HVTECK CU 1/C 220NLEPR CB PVC AIA PVC 15kV 133% CSA

Single Conductor, 220 Mils No Lead Ethylene Propylene Rubber (NL-EPR), 133% Insulation Level, Concentric Bond, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

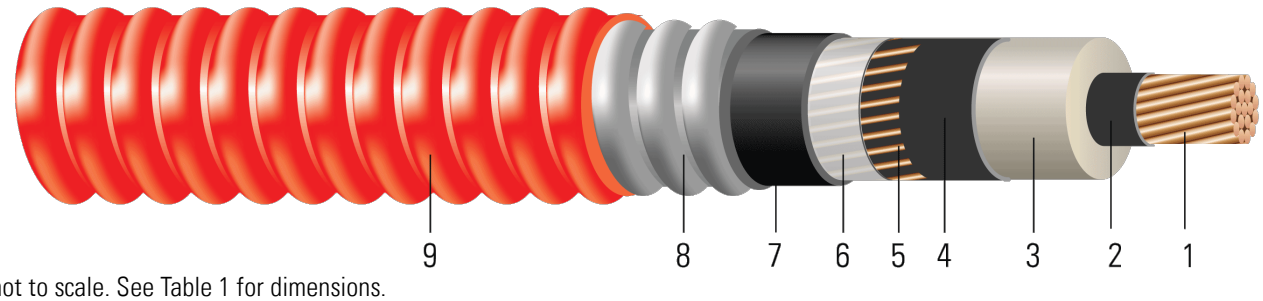

Image not to scale. See Table 1 for dimensions.

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:** 220 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 133% insulation level
4. **Insulation Shield:** Strippable semi-conducting cross-linked copolymer
5. **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
6. **Neutral Separator:** Mylar tape
7. **Inner Jacket:** PVC inner jacket
8. **Armour:** Aluminum Interlocked Armour (AIA)
9. **Overall Jacket:** Red Polyvinyl Chloride (PVC) Jacket

APPLICATIONS AND FEATURES:

Southwire's 15kV 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)
- 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 220 NLEPR AIA 15kV 133% INS LEVEL CB [No. x SIZE] AWG 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	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	0.761	220	0.821	5x12	80	1.581	60	1.701	354	1586	4.5
TBA	1	19	0.322	0.8	220	0.86	7x12	80	1.62	60	1.74	458	1738	4.5
TBA	1/0	19	0.362	0.84	220	0.9	7x12	80	1.66	60	1.78	529	1858	4.5
646911	2/0	19	0.405	0.884	220	0.944	7x12	80	1.424	50	1.524	554	1398	4
TBA	3/0	19	0.456	0.934	220	0.994	9x12	80	1.754	60	1.874	763	2209	5
TBA	4/0	19	0.512	0.99	220	1.05	9x12	80	1.81	60	1.93	902	2417	5
TBA	250	37	0.558	1.044	220	1.104	11x12	80	1.864	60	1.984	1068	2654	5
TBA	350	37	0.661	1.147	220	1.207	13x12	80	1.967	60	2.087	1438	3152	5.5
646932	500	37	0.789	1.252	220	1.312	17x12	110	1.951	60	2.071	1904	3215	5.5
587685	750	61	0.968	1.464	220	1.524	21x12	110	2.276	75	2.426	2887	4625	6.5
TBA	750	61	0.968	1.464	220	1.524	21x12	110	2.344	75	2.494	2852	5165	6.5
TBA	1000	61	1.117	1.613	220	1.673	21x12	110	2.493	75	2.643	3637	6149	7

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	11.9	530	0.162	0.221	0.045	0.063	0.518+j0.202	0.224+j0.069	2770	215	221
1	12.2	669	0.128	0.175	0.042	0.06	0.418+j0.130	0.179+j0.066	3879	245	247
1/0	12.5	844	0.102	0.139	0.039	0.058	0.381+j0.129	0.143+j0.063	3879	278	275
2/0	10.7	1064	0.082	0.112	0.036	0.052	0.355+j0.127	0.115+j0.057	3879	317	306
3/0	13.1	1342	0.064	0.087	0.033	0.054	0.288+j0.091	0.092+j0.059	4987	357	335
4/0	13.5	1692	0.051	0.07	0.031	0.052	0.270+j0.090	0.075+j0.057	4987	404	369
250	13.9	2000	0.043	0.059	0.029	0.051	0.229+j0.069	0.065+j0.055	6095	456	412
350	14.6	2800	0.031	0.043	0.025	0.048	0.190+j0.055	0.049+j0.052	7203	537	456
500	14.5	4000	0.021	0.03	0.021	0.044	0.145+j0.039	0.037+j0.048	9420	616	497
750	17	6000	0.014	0.021	0.019	0.043	0.115+j0.031	0.030+j0.045	11636	706	551
750	17.5	6000	0.014	0.021	0.019	0.043	0.115+j0.031	0.030+j0.046	11636	706	551
1000	18.5	8000	0.011	0.018	0.017	0.041	0.112+j0.030	0.027+j0.044	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	19.33	5.59	20.85	5x12	2.03	40.16	1.52	43.21	527	2360	4.5
TBA	1	19	8.18	20.32	5.59	21.84	7x12	2.03	41.15	1.52	44.20	682	2586	4.5
TBA	1/0	19	9.19	21.34	5.59	22.86	7x12	2.03	42.16	1.52	45.21	787	2765	4.5
646911	2/0	19	10.29	22.45	5.59	23.98	7x12	2.03	36.17	1.27	38.71	824	2080	4
TBA	3/0	19	11.58	23.72	5.59	25.25	9x12	2.03	44.55	1.52	47.60	1135	3287	5
TBA	4/0	19	13.00	25.15	5.59	26.67	9x12	2.03	45.97	1.52	49.02	1342	3597	5
TBA	250	37	14.17	26.52	5.59	28.04	11x12	2.03	47.35	1.52	50.39	1589	3950	5
TBA	350	37	16.79	29.13	5.59	30.66	13x12	2.03	49.96	1.52	53.01	2140	4691	5.5
646932	500	37	20.04	31.80	5.59	33.32	17x12	2.79	49.56	1.52	52.60	2833	4784	5.5
587685	750	61	24.59	37.19	5.59	38.71	21x12	2.79	57.81	1.91	61.62	4296	6883	6.5
TBA	750	61	24.59	37.19	5.59	38.71	21x12	2.79	59.54	1.91	63.35	4244	7686	6.5
TBA	1000	61	28.37	40.97	5.59	42.49	21x12	2.79	63.32	1.91	67.13	5412	9151	7

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	302.26	2359	0.5315	0.73	0.0137	0.2067	0.518+j0.202	0.224+j0.069	2770	215	221
1	309.88	2977	0.4199	0.57	0.0128	0.1969	0.418+j0.130	0.179+j0.066	3879	245	247
1/0	317.50	3756	0.3346	0.46	0.0119	0.1903	0.381+j0.129	0.143+j0.063	3879	278	275
2/0	271.78	4735	0.2690	0.37	0.0110	0.1706	0.355+j0.127	0.115+j0.057	3879	317	306
3/0	332.74	5972	0.2100	0.29	0.0101	0.1772	0.288+j0.091	0.092+j0.059	4987	357	335
4/0	342.90	7529	0.1673	0.23	0.0094	0.1706	0.270+j0.090	0.075+j0.057	4987	404	369
250	353.06	8900	0.1411	0.19	0.0088	0.1673	0.229+j0.069	0.065+j0.055	6095	456	412
350	370.84	12460	0.1017	0.14	0.0076	0.1575	0.190+j0.055	0.049+j0.052	7203	537	456
500	368.30	17800	0.0689	0.10	0.0064	0.1444	0.145+j0.039	0.037+j0.048	9420	616	497
750	431.80	26700	0.0459	0.07	0.0058	0.1411	0.115+j0.031	0.030+j0.045	11636	706	551
750	444.50	26700	0.0459	0.07	0.0058	0.1411	0.115+j0.031	0.030+j0.046	11636	706	551
1000	469.90	35600	0.0361	0.06	0.0052	0.1345	0.112+j0.030	0.027+j0.044	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

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