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

3 Conductor, 90 Mils Tree Retardant Cross Linked Polyethylene, 100% Insulation Level, Tape Shield, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

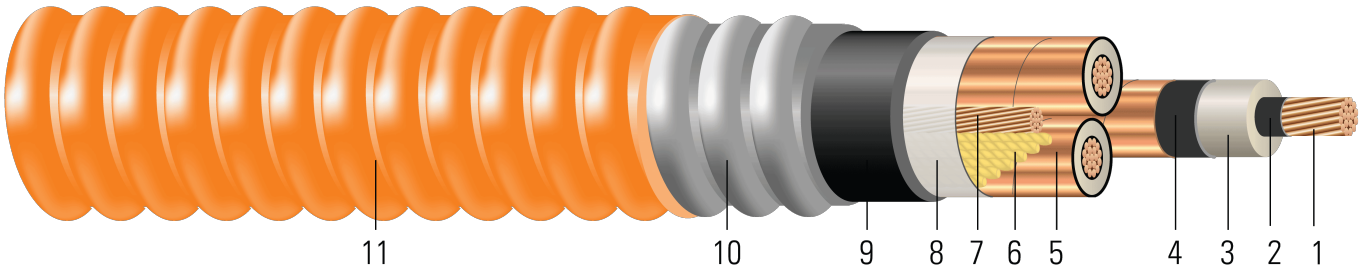


Image not to scale. See Table 1 for dimensions.

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 Tree Retardant Cross Linked Polyethylene 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:** Non-wicking, non-hygroscopic and flame retardant polypropylene filler
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 TRXLPE 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
TBA	2	7	0.283	0.501	90	0.561	1x6	80	1.708	60	1.828	844	1641	2.5
TBA	1	19	0.322	0.54	90	0.6	1x6	80	1.792	60	1.912	1014	1866	2.5
TBA	1/0	19	0.362	0.58	90	0.64	1x6	80	1.878	60	1.998	1230	2138	2.5
TBA	2/0	19	0.405	0.623	90	0.683	1x6	80	1.971	60	2.091	1498	2467	2.5
TBA	3/0	19	0.456	0.674	90	0.734	1x4	110	2.141	60	2.261	1883	2941	3
TBA	4/0	19	0.512	0.73	90	0.79	1x4	110	2.262	75	2.412	2306	3507	3
TBA	250	37	0.558	0.784	90	0.844	1x4	110	2.379	75	2.529	2680	3974	3
590630	350	35	0.661	0.842	90	0.902	1x2	110	2.562	75	2.712	3716	5746	3.5
TBA	500	37	0.789	1.015	90	1.075	1x3	110	2.878	75	3.028	5110	6750	4
590631	750	61	0.968	1.144	90	1.204	1x1	125	3.264	85	3.434	7569	10576	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
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	12.8	1592	0.162	0.221	0.03	0.022	0.570+j0.580	0.221+j0.039	1769	172	201
1	13.4	2008	0.128	0.175	0.028	0.02	0.530+j0.558	0.175+j0.037	1890	197	228
1/0	14	2534	0.102	0.139	0.025	0.019	0.499+j0.536	0.139+j0.036	2014	225	257
2/0	14.6	3194	0.082	0.112	0.023	0.018	0.476+j0.514	0.112+j0.035	2147	260	292
3/0	15.8	4027	0.064	0.087	0.021	0.017	0.454+j0.489	0.087+j0.034	2305	297	330
4/0	16.9	5078	0.051	0.07	0.019	0.016	0.440+j0.463	0.070+j0.032	2479	342	372
250	17.7	6000	0.043	0.059	0.018	0.016	0.430+j0.440	0.059+j0.032	2646	376	410
350	19	8400	0.031	0.043	0.012	0.013	0.414+j0.415	0.043+j0.029	2826	460	487
500	21.2	12000	0.021	0.03	0.013	0.013	0.395+j0.354	0.030+j0.029	3362	556	573
750	24	18000	0.014	0.021	0.008	0.011	0.378+j0.314	0.021+j0.027	3761	678	668
1000	26.7	24000	0.011	0.018	0.01	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
TBA	2	7	7.19	12.73	2.29	14.25	1x6	2.03	43.38	1.52	46.43	1256	2442	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
TBA	1/0	19	9.19	14.73	2.29	16.26	1x6	2.03	47.70	1.52	50.75	1830	3182	2.5
TBA	2/0	19	10.29	15.82	2.29	17.35	1x6	2.03	50.06	1.52	53.11	2229	3671	2.5
TBA	3/0	19	11.58	17.12	2.29	18.64	1x4	2.79	54.38	1.52	57.43	2802	4377	3
TBA	4/0	19	13.00	18.54	2.29	20.07	1x4	2.79	57.45	1.91	61.26	3432	5219	3
TBA	250	37	14.17	19.91	2.29	21.44	1x4	2.79	60.43	1.91	64.24	3988	5914	3
590630	350	35	16.79	21.39	2.29	22.91	1x2	2.79	65.07	1.91	68.88	5530	8551	3.5
TBA	500	37	20.04	25.78	2.29	27.30	1x3	2.79	73.10	1.91	76.91	7605	10045	4
590631	750	61	24.59	29.06	2.29	30.58	1x1	3.18	82.91	2.16	87.22	11264	15739	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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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	325.12	7084	0.5315	0.73	0.0091	0.0722	0.570+j0.580	0.221+j0.039	1769	172	201
1	340.36	8936	0.4199	0.57	0.0085	0.0656	0.530+j0.558	0.175+j0.037	1890	197	228
1/0	355.60	11276	0.3346	0.46	0.0076	0.0623	0.499+j0.536	0.139+j0.036	2014	225	257
2/0	370.84	14213	0.2690	0.37	0.0070	0.0591	0.476+j0.514	0.112+j0.035	2147	260	292
3/0	401.32	17920	0.2100	0.29	0.0064	0.0558	0.454+j0.489	0.087+j0.034	2305	297	330
4/0	429.26	22597	0.1673	0.23	0.0058	0.0525	0.440+j0.463	0.070+j0.032	2479	342	372
250	449.58	26700	0.1411	0.19	0.0055	0.0525	0.430+j0.440	0.059+j0.032	2646	376	410
350	482.60	37380	0.1017	0.14	0.0037	0.0427	0.414+j0.415	0.043+j0.029	2826	460	487
500	538.48	53400	0.0689	0.10	0.0040	0.0427	0.395+j0.354	0.030+j0.029	3362	556	573
750	609.60	80100	0.0459	0.07	0.0024	0.0361	0.378+j0.314	0.021+j0.027	3761	678	668
1000	678.18	106800	0.0361	0.06	0.0030	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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