



## HVTECK CU 3/C 280NLEPR TS PVC AIA PVC 28kV 100% CSA

3 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. **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:** 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
- 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 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	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
1	19	0.322	0.920	280	0.980	6	110	2.736	75	2.886	922	3712
1/0	19	0.361	0.959	280	1.019	6	110	2.820	75	2.970	1128	4050
2/0	19	0.405	1.003	280	1.063	6	110	2.915	75	3.065	1388	4463
3/0	19	0.456	1.054	280	1.114	4	110	3.025	85	3.195	1764	5078
4/0	19	0.512	1.110	280	1.170	4	125	3.176	85	3.346	2175	5780
250	37	0.558	1.164	280	1.224	4	125	3.293	85	3.463	2539	6351
350	37	0.661	1.267	280	1.327	3	125	3.516	85	3.686	3515	7708
500	37	0.789	1.395	280	1.455	3	125	3.792	85	3.962	4923	9594

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	20.2	2008	0.128	0.162	0.051	0.048	0.529 + j0.360	0.162 + j0.048	3067	202	226
1/0	20.8	2534	0.102	0.128	0.048	0.046	0.492 + j0.345	0.128 + j0.046	3188	231	256
2/0	21.5	3194	0.081	0.102	0.044	0.044	0.462 + j0.329	0.102 + j0.045	3324	265	290
3/0	22.4	4027	0.064	0.081	0.041	0.043	0.437 + j0.312	0.081 + j0.043	3482	303	327
4/0	23.4	5078	0.051	0.065	0.038	0.041	0.416 + j0.295	0.065 + j0.041	3656	348	369
250	24.2	6000	0.043	0.056	0.036	0.040	0.402 + j0.280	0.056 + j0.040	3823	384	408
350	25.8	8400	0.030	0.041	0.030	0.038	0.377 + j0.254	0.410 + j0.038	4142	468	485
500	27.7	12000	0.020	0.030	0.030	0.036	0.353 + j0.226	0.031 + j0.036	4539	565	571

\* 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)**

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
1	19	8.18	23.37	7.11	24.89	6	2.79	69.49	1.91	73.30	1372	5524
1/0	19	9.17	24.36	7.11	25.88	6	2.79	71.63	1.91	75.44	1679	6027
2/0	19	10.29	25.48	7.11	27.00	6	2.79	74.04	1.91	77.85	2066	6642
3/0	19	11.58	26.77	7.11	28.30	4	2.79	76.84	2.16	81.15	2625	7557
4/0	19	13.00	28.19	7.11	29.72	4	3.18	80.67	2.16	84.99	3237	8602
250	37	14.17	29.57	7.11	31.09	4	3.18	83.64	2.16	87.96	3778	9451
350	37	16.79	32.18	7.11	33.71	3	3.18	89.31	2.16	93.62	5231	11471
500	37	20.04	35.43	7.11	36.96	3	3.18	96.32	2.16	100.63	7326	14277

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	513.08	8936	0.4199	0.53	0.0155	0.1575	0.529 + j0.360	0.162 + j0.048	3067	202	226
1/0	528.32	11276	0.3346	0.42	0.0146	0.1509	0.492 + j0.345	0.128 + j0.046	3188	231	256
2/0	546.10	14213	0.2657	0.33	0.0134	0.1444	0.462 + j0.329	0.102 + j0.045	3324	265	290
3/0	568.96	17920	0.2100	0.27	0.0125	0.1411	0.437 + j0.312	0.081 + j0.043	3482	303	327
4/0	594.36	22597	0.1673	0.21	0.0116	0.1345	0.416 + j0.295	0.065 + j0.041	3656	348	369
250	614.68	26700	0.1411	0.18	0.0110	0.1312	0.402 + j0.280	0.056 + j0.040	3823	384	408
350	655.32	37380	0.0984	0.13	0.0091	0.1247	0.377 + j0.254	0.410 + j0.038	4142	468	485
500	703.58	53400	0.0656	0.10	0.0091	0.1181	0.353 + j0.226	0.031 + j0.036	4539	565	571

\* 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

