



## HVTECK AL 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 compact stranded 8000 Series aluminum per ASTM B800 and ASTM B836
2. **Conductor Shield:** Semi-conducting cross-linked copolymer; A conductor separator is used for cable size larger than or equal to 500 Kcmil
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 B801 Concentric-Lay-Stranded Conductors of 8000 Series Aluminum Alloy
- ASTM B836 Compact Rounded Stranded Aluminum 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] CPT AL 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	Approx. Weight
AWG/ Kcmil	No.	inch	inch	mil	inch	AWG	mil	inch	mil	inch	lb/1000ft
1	19	0.298	0.896	280	0.956	6	110	2.684	75	2.834	3027
1/0	19	0.336	0.934	280	0.994	6	110	2.766	75	2.916	3222
2/0	19	0.376	0.974	280	1.034	6	110	2.853	75	3.003	3440
3/0	19	0.422	1.020	280	1.080	6	110	2.952	75	3.102	3700
4/0	19	0.474	1.072	280	1.132	6	110	3.064	85	3.234	4072
250	37	0.520	1.126	280	1.186	4	125	3.211	85	3.381	4495
350	37	0.615	1.221	280	1.281	4	125	3.416	85	3.586	5132
500	37	0.735	1.341	280	1.401	3	125	3.675	85	3.845	6024

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

\* Strand count meets minimum number per ASTM





**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	19.8	1506	0.211	0.266	0.054	0.049	0.634 + j0.368	0.266 + j0.047	2992	158	177
1/0	20.4	1900	0.168	0.211	0.050	0.047	0.577 + j0.353	0.211 + j0.046	3110	181	200
2/0	21.0	2395	0.133	0.167	0.047	0.045	0.530 + j0.338	0.167 + j0.044	3234	208	228
3/0	21.7	3020	0.105	0.133	0.043	0.044	0.492 + j0.322	0.133 + j0.042	3377	239	258
4/0	22.6	3808	0.084	0.105	0.040	0.042	0.459 + j0.305	0.105 + j0.041	3538	273	292
250	23.7	4500	0.071	0.090	0.038	0.041	0.439 + j0.289	0.090 + j0.039	3705	302	321
350	25.1	6300	0.050	0.065	0.030	0.039	0.405 + j0.264	0.065 + j0.037	3999	368	385
500	26.9	9000	0.035	0.046	0.030	0.037	0.374 + j0.236	0.047 + j0.035	4371	454	462

\* 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	Approx. Weight
AWG/Kcmil	No.	mm	mm	mm	mm	AWG	mm	mm	mm	mm	kg/km
1	19	7.57	22.76	7.11	24.28	6	2.79	68.17	1.91	71.98	4505
1/0	19	8.53	23.72	7.11	25.25	6	2.79	70.26	1.91	74.07	4795
2/0	19	9.55	24.74	7.11	26.26	6	2.79	72.47	1.91	76.28	5119
3/0	19	10.72	25.91	7.11	27.43	6	2.79	74.98	1.91	78.79	5506
4/0	19	12.04	27.23	7.11	28.75	6	2.79	77.83	2.16	82.14	6060
250	37	13.21	28.60	7.11	30.12	4	3.18	81.56	2.16	85.88	6689
350	37	15.62	31.01	7.11	32.54	4	3.18	86.77	2.16	91.08	7637
500	37	18.67	34.06	7.11	35.59	3	3.18	93.34	2.16	97.66	8965

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

\* Strand count meets minimum number per ASTM





**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	502.92	6702	0.6923	0.87	0.0165	0.1608	0.634 + j0.368	0.266 + j0.047	2992	158	177
1/0	518.16	8455	0.5512	0.69	0.0152	0.1542	0.577 + j0.353	0.211 + j0.046	3110	181	200
2/0	533.40	10658	0.4364	0.55	0.0143	0.1476	0.530 + j0.338	0.167 + j0.044	3234	208	228
3/0	551.18	13439	0.3445	0.44	0.0131	0.1444	0.492 + j0.322	0.133 + j0.042	3377	239	258
4/0	574.04	16946	0.2756	0.34	0.0122	0.1378	0.459 + j0.305	0.105 + j0.041	3538	273	292
250	601.98	20025	0.2329	0.30	0.0116	0.1345	0.439 + j0.289	0.090 + j0.039	3705	302	321
350	637.54	28035	0.1640	0.21	0.0091	0.1280	0.405 + j0.264	0.065 + j0.037	3999	368	385
500	683.26	40050	0.1148	0.15	0.0091	0.1214	0.374 + j0.236	0.047 + j0.035	4371	454	462

\* 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

