12	2.03	43.36	1.52	46.41	2109	3996	5
587711	500	37	20.04	25.20	2.29	26.72	17x12	2.03	43.99	1.52	47.04	2966	4326	5
589126	750	61	24.59	30.58	2.29	32.11	21x12	2.79	49.68	1.52	52.73	4265	5944	5.5
TBA	1000	61	28.37	34.37	2.29	35.89	21x12	2.79	56.72	1.52	59.77	5380	8170	6

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 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	233.68	2359	0.5315	0.73	0.0070	0.1870	0.523+j0.191	0.224+j0.063	2770	215	221
1	241.30	2977	0.4199	0.57	0.0064	0.1804	0.420+j0.121	0.180+j0.060	3879	245	247
1/0	248.92	3756	0.3346	0.46	0.0058	0.1739	0.384+j0.120	0.143+j0.058	3879	278	275
2/0	256.54	4735	0.2690	0.37	0.0055	0.1673	0.356+j0.119	0.116+j0.056	3879	317	306
3/0	266.70	5972	0.2100	0.29	0.0049	0.1608	0.289+j0.083	0.092+j0.054	4987	357	335
4/0	276.86	7529	0.1673	0.23	0.0046	0.1542	0.272+j0.082	0.075+j0.052	4987	404	369
250	307.34	8900	0.1411	0.19	0.0043	0.1575	0.230+j0.062	0.066+j0.052	6095	456	412
350	325.12	12460	0.1017	0.14	0.0037	0.1476	0.190+j0.049	0.050+j0.049	7203	537	456
500	330.20	17800	0.0689	0.10	0.0027	0.1345	0.145+j0.034	0.038+j0.045	9420	616	497
750	368.30	26700	0.0459	0.07	0.0024	0.1280	0.116+j0.026	0.030+j0.042	11636	706	551
1000	419.10	35600	0.0361	0.06	0.0021	0.1280	0.112+j0.026	0.027+j0.041	11636	813	596

* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.
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3-1/C direct buried copper and aluminum: D17A

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