

## HVTECK CU 1/C 420NLEPR CB PVC AIA PVC 35kV 133% CSA

Single Conductor, 420 Mils No Lead Ethylene Propylene Rubber (NL-EPR), 133% Insulation Level, Concentric Bond, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

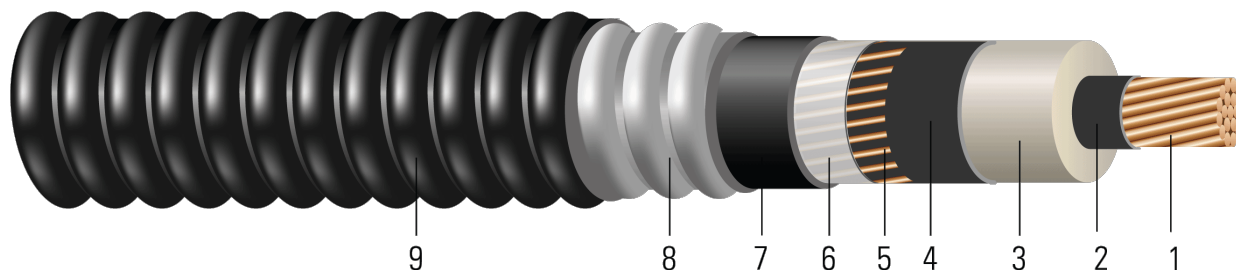


Image not to scale. See Table 1 for dimensions.

### CONSTRUCTION:

- Conductor:** Class B compressed stranded bare copper per ASTM B3 and ASTM B8
- Conductor Shield:** Semi-conducting cross-linked copolymer
- Insulation:** 420 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 133% insulation level
- Insulation Shield:** Strippable semi-conducting cross-linked copolymer
- Concentric Shield:** Concentrically applied copper bond / shield wires. Complies with greater than the minimum requirement as per Table 44, CSA Standard C68.10 and Table 16A, Canadian Electrical Code Part 1
- Neutral Separator:** Mylar tape
- Inner Jacket:** PVC inner jacket
- Armour:** Aluminum Interlocked Armour (AIA)
- Overall Jacket:** Black Polyvinyl Chloride (PVC) Jacket

### APPLICATIONS AND FEATURES:

Southwire's 35kV 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)



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Services

- 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)
- AEIC CS-8 Specification for extruded dielectric shielded power cables rated for 5 through 46KV

## SAMPLE PRINT LEGEND:

(CSA) SOUTHWIRE (NESC) #P# 1/C [#AWG or #kcmil] CU 420 NLEPR AIA 35kV 133% INS LEVEL CB [No. x SIZE] AWG 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	Concentric Neutral	Inner Jacket Thickness	Dia. Over Armour	Overall Jacket Thickness	Approx. OD	Approx. Weight
AWG/ Kcmil	No.	inch	inch	mil	inch	No. x AWG	mil	inch	mil	inch	lb/1000ft
1/0	19	0.361	1.239	420	1.299	11 x 14	80	1.949	60	2.069	1981
2/0	19	0.405	1.283	420	1.343	11 x 14	80	1.993	60	2.113	2122
3/0	19	0.456	1.334	420	1.394	13 x 14	110	2.104	60	2.224	2443
4/0	19	0.512	1.390	420	1.450	13 x 14	110	2.160	60	2.280	2653
250	37	0.558	1.444	420	1.504	17 x 14	110	2.214	60	2.334	2901
350	37	0.661	1.547	420	1.607	21 x 14	110	2.317	75	2.467	3478
500	37	0.789	1.675	420	1.735	26 x 14	110	2.445	75	2.595	4185
750	61	0.968	1.864	420	1.924	21 x 12	110	2.668	75	2.818	5332

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 @ 60Hz	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
1/0	14.4	844	0.102	0.128	0.064	0.062	0.11 + j0.038	0.116 + j0.046	8577	278	272
2/0	14.7	1064	0.081	0.102	0.060	0.060	0.084 + j0.036	0.09 + j0.044	8577	316	303
3/0	15.5	1342	0.064	0.081	0.056	0.058	0.063 + j0.034	0.069 + j0.043	10137	356	333
4/0	15.9	1692	0.051	0.065	0.052	0.056	0.047 + j0.032	0.053 + j0.041	10137	403	367
250	16.3	2000	0.043	0.056	0.049	0.055	0.038 + j0.031	0.044 + j0.039	13256	455	411
350	17.2	2800	0.031	0.041	0.044	0.052	0.023 + j0.029	0.029 + j0.037	16376	537	459
500	18.1	4000	0.022	0.030	0.039	0.049	0.012 + j0.026	0.019 + j0.034	20275	616	499
750	19.7	6000	0.014	0.023	0.034	0.046	0.005 + j0.024	0.012 + j0.032	26018	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	Concentric Neutral	Inner Jacket Thickness	Dia. Over Armour	Overall Jacket Thickness	Approx. OD	Approx. Weight
AWG/Kcmil	No.	mm	mm	mm	mm	No. x AWG	mm	mm	mm	mm	kg/km
1/0	19	9.17	31.47	10.67	32.99	11 x 14	2.03	49.50	1.52	52.55	2948
2/0	19	10.29	32.59	10.67	34.11	11 x 14	2.03	50.62	1.52	53.67	3158
3/0	19	11.58	33.88	10.67	35.41	13 x 14	2.79	53.44	1.52	56.49	3636
4/0	19	13.00	35.31	10.67	36.83	13 x 14	2.79	54.86	1.52	57.91	3948
250	37	14.17	36.68	10.67	38.20	17 x 14	2.79	56.24	1.52	59.28	4317
350	37	16.79	39.29	10.67	40.82	21 x 14	2.79	58.85	1.91	62.66	5176
500	37	20.04	42.55	10.67	44.07	26 x 14	2.79	62.10	1.91	65.91	6228
750	61	24.59	47.35	10.67	48.87	21 x 12	2.79	67.77	1.91	71.58	7935

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 @ 60Hz	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
1/0	365.76	3756	0.3346	0.42	0.0195	0.2034	0.11 + j0.038	0.116 + j0.046	8577	278	272
2/0	373.38	4735	0.2657	0.33	0.0183	0.1969	0.084 + j0.036	0.09 + j0.044	8577	316	303
3/0	393.70	5972	0.2100	0.27	0.0171	0.1903	0.063 + j0.034	0.069 + j0.043	10137	356	333
4/0	403.86	7529	0.1673	0.21	0.0158	0.1837	0.047 + j0.032	0.053 + j0.041	10137	403	367
250	414.02	8900	0.1411	0.18	0.0149	0.1804	0.038 + j0.031	0.044 + j0.039	13256	455	411
350	436.88	12460	0.1017	0.13	0.0134	0.1706	0.023 + j0.029	0.029 + j0.037	16376	537	459
500	459.74	17800	0.0722	0.10	0.0119	0.1608	0.012 + j0.026	0.019 + j0.034	20275	616	499
750	500.38	26700	0.0459	0.08	0.0104	0.1509	0.005 + j0.024	0.012 + j0.032	26018	716	557

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

