

## HVTECK CU 3/C 140NLEPR TS PVC AIA PVC 8kV 133% CSA

3 Conductor, 140 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

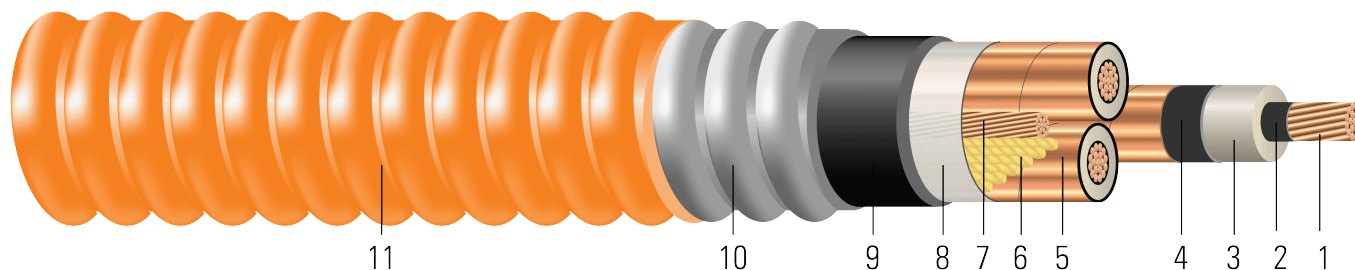


Image not to scale. See Table 1 for dimensions.

### 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:** 140 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)
11. **Overall Jacket:** Orange Polyvinyl Chloride (PVC) Jacket

### APPLICATIONS AND FEATURES:

Southwire's 8kV 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)
- 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:

{SQMTR} {CSA} SOUTHWIRE{R} POWER CABLE {NESC} MASTER-DESIGN 3/C XXX AWG CU X.XXmm (140 mils) NL-EPR  
AIA GW 1 X X AWG CU 8KV 133% INS LEVEL 25%TS SUN. RES. 105{D}C FT4 HL (-40{D}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	Ground Size	Inner Jacket Thickness	Dia. Over Armour	Overall Jacket Thickness	Approx. OD	Approx. Weight
	AWG/ Kcmil	No.	inch	inch	mil	inch	AWG	mil	inch	mil	inch	lb/1000ft
TBA	2	7	0.282	0.600	140	0.660	6	80	1.984	60	2.104	2222
TBA	1	19	0.322	0.640	140	0.700	6	110	2.131	60	2.251	2613
TBA	1/0	19	0.361	0.679	140	0.739	6	110	2.215	60	2.335	2923
679104 <sup>^</sup>	2/0	19	0.405	0.724	140	0.784	6	110	2.285	75	2.435	3330
649842	2/0	19	0.405	0.724	140	0.784	6	110	2.285	75	2.435	3336
TBA	3/0	19	0.456	0.774	140	0.834	4	110	2.420	75	2.570	3850
TBA	4/0	19	0.512	0.830	140	0.890	4	110	2.541	75	2.691	4421
TBA	250	37	0.558	0.884	140	0.944	4	110	2.658	75	2.808	4951
TBA	350	37	0.661	0.987	140	1.047	3	110	2.880	75	3.030	6196
679103 <sup>^</sup>	500	37	0.789	1.092	140	1.152	3	125	3.129	85	3.299	8113
649834	500	37	0.789	1.092	140	1.152	3	125	3.129	85	3.299	8123
TBA	750	61	0.968	1.304	140	1.364	2	125	3.595	85	3.765	11119
TBA	1000	61	1.117	1.453	140	1.513	1	125	3.917	85	4.087	13954

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

<sup>^</sup>Black outer jacket



**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 @ 60Hz	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	14.7	1592	0.162	0.204	0.039	0.042	0.576 + j0.496	0.204 + j0.043	2044	172	201
1	15.7	2008	0.128	0.162	0.035	0.040	0.536 + j0.474	0.162 + j0.04	2168	197	228
1/0	16.3	2534	0.102	0.128	0.032	0.039	0.503 + j0.453	0.128 + j0.039	2289	225	257
2/0	17.0	3194	0.081	0.102	0.030	0.037	0.477 + j0.431	0.102 + j0.038	2425	260	292
2/0	17.0	3194	0.081	0.102	0.030	0.037	0.477 + j0.431	0.102 + j0.038	2425	260	292
3/0	17.9	4027	0.064	0.081	0.027	0.036	0.455 + j0.408	0.081 + j0.036	2584	297	330
4/0	18.8	5078	0.051	0.065	0.025	0.035	0.437 + j0.384	0.065 + j0.035	2757	342	372
250	19.6	6000	0.043	0.056	0.024	0.034	0.425 + j0.363	0.056 + j0.034	2924	376	410
350	21.2	8400	0.031	0.041	0.020	0.033	0.403 + j0.326	0.041 + j0.033	3243	460	487
500	23.0	12000	0.022	0.030	0.018	0.031	0.381 + j0.287	0.030 + j0.031	3640	556	573
500	23.0	12000	0.022	0.030	0.018	0.031	0.381 + j0.287	0.03 + j0.031	3640	556	573
750	26.3	18000	0.014	0.023	0.015	0.030	0.356 + j0.24	0.023 + j0.03	4226	678	668
1000	28.6	24000	0.011	0.019	0.013	0.029	0.337 + j0.21	0.02 + j0.029	4687	798	772

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



**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	Approx. Weight
	AWG/ Kcmil	No.	mm	mm	mm	mm	AWG	mm	mm	mm	mm	kg/km
TBA	2	7	7.16	15.24	3.56	16.76	6	2.03	50.39	1.52	53.44	3307
TBA	1	19	8.18	16.26	3.56	17.78	6	2.79	54.13	1.52	57.18	3889
TBA	1/0	19	9.17	17.25	3.56	18.77	6	2.79	56.26	1.52	59.31	4350
679104 <sup>Δ</sup>	2/0	19	10.29	18.39	3.56	19.91	6	2.79	58.04	1.91	61.85	4956
649842	2/0	19	10.29	18.39	3.56	19.91	6	2.79	58.04	1.91	61.85	4965
TBA	3/0	19	11.58	19.66	3.56	21.18	4	2.79	61.47	1.91	65.28	5729
TBA	4/0	19	13.00	21.08	3.56	22.61	4	2.79	64.54	1.91	68.35	6579
TBA	250	37	14.17	22.45	3.56	23.98	4	2.79	67.51	1.91	71.32	7368
TBA	350	37	16.79	25.07	3.56	26.59	3	2.79	73.15	1.91	76.96	9221
679103 <sup>Δ</sup>	500	37	20.04	27.74	3.56	29.26	3	3.18	79.48	2.16	83.79	12073
649834	500	37	20.04	27.74	3.56	29.26	3	3.18	79.48	2.16	83.79	12088
TBA	750	61	24.59	33.12	3.56	34.65	2	3.18	91.31	2.16	95.63	16547
TBA	1000	61	28.37	36.91	3.56	38.43	1	3.18	99.49	2.16	103.81	20766

All dimensions are nominal and subject to normal manufacturing tolerances

Δ Cable marked with this symbol is a standard stock item

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

<sup>Δ</sup>Black outer jacket



**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 @ 60Hz	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	373.38	7084	0.5315	0.67	0.0119	0.1378	0.576 + j0.496	0.204 + j0.043	2044	172	201
1	398.78	8936	0.4199	0.53	0.0107	0.1312	0.536 + j0.474	0.162 + j0.04	2168	197	228
1/0	414.02	11276	0.3346	0.42	0.0098	0.1280	0.503 + j0.453	0.128 + j0.039	2289	225	257
2/0	431.80	14213	0.2657	0.33	0.0091	0.1214	0.477 + j0.431	0.102 + j0.038	2425	260	292
2/0	431.80	14213	0.2657	0.33	0.0091	0.1214	0.477 + j0.431	0.102 + j0.038	2425	260	292
3/0	454.66	17920	0.2100	0.27	0.0082	0.1181	0.455 + j0.408	0.081 + j0.036	2584	297	330
4/0	477.52	22597	0.1673	0.21	0.0076	0.1148	0.437 + j0.384	0.065 + j0.035	2757	342	372
250	497.84	26700	0.1411	0.18	0.0073	0.1115	0.425 + j0.363	0.056 + j0.034	2924	376	410
350	538.48	37380	0.1017	0.13	0.0061	0.1083	0.403 + j0.326	0.041 + j0.033	3243	460	487
500	584.20	53400	0.0722	0.10	0.0055	0.1017	0.381 + j0.287	0.030+ j0.031	3640	556	573
500	584.20	53400	0.0722	0.10	0.0055	0.1017	0.381 + j0.287	0.03 + j0.031	3640	556	573
750	668.02	80100	0.0459	0.08	0.0046	0.0984	0.356 + j0.24	0.023 + j0.03	4226	678	668
1000	726.44	106800	0.0361	0.06	0.0040	0.0951	0.337 + j0.21	0.02 + j0.029	4687	798	772

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

