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

Single Conductor, 220 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

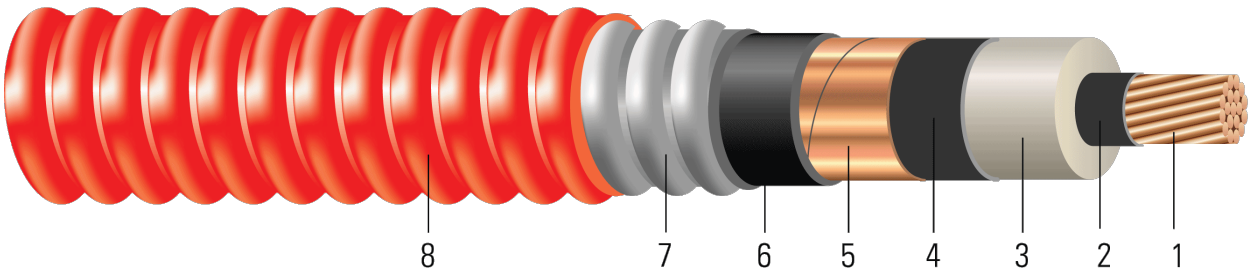


Image not to scale. See Table 1 for dimensions.

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:** 220 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. **Inner Jacket:** PVC inner jacket
7. **Armour:** Aluminum Interlocked Armour (AIA)
8. **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
- ASTM B33 Standard Specification for Tin-Coated Soft or Annealed Copper Wire
- 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)

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- 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 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	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
TBA	2	7	0.283	0.761	220	0.821	80	1.211	50	1.311	273	984	3.5
TBA	1	19	0.322	0.8	220	0.86	80	1.25	50	1.35	329	1075	3.5
TBA	1/0	19	0.362	0.84	220	0.9	80	1.29	50	1.39	400	1182	3.5
TBA	2/0	19	0.405	0.883	220	0.943	80	1.333	50	1.433	489	1309	3.5
TBA	3/0	19	0.456	0.934	220	0.994	80	1.384	50	1.484	600	1466	4
582434^^	4/0	19	0.512	0.99	220	1.05	80	1.424	55	1.534	744	1588	4
586051	250	37	0.558	1.044	220	1.124	80	1.636	60	1.756	868	1902	4.5
TBA	350	37	0.661	1.147	220	1.207	80	1.697	60	1.817	1180	2427	4.5
576699	500	37	0.789	1.252	220	1.312	80	1.836	60	1.956	1654	2897	5
582433^^	500	37	0.789	1.275	220	1.335	80	1.839	66	1.971	1656	2852	5
TBA	750	61	0.968	1.464	220	1.524	110	2.074	60	2.194	2441	4131	6
679247	1000	61	1.117	1.613	220	1.673	110	2.237	66	2.369	3226	4838	6
586535	1000	61	1.117	1.613	220	1.673	110	2.237	66	2.369	3226	4835	6
674567	1250	91	1.25	1.78	220	1.88	110	2.464	75	2.614	4015	6071	7
586714	1250	91	1.25	1.78	220	1.88	110	2.464	75	2.614	4015	6060	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
^^ Tinned Conductors
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	0.045	0.057	0.574+j0.459	0.222+j0.063	2575	215	221
1	9.5	669	0.128	0.175	0.042	0.055	0.529+j0.442	0.176+j0.060	2696	245	247
1/0	9.7	844	0.102	0.139	0.039	0.053	0.494+j0.425	0.140+j0.058	2820	278	275
2/0	10	1064	0.082	0.112	0.036	0.051	0.467+j0.408	0.113+j0.056	2953	317	306
3/0	10.4	1342	0.064	0.087	0.033	0.049	0.441+j0.390	0.088+j0.054	3111	357	335
4/0	10.7	1692	0.051	0.07	0.031	0.047	0.423+j0.370	0.071+j0.052	3284	404	369
250	12.3	2000	0.043	0.059	0.029	0.048	0.408+j0.347	0.060+j0.053	3514	456	412
350	12.7	2800	0.031	0.043	0.025	0.045	0.388+j0.322	0.044+j0.050	3771	537	456
500	13.7	4000	0.021	0.03	0.021	0.043	0.368+j0.294	0.032+j0.048	4096	616	497
500	13.8	4000	0.021	0.03	0.022	0.043	0.367+j0.289	0.032+j0.048	4167	616	497
750	15.4	6000	0.014	0.021	0.019	0.041	0.344+j0.249	0.023+j0.046	4753	706	551
1000	16.6	8000	0.011	0.018	0.017	0.039	0.329+j0.222	0.020+j0.044	5215	813	596
1000	16.6	8000	0.011	0.018	0.017	0.039	0.329+j0.222	0.020+j0.044	5215	813	596
1250	18.3	10000	0.008	0.014	0.016	0.039	0.309+j0.192	0.016+j0.044	5856	889	632
1250	18.3	10000	0.008	0.014	0.016	0.039	0.309+j0.192	0.016+j0.044	5856	889	632

* 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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Table 3 – Weights and Measurements (Metric)

Stock Number	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
TBA	2	7	7.19	19.33	5.59	20.85	2.03	30.76	1.27	33.30	406	1464	3.5
TBA	1	19	8.18	20.32	5.59	21.84	2.03	31.75	1.27	34.29	490	1600	3.5
TBA	1/0	19	9.19	21.34	5.59	22.86	2.03	32.77	1.27	35.31	595	1759	3.5
TBA	2/0	19	10.29	22.43	5.59	23.95	2.03	33.86	1.27	36.40	728	1948	3.5
TBA	3/0	19	11.58	23.72	5.59	25.25	2.03	35.15	1.27	37.69	893	2182	4
582434^^	4/0	19	13.00	25.15	5.59	26.67	2.03	36.17	1.40	38.96	1107	2363	4
586051	250	37	14.17	26.52	5.59	28.55	2.03	41.55	1.52	44.60	1292	2830	4.5
TBA	350	37	16.79	29.13	5.59	30.66	2.03	43.10	1.52	46.15	1756	3612	4.5
576699	500	37	20.04	31.80	5.59	33.32	2.03	46.63	1.52	49.68	2461	4311	5
582433^^	500	37	20.04	32.39	5.59	33.91	2.03	46.71	1.68	50.06	2464	4244	5
TBA	750	61	24.59	37.19	5.59	38.71	2.79	52.68	1.52	55.73	3633	6148	6
679247	1000	61	28.37	40.97	5.59	42.49	2.79	56.82	1.68	60.17	4801	7200	6
586535	1000	61	28.37	40.97	5.59	42.49	2.79	56.82	1.68	60.17	4801	7195	6
674567	1250	91	31.75	45.21	5.59	47.75	2.79	62.59	1.91	66.40	5975	9035	7
586714	1250	91	31.75	45.21	5.59	47.75	2.79	62.59	1.91	66.40	5975	9018	7

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
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^^ Tinned Conductors
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	0.0137	0.1870	0.574+j0.459	0.222+j0.063	2575	215	221
1	241.30	2977	0.4199	0.57	0.0128	0.1804	0.529+j0.442	0.176+j0.060	2696	245	247
1/0	246.38	3756	0.3346	0.46	0.0119	0.1739	0.494+j0.425	0.140+j0.058	2820	278	275
2/0	254.00	4735	0.2690	0.37	0.0110	0.1673	0.467+j0.408	0.113+j0.056	2953	317	306
3/0	264.16	5972	0.2100	0.29	0.0101	0.1608	0.441+j0.390	0.088+j0.054	3111	357	335
4/0	271.78	7529	0.1673	0.23	0.0094	0.1542	0.423+j0.370	0.071+j0.052	3284	404	369
250	312.42	8900	0.1411	0.19	0.0088	0.1575	0.408+j0.347	0.060+j0.053	3514	456	412
350	322.58	12460	0.1017	0.14	0.0076	0.1476	0.388+j0.322	0.044+j0.050	3771	537	456
500	347.98	17800	0.0689	0.10	0.0064	0.1411	0.368+j0.294	0.032+j0.048	4096	616	497
500	350.52	17800	0.0689	0.10	0.0067	0.1411	0.367+j0.289	0.032+j0.048	4167	616	497
750	391.16	26700	0.0459	0.07	0.0058	0.1345	0.344+j0.249	0.023+j0.046	4753	706	551
1000	421.64	35600	0.0361	0.06	0.0052	0.1280	0.329+j0.222	0.020+j0.044	5215	813	596
1000	421.64	35600	0.0361	0.06	0.0052	0.1280	0.329+j0.222	0.020+j0.044	5215	813	596
1250	464.82	44500	0.0262	0.05	0.0049	0.1280	0.309+j0.192	0.016+j0.044	5856	889	632
1250	464.82	44500	0.0262	0.05	0.0049	0.1280	0.309+j0.192	0.016+j0.044	5856	889	632

* 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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