HVTECK CU 3/C 90NLEPR TS PVC AIA PVC 5kV 100% CSA

3 Conductor, 90 Mils No Lead Ethylene Propylene Rubber (NL-EPR), 100% Insulation Level, Tape Shield, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

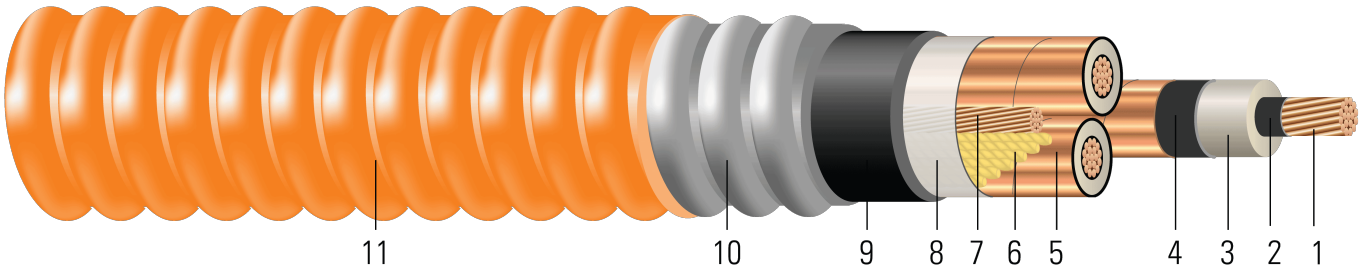

Image not to scale. See Table 1 for dimensions.

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:** 90 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 100% 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 5kV 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)

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- 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 90 NLEPR AIA 5kV 100% 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	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
568787	2	7	0.283	0.501	90	0.561	1x6	80	1.754	60	1.874	845	1923	2.5
TBA	1	19	0.322	0.54	90	0.6	1x6	80	1.792	60	1.912	1014	1866	2.5
570970	1/0	19	0.362	0.572	90	0.632	1x4	80	1.919	60	2.039	1298	2569	2.5
576703	2/0	19	0.405	0.624	90	0.684	1x4	80	2.091	60	2.211	1544	3050	3
TBA	3/0	19	0.456	0.674	90	0.734	1x4	110	2.141	60	2.261	1883	2941	3
576701	4/0	19	0.512	0.73	90	0.79	1x3	110	2.32	75	2.47	2353	4164	3
568918	250	37	0.558	0.784	90	0.844	1x2	110	2.437	75	2.587	2767	4711	3.5
570971	350	37	0.661	0.867	90	0.927	1x2	110	2.616	75	2.766	3722	5871	3.5
568919	500	37	0.789	0.992	90	1.052	1x1	110	2.886	75	3.036	5213	7670	4
TBA	750	61	0.968	1.204	90	1.264	1x2	125	3.316	85	3.486	7539	9561	4.5
TBA	1000	61	1.117	1.353	90	1.413	1x1	125	3.638	85	3.808	9968	12224	5

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
^ Yellow outer jacket
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	13.1	1592	0.162	0.221	0.023	0.022	0.570+j0.580	0.221+j0.039	1769	172	201
1	13.4	2008	0.128	0.175	0.021	0.02	0.530+j0.558	0.175+j0.037	1890	197	228
1/0	14.3	2534	0.102	0.139	0.019	0.019	0.498+j0.540	0.139+j0.036	1989	225	257
2/0	15.5	3194	0.082	0.112	0.018	0.018	0.476+j0.513	0.112+j0.035	2150	260	292
3/0	15.8	4027	0.064	0.087	0.016	0.017	0.454+j0.489	0.087+j0.034	2305	297	330
4/0	17.3	5078	0.051	0.07	0.015	0.016	0.440+j0.463	0.070+j0.032	2479	342	372
250	18.1	6000	0.043	0.059	0.014	0.016	0.430+j0.440	0.059+j0.032	2646	376	410
350	19.4	8400	0.031	0.043	0.011	0.014	0.413+j0.406	0.043+j0.030	2903	460	487
500	21.3	12000	0.021	0.03	0.009	0.013	0.396+j0.361	0.030+j0.029	3290	556	573
750	24.4	18000	0.014	0.021	0.008	0.012	0.374+j0.300	0.021+j0.028	3947	678	668
1000	26.7	24000	0.011	0.018	0.007	0.011	0.359+j0.264	0.018+j0.027	4409	798	772

* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.
* Calculations are based on 5 mil 25 % over lapping copper tape shield / Conductor temperature of 90°C / Shield temperature of 45°C / Earth resistivity of 100 ohms-meter
* Ampacities are based on Table D17N of the Canadian Electrical Code Part I (40°C Ambient Air Temperature, indoor installation)
* Ampacities are based on Table D17E of the Canadian Electrical Code Part I
***** 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	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
568787	2	7	7.19	12.73	2.29	14.25	1x6	2.03	44.55	1.52	47.60	1257	2862	2.5
TBA	1	19	8.18	13.72	2.29	15.24	1x6	2.03	45.52	1.52	48.56	1509	2777	2.5
570970	1/0	19	9.19	14.53	2.29	16.05	1x4	2.03	48.74	1.52	51.79	1932	3823	2.5
576703	2/0	19	10.29	15.85	2.29	17.37	1x4	2.03	53.11	1.52	56.16	2298	4539	3
TBA	3/0	19	11.58	17.12	2.29	18.64	1x4	2.79	54.38	1.52	57.43	2802	4377	3
576701	4/0	19	13.00	18.54	2.29	20.07	1x3	2.79	58.93	1.91	62.74	3502	6197	3
568918	250	37	14.17	19.91	2.29	21.44	1x2	2.79	61.90	1.91	65.71	4118	7011	3.5
570971	350	37	16.79	22.02	2.29	23.55	1x2	2.79	66.45	1.91	70.26	5539	8737	3.5
568919	500	37	20.04	25.20	2.29	26.72	1x1	2.79	73.30	1.91	77.11	7758	11414	4
TBA	750	61	24.59	30.58	2.29	32.11	1x2	3.18	84.23	2.16	88.54	11219	14228	4.5
TBA	1000	61	28.37	34.37	2.29	35.89	1x1	3.18	92.41	2.16	96.72	14834	18191	5

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item

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^ Yellow outer jacket
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.

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	332.74	7084	0.5315	0.73	0.0070	0.0722	0.570+j0.580	0.221+j0.039	1769	172	201
1	340.36	8936	0.4199	0.57	0.0064	0.0656	0.530+j0.558	0.175+j0.037	1890	197	228
1/0	363.22	11276	0.3346	0.46	0.0058	0.0623	0.498+j0.540	0.139+j0.036	1989	225	257
2/0	393.70	14213	0.2690	0.37	0.0055	0.0591	0.476+j0.513	0.112+j0.035	2150	260	292
3/0	401.32	17920	0.2100	0.29	0.0049	0.0558	0.454+j0.489	0.087+j0.034	2305	297	330
4/0	439.42	22597	0.1673	0.23	0.0046	0.0525	0.440+j0.463	0.070+j0.032	2479	342	372
250	459.74	26700	0.1411	0.19	0.0043	0.0525	0.430+j0.440	0.059+j0.032	2646	376	410
350	492.76	37380	0.1017	0.14	0.0034	0.0459	0.413+j0.406	0.043+j0.030	2903	460	487
500	541.02	53400	0.0689	0.10	0.0027	0.0427	0.396+j0.361	0.030+j0.029	3290	556	573
750	619.76	80100	0.0459	0.07	0.0024	0.0394	0.374+j0.300	0.021+j0.028	3947	678	668
1000	678.18	106800	0.0361	0.06	0.0021	0.0361	0.359+j0.264	0.018+j0.027	4409	798	772

* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.
* Calculations are based on 5 mil 25 % over lapping copper tape shield / Conductor temperature of 90°C / Shield temperature of 45°C / Earth resistivity of 100 ohms-meter
* Ampacities are based on Table D17N of the Canadian Electrical Code Part I (40°C Ambient Air Temperature, indoor installation)
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