

HVTECK CU 1/C 280NLEPR TS PVC AIA PVC 28kV 100% CSA

Single Conductor, 280 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:** 280 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. **Inner Jacket:** PVC inner jacket
7. **Armour:** Aluminum Interlocked Armour (AIA)
8. **Overall Jacket:** Black Polyvinyl Chloride (PVC) Jacket

APPLICATIONS AND FEATURES:

Southwire's 28kV 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)
- FT1 Flame Test (1,706 BTU/Hr nominal - Vertical Wire Flame Test)



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- 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 280 NLEPR AIA 28kV 100% INS LEVEL 25% TS SUN RES 105°C FT4 HL (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

Table 1 – Weights and Measurements

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
AWG/ Kcmil	No.	inch	inch	mil	inch	mil	inch	mil	inch	lb/1000ft	lb/1000ft
1	19	0.322	0.920	280	0.980	80	1.492	50	1.592	278	1141
1/0	19	0.361	0.959	280	1.019	80	1.531	60	1.651	345	1279
2/0	19	0.405	1.003	280	1.063	80	1.575	60	1.695	431	1408
3/0	19	0.456	1.054	280	1.114	80	1.650	60	1.770	540	1600
4/0	19	0.512	1.110	280	1.170	80	1.706	60	1.826	676	1792
250	37	0.558	1.164	280	1.224	80	1.760	60	1.880	796	1969
350	37	0.661	1.267	280	1.327	80	1.863	60	1.983	1108	2475
500	37	0.789	1.395	280	1.455	80	1.991	60	2.111	1573	3077
750	61	0.968	1.584	280	1.644	110	2.240	60	2.360	2349	4191

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



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
1	19.1	669	0.128	0.162	0.051	0.058	0.519 + j0.359	0.163 + j0.059	3067	245	244
1/0	19.8	844	0.102	0.128	0.048	0.057	0.483 + j0.345	0.129 + j0.057	3188	278	272
2/0	20.3	1064	0.081	0.102	0.044	0.055	0.454 + j0.329	0.103 + j0.055	3324	316	303
3/0	21.2	1342	0.064	0.081	0.041	0.053	0.429 + j0.313	0.082 + j0.053	3482	356	333
4/0	21.9	1692	0.051	0.065	0.038	0.051	0.408 + j0.296	0.066 + j0.051	3656	403	367
250	22.6	2000	0.043	0.056	0.036	0.050	0.395 + j0.281	0.057 + j0.050	3823	455	411
350	23.8	2800	0.031	0.041	0.032	0.047	0.371 + j0.255	0.042 + j0.047	4142	537	459
500	25.3	4000	0.022	0.030	0.028	0.044	0.348 + j0.227	0.031 + j0.044	4539	616	499
750	28.3	6000	0.014	0.023	0.024	0.042	0.323 + j0.194	0.024 + j0.042	5124	716	557

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

Table 3 – Weights and Measurements (Metric)

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
AWG/Kcmil	No.	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
1	19	8.18	23.37	7.11	24.89	2.03	37.90	1.27	40.44	414	1698
1/0	19	9.17	24.36	7.11	25.88	2.03	38.89	1.52	41.94	513	1903
2/0	19	10.29	25.48	7.11	27.00	2.03	40.00	1.52	43.05	641	2095
3/0	19	11.58	26.77	7.11	28.30	2.03	41.91	1.52	44.96	804	2381
4/0	19	13.00	28.19	7.11	29.72	2.03	43.33	1.52	46.38	1006	2667
250	37	14.17	29.57	7.11	31.09	2.03	44.70	1.52	47.75	1185	2930
350	37	16.79	32.18	7.11	33.71	2.03	47.32	1.52	50.37	1649	3683
500	37	20.04	35.43	7.11	36.96	2.03	50.57	1.52	53.62	2341	4579
750	61	24.59	40.23	7.11	41.76	2.79	56.90	1.52	59.94	3496	6237

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



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
1	485.14	2977	0.4199	0.53	0.0155	0.1903	0.519 + j0.359	0.163 + j0.059	3067	245	244
1/0	502.92	3756	0.3346	0.42	0.0146	0.1870	0.483 + j0.345	0.129 + j0.057	3188	278	272
2/0	515.62	4735	0.2657	0.33	0.0134	0.1804	0.454 + j0.329	0.103 + j0.055	3324	316	303
3/0	538.48	5972	0.2100	0.27	0.0125	0.1739	0.429 + j0.313	0.082 + j0.053	3482	356	333
4/0	556.26	7529	0.1673	0.21	0.0116	0.1673	0.408 + j0.296	0.066 + j0.051	3656	403	367
250	574.04	8900	0.1411	0.18	0.0110	0.1640	0.395 + j0.281	0.057 + j0.050	3823	455	411
350	604.52	12460	0.1017	0.13	0.0098	0.1542	0.371 + j0.255	0.042 + j0.047	4142	537	459
500	642.62	17800	0.0722	0.10	0.0085	0.1444	0.348 + j0.227	0.031 + j0.044	4539	616	499
750	718.82	26700	0.0459	0.08	0.0073	0.1378	0.323 + j0.194	0.024 + j0.042	5124	716	557

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

