

## HVTECK CU 3/C 220NLEPR TS PVC AIA PVC 15kV 133% CSA

3 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

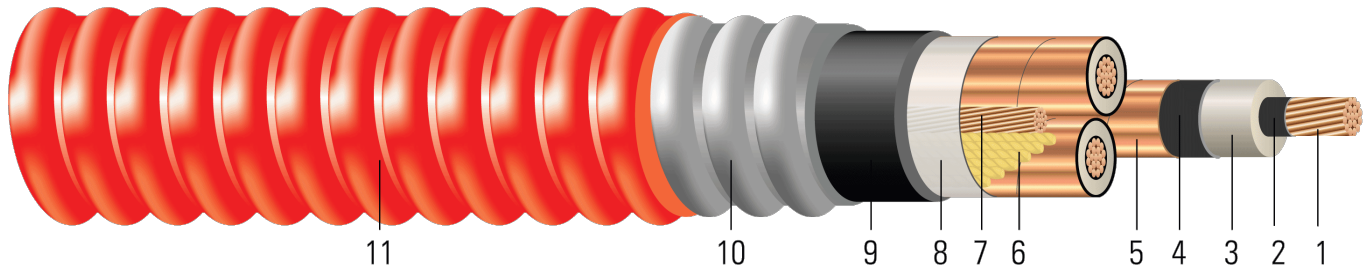


Image not to scale. See Table 1 for dimensions.

### 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. **Filler:** Interstices filled with non-hydroscoping/non-wicking fillers
7. **Grounding Conductor:** Class B compressed stranded bare copper ground per ASTM B3 and ASTM B8
8. **Binder:** Polypropylene tape
9. **Inner Jacket:** PVC inner jacket
10. **Armour:** Aluminum Interlocked Armour (AIA). (Optional galvanized steel armour GSIA available upon request)
11. **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
- 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# 3/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	Ground Size	Inner Jacket Thickness	Dia. Over Armour	Overall Jacket Thickness	Approx. OD	Copper Weight	Approx. Weight
	AWG/Kcmil	No.	inch	inch	mil	inch	AWG	mil	inch	mil	inch	lb/1000ft	lb/1000ft
576232	2	7	0.282	0.761	220	0.821	6	110	2.387	75	2.537	906	3035
648836 <sup>^</sup>	1	19	0.322	0.800	220	0.860	6	110	2.471	75	2.621	1087	3333
TBA	1/0	19	0.361	0.839	220	0.899	6	110	2.561	75	2.711	1121	3546
583354 <sup>^</sup>	2/0	19	0.405	0.884	220	0.944	4	110	2.652	75	2.802	1605	4078
576227	2/0	19	0.405	0.884	220	0.944	4	110	2.652	75	2.802	1605	4089
TBA	3/0	19	0.456	0.934	220	0.994	4	110	2.766	75	2.916	1757	4476
576167	4/0	19	0.512	0.976	220	1.036	3	110	2.851	75	3.001	2398	5181
576228	250	37	0.558	1.028	220	1.108	2	110	3.007	85	3.177	2816	5915
576229	350	37	0.661	1.127	220	1.187	2	125	3.227	85	3.397	3769	7242
672302†	500	37	0.789	1.252	220	1.312	1	125	3.497	85	3.667	5776	9657
583355 <sup>^</sup>	500	37	0.789	1.252	220	1.312	1	125	3.497	85	3.667	5254	9135
576230	500	37	0.789	1.252	220	1.312	1	125	3.497	85	3.667	5254	9152
665338 <sup>^</sup>	750	61	0.968	1.464	220	1.524	2	125	3.955	85	4.125	7586	12172
581926	750	61	0.968	1.464	220	1.524	2/0	125	3.955	85	4.125	7794	12385

All dimensions are nominal and subject to normal manufacturing tolerances

◇ Cable marked with this symbol is a standard stock item

† Comply with ICEA S-93-639 Appendix C for jacket thickness determination

<sup>^</sup> Black outer jacket

† 3-#1awg grounds equal to 50% of the phase conductor





**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	17.8	1592	0.162	0.204	0.048	0.047	0.579 + j0.421	0.204 + j0.048	2571	172	201
1	18.3	2008	0.128	0.162	0.044	0.045	0.535 + j0.402	0.162 + j0.045	2695	197	228
1/0	19.0	2534	0.102	0.128	0.041	0.043	0.500 + j0.385	0.128 + j0.043	2816	225	257
2/0	19.6	3194	0.081	0.102	0.038	0.042	0.471 + j0.367	0.102 + j0.042	2952	260	292
2/0	19.6	3194	0.081	0.102	0.038	0.042	0.471 + j0.367	0.102 + j0.042	2952	260	292
3/0	20.4	4027	0.064	0.081	0.035	0.040	0.447 + j0.347	0.081 + j0.040	3110	297	330
4/0	21.0	5078	0.051	0.065	0.031	0.039	0.426 + j0.328	0.065 + j0.039	3284	342	372
250	22.2	6000	0.043	0.056	0.029	0.038	0.413 + j0.310	0.056 + j0.038	3451	376	410
350	23.8	8400	0.031	0.041	0.026	0.036	0.388 + j0.280	0.041 + j0.036	3770	460	487
500	25.7	12000	0.022	0.030	0.022	0.034	0.365 + j0.248	0.030 + j0.034	4167	556	573
500	25.7	12000	0.022	0.030	0.022	0.034	0.365 + j0.248	0.030 + j0.034	4167	556	573
500	25.7	12000	0.022	0.030	0.022	0.034	0.365 + j0.248	0.030 + j0.034	4167	556	573
750	28.9	18000	0.014	0.023	0.020	0.032	0.339 + j0.210	0.024 + j0.032	4752	678	668
750	28.9	18000	0.014	0.023	0.020	0.032	0.339 + j0.210	0.024 + j0.032	4752	678	668

\* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.

\* CEC ampacities are based on:

3/C in air copper and aluminum: D17N

3/C direct buried copper and aluminum: D17E





**Table 3 – Weights and Measurements (Metric)**

Stock Number	Cond. Size	Strand	Diameter Over Conductor	Diameter Over Insulation	Insul. Thickness	Diameter Over Insulation Shield	Ground Size	Inner Jacket Thickness	Dia. Over Armour	Overall Jacket Thickness	Approx. OD	Copper Weight	Approx. Weight
	AWG/Kcmil	No.	mm	mm	mm	mm	AWG	mm	mm	mm	mm	kg/km	kg/km
576232	2	7	7.16	19.33	5.59	20.85	6	2.79	60.63	1.91	64.44	1348	4517
648836 <sup>∧</sup>	1	19	8.18	20.32	5.59	21.84	6	2.79	62.76	1.91	66.57	1618	4960
TBA	1/0	19	9.17	21.31	5.59	22.83	6	2.79	65.05	1.91	68.86	1668	5277
583354 <sup>∧</sup>	2/0	19	10.29	22.45	5.59	23.98	4	2.79	67.36	1.91	71.17	2389	6069
576227	2/0	19	10.29	22.45	5.59	23.98	4	2.79	67.36	1.91	71.17	2389	6085
TBA	3/0	19	11.58	23.72	5.59	25.25	4	2.79	70.26	1.91	74.07	2615	6661
576167	4/0	19	13.00	24.79	5.59	26.31	3	2.79	72.42	1.91	76.23	3569	7710
576228	250	37	14.17	26.11	5.59	28.14	2	2.79	76.38	2.16	80.70	4191	8802
576229	350	37	16.79	28.63	5.59	30.15	2	3.18	81.97	2.16	86.28	5609	10777
672302 <sup>†</sup>	500	37	20.04	31.80	5.59	33.32	1	3.18	88.82	2.16	93.14	8596	14371
583355 <sup>∧</sup>	500	37	20.04	31.80	5.59	33.32	1	3.18	88.82	2.16	93.14	7819	13594
576230	500	37	20.04	31.80	5.59	33.32	1	3.18	88.82	2.16	93.14	7819	13620
665338 <sup>∧</sup>	750	61	24.59	37.19	5.59	38.71	2	3.18	100.46	2.16	104.77	11289	18114
581926	750	61	24.59	37.19	5.59	38.71	2/0	3.18	100.46	2.16	104.77	11599	18431

All dimensions are nominal and subject to normal manufacturing tolerances

∅ Cable marked with this symbol is a standard stock item

† Comply with ICEA S-93-639 Appendix C for jacket thickness determination

∧ Black outer jacket

† 3-#1awg grounds equal to 50% of the phase conductor





**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	452.12	7084	0.5315	0.67	0.0146	0.1542	0.579 + j0.421	0.204 + j0.048	2571	172	201
1	464.82	8936	0.4199	0.53	0.0134	0.1476	0.535 + j0.402	0.162 + j0.045	2695	197	228
1/0	482.60	11276	0.3346	0.42	0.0125	0.1411	0.500 + j0.385	0.128 + j0.043	2816	225	257
2/0	497.84	14213	0.2657	0.33	0.0116	0.1378	0.471 + j0.367	0.102 + j0.042	2952	260	292
2/0	497.84	14213	0.2657	0.33	0.0116	0.1378	0.471 + j0.367	0.102 + j0.042	2952	260	292
3/0	518.16	17920	0.2100	0.27	0.0107	0.1312	0.447 + j0.347	0.081 + j0.040	3110	297	330
4/0	533.40	22597	0.1673	0.21	0.0094	0.1280	0.426 + j0.328	0.065 + j0.039	3284	342	372
250	563.88	26700	0.1411	0.18	0.0088	0.1247	0.413 + j0.310	0.056 + j0.038	3451	376	410
350	604.52	37380	0.1017	0.13	0.0079	0.1181	0.388 + j0.280	0.041 + j0.036	3770	460	487
500	652.78	53400	0.0722	0.10	0.0067	0.1115	0.365 + j0.248	0.030 + j0.034	4167	556	573
500	652.78	53400	0.0722	0.10	0.0067	0.1115	0.365 + j0.248	0.030 + j0.034	4167	556	573
500	652.78	53400	0.0722	0.10	0.0067	0.1115	0.365 + j0.248	0.030 + j0.034	4167	556	573
750	734.06	80100	0.0459	0.08	0.0061	0.1050	0.339 + j0.210	0.024 + j0.032	4752	678	668
750	734.06	80100	0.0459	0.08	0.0061	0.1050	0.339 + j0.210	0.024 + j0.032	4752	678	668

\* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.

\* CEC ampacities are based on:

3/C in air copper and aluminum: D17N

3/C direct buried copper and aluminum: D17E

