



## 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

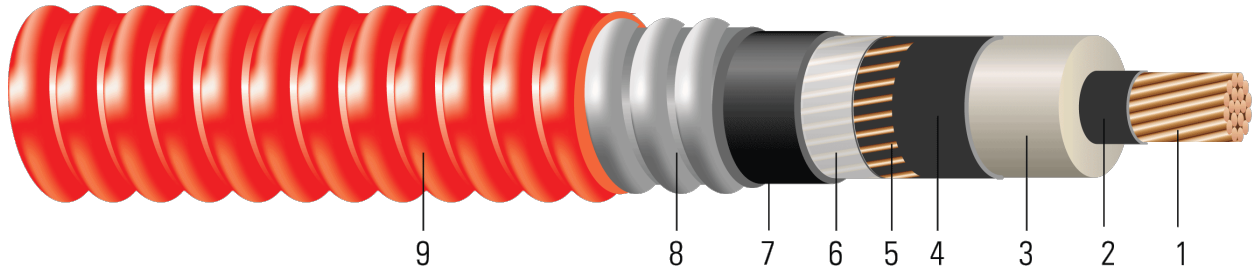


Image not to scale. See Table 1 for dimensions.

### 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)





- 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
	AWG/Kcmil	No.	inch	inch	mil	inch	No. x AWG	mil	inch	mil	inch	lb/1000ft	lb/1000ft
TBA	2	7	0.282	0.760	220	0.820	7x14	80	1.440	50	1.540	299	1032
TBA	1	19	0.322	0.800	220	0.860	11x14	80	1.480	50	1.580	407	1175
TBA	1/0	19	0.361	0.839	220	0.899	11x14	80	1.519	60	1.639	474	1308
646911	2/0	19	0.405	0.884	220	0.944	11x14	80	1.424	60	1.524	553	1398
TBA	3/0	19	0.456	0.934	220	0.994	13x14	80	1.614	60	1.734	694	1612
TBA	4/0	19	0.512	0.990	220	1.050	13x14	80	1.694	60	1.814	829	1829
TBA	250	37	0.558	1.044	220	1.104	17x14	80	1.748	60	1.868	1001	2055
TBA	350	37	0.661	1.147	220	1.207	21x14	80	1.885	60	2.005	1365	2620
646932	500	37	0.789	1.252	220	1.312	26x14	80	1.950	60	2.070	1903	3214
TBA	750	61	0.968	1.464	220	1.524	21x12	110	2.262	75	2.412	2753	4523
587685	750	61	0.968	1.464	220	1.524	21x12	110	2.276	75	2.426	2880	4617
TBA	1000	61	1.117	1.613	220	1.673	21x12	110	2.411	75	2.561	3525	5453

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





**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	18.5	530	0.162	0.204	0.048	0.061	0.563 + j0.421	0.205 + j0.062	5458	215	221
1	19.0	669	0.128	0.162	0.044	0.058	0.520 + j0.402	0.163 + j0.058	8577	245	247
1/0	19.7	844	0.102	0.128	0.041	0.056	0.485 + j0.386	0.129 + j0.057	8577	278	275
2/0	18.3	1064	0.081	0.102	0.038	0.052	0.460 + j0.368	0.103 + j0.052	8577	317	306
3/0	20.8	1342	0.064	0.081	0.035	0.052	0.435 + j0.349	0.082 + j0.053	10137	357	335
4/0	21.8	1692	0.051	0.065	0.032	0.051	0.415 + j0.330	0.066 + j0.051	10137	404	369
250	22.4	2000	0.043	0.056	0.030	0.049	0.403 + j0.313	0.057 + j0.050	13256	456	412
350	24.1	2800	0.031	0.041	0.026	0.047	0.379 + j0.284	0.042 + j0.047	16376	537	456
500	24.8	4000	0.022	0.030	0.022	0.044	0.358 + j0.252	0.031 + j0.044	20275	616	497
750	28.9	6000	0.014	0.023	0.020	0.043	0.333 + j0.214	0.024 + j0.043	26018	706	551
750	29.1	6000	0.014	0.023	0.020	0.043	0.333 + j0.214	0.024 + j0.043	26018	706	551
1000	30.7	8000	0.011	0.019	0.017	0.041	0.315 + j0.189	0.020 + j0.041	26018	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
	AWG/Kcmil	No.	mm	mm	mm	mm	No. x AWG	mm	mm	mm	mm	kg/km	kg/km
TBA	2	7	7.16	19.30	5.59	20.83	7x14	2.03	36.58	1.27	39.12	445	1536
TBA	1	19	8.18	20.32	5.59	21.84	11x14	2.03	37.59	1.27	40.13	606	1749
TBA	1/0	19	9.17	21.31	5.59	22.83	11x14	2.03	38.58	1.52	41.63	705	1947
646911	2/0	19	10.29	22.45	5.59	23.98	11x14	2.03	36.17	1.52	38.71	823	2080
TBA	3/0	19	11.58	23.72	5.59	25.25	13x14	2.03	41.00	1.52	44.04	1033	2399
TBA	4/0	19	13.00	25.15	5.59	26.67	13x14	2.03	43.03	1.52	46.08	1234	2722
TBA	250	37	14.17	26.52	5.59	28.04	17x14	2.03	44.40	1.52	47.45	1490	3058
TBA	350	37	16.79	29.13	5.59	30.66	21x14	2.03	47.88	1.52	50.93	2031	3899
646932	500	37	20.04	31.80	5.59	33.32	26x14	2.03	49.53	1.52	52.58	2832	4783
TBA	750	61	24.59	37.19	5.59	38.71	21x12	2.79	57.45	1.91	61.26	4097	6731
587685	750	61	24.59	37.19	5.59	38.71	21x12	2.79	57.81	1.91	61.62	4286	6871
TBA	1000	61	28.37	40.97	5.59	42.49	21x12	2.79	61.24	1.91	65.05	5246	8115

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





**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	469.90	2359	0.5315	0.67	0.0146	0.2001	0.563 + j0.421	0.205 + j0.062	5458	215	221
1	482.60	2977	0.4199	0.53	0.0134	0.1903	0.520 + j0.402	0.163 + j0.058	8577	245	247
1/0	500.38	3756	0.3346	0.42	0.0125	0.1837	0.485 + j0.386	0.129 + j0.057	8577	278	275
2/0	464.82	4735	0.2657	0.33	0.0116	0.1706	0.460 + j0.368	0.103 + j0.052	8577	317	306
3/0	528.32	5972	0.2100	0.27	0.0107	0.1706	0.435 + j0.349	0.082 + j0.053	10137	357	335
4/0	553.72	7529	0.1673	0.21	0.0098	0.1673	0.415 + j0.330	0.066 + j0.051	10137	404	369
250	568.96	8900	0.1411	0.18	0.0091	0.1608	0.403 + j0.313	0.057 + j0.050	13256	456	412
350	612.14	12460	0.1017	0.13	0.0079	0.1542	0.379 + j0.284	0.042 + j0.047	16376	537	456
500	629.92	17800	0.0722	0.10	0.0067	0.1444	0.358 + j0.252	0.031 + j0.044	20275	616	497
750	734.06	26700	0.0459	0.08	0.0061	0.1411	0.333 + j0.214	0.024 + j0.043	26018	706	551
750	739.14	26700	0.0459	0.08	0.0061	0.1411	0.333 + j0.214	0.024 + j0.043	26018	706	551
1000	779.78	35600	0.0361	0.06	0.0052	0.1345	0.315 + j0.189	0.020 + j0.041	26018	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

