HVTECK SPECIFICATIONS

HVTECK CU 1/C 115EPR CB PVC AIA PVC 5KV 133% CSA

PRODUCT HIGHLIGHTS
Southwire’s 5KV HVTECK is a CSA armoured cable for industrial and commercial medium voltage applications. Rated FT4, -40°C, Hazardous Locations (HL) and 105°C for use in harsh Canadian environments. For installation in cable trays, duct banks, direct burial, troughs, continuous rigid cable supports and concrete encasement. When used in a 3 phase system, the combination of each bond conductor from each single conductor cable provide a 100% bonded system to ground.

CONSTRUCTION
Conductor
- Class B compressed stranded copper
- in accordance with ASTM B3 and ASTM B8

Options
- Class B compact stranded -8000 Series Aluminum -ACM
- Class B compact stranded copper

Conductor Shield
- Exuded semi-conducting thermosetting polymeric layer
- No-lead EPR (Ethylene Propylene Rubber)
- Thickness: 0.115 inches (2.92mm) - nominal
- Insulation level: 133%
- 105°C rated

Insulation Shield
- Exuded Semi-conducting thermosetting polymeric layer
- CSA B8.10 - Shield Removal/termination requirements are printed on the surface
- Meets requirement of ICEA but built to CSA standards

Copper Full Bond Wire Shield
- Concentrally 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

Inner Jacket
- Black PVC
- Thickness:
  - No.2 AWG = 0.06 inches (1.52mm)
  - No.1 AWG to 750 kcmil = 0.08 inches (2.03mm)
  - 1000 kcmil = 0.11 inches (2.79mm)

Armour
- Aluminum Interlocked Armour (AIA)
- Optional Galvanized Steel Interlocked Armour (GSIA)

Overall Jacket
- Orange PVC (optional colours available)
- Nominal Thickness:
  - No.2 AWG to 250 kcmil = 0.05 inches (1.27mm)
  - 350 kcmil to 1000 kcmil = 0.06 inches (1.52mm)

Typical Print Legend
- (CSA) SOUTHWIRE (NESC) #P# (#AWG or #kcmil) CU 115 EPR AIA
- 5KV 133% INS LEVEL CB [No. x SIZE] AWG SUN RES 105° FT4 HL (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

TABLE 1 - WEIGHTS & MEASUREMENTS

<table>
<thead>
<tr>
<th>HVTECK Product Code</th>
<th>AWG [No. X]</th>
<th>Diameter Over Insulation</th>
<th>Diameter Over Insulation Shield</th>
<th>CB Shield ***</th>
<th>No. X AWG</th>
<th>Diameter Over Inner Jacket</th>
<th>Diameter Over Armour</th>
<th>Approx. Overall Diameter</th>
<th>Approx. Overall Weight of Cable</th>
<th>Approx. Weight of Copper</th>
<th>Max. Real Weight (Reel and cable)**</th>
<th>Max. Reel Length / Width **</th>
<th>Max. Length of Cable on Reel **</th>
</tr>
</thead>
<tbody>
<tr>
<td>CU115S67-002</td>
<td>2/7</td>
<td>0.283</td>
<td>7.2</td>
<td>0.543</td>
<td>13.8</td>
<td>0.623</td>
<td>15.8</td>
<td>11X16</td>
<td>0.794</td>
<td>2.021</td>
<td>743</td>
<td>1106</td>
<td>5209</td>
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<tr>
<td>CU115S67-001</td>
<td>1/19</td>
<td>0.322</td>
<td>8.2</td>
<td>0.582</td>
<td>14.8</td>
<td>0.662</td>
<td>16.8</td>
<td>17X16</td>
<td>0.873</td>
<td>2.221</td>
<td>1193</td>
<td>1903</td>
<td>303</td>
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<tr>
<td>CU115S67-010</td>
<td>1/19</td>
<td>0.362</td>
<td>9.2</td>
<td>0.622</td>
<td>15.8</td>
<td>0.702</td>
<td>17.8</td>
<td>17X16</td>
<td>0.913</td>
<td>2.321</td>
<td>1233</td>
<td>2143</td>
<td>333</td>
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<tr>
<td>CU115S67-020</td>
<td>2/19</td>
<td>0.405</td>
<td>10.3</td>
<td>0.665</td>
<td>16.9</td>
<td>0.745</td>
<td>18.9</td>
<td>17X16</td>
<td>0.956</td>
<td>2.431</td>
<td>1276</td>
<td>2196</td>
<td>376</td>
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<td>CU115S67-030</td>
<td>3/19</td>
<td>0.456</td>
<td>11.6</td>
<td>0.716</td>
<td>18.2</td>
<td>0.796</td>
<td>20.2</td>
<td>21X16</td>
<td>1.007</td>
<td>2.561</td>
<td>1327</td>
<td>2372</td>
<td>432</td>
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<td>CU115S67-040</td>
<td>4/19</td>
<td>0.512</td>
<td>13.0</td>
<td>0.772</td>
<td>19.6</td>
<td>0.852</td>
<td>21.6</td>
<td>21X16</td>
<td>1.063</td>
<td>2.701</td>
<td>1383</td>
<td>2483</td>
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<td>CU115S67-250</td>
<td>250/371</td>
<td>0.681</td>
<td>16.8</td>
<td>0.931</td>
<td>23.6</td>
<td>1.011</td>
<td>26.7</td>
<td>21X14</td>
<td>1.236</td>
<td>3.141</td>
<td>1555</td>
<td>3110</td>
<td>622</td>
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<tr>
<td>CU115S67-350</td>
<td>350/371</td>
<td>0.789</td>
<td>20.0</td>
<td>1.059</td>
<td>26.9</td>
<td>1.139</td>
<td>28.9</td>
<td>23X14</td>
<td>1.363</td>
<td>3.461</td>
<td>1683</td>
<td>3366</td>
<td>672</td>
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<tr>
<td>CU115S67-500</td>
<td>500/371</td>
<td>0.789</td>
<td>20.0</td>
<td>1.059</td>
<td>26.9</td>
<td>1.139</td>
<td>28.9</td>
<td>23X14</td>
<td>1.363</td>
<td>3.461</td>
<td>1683</td>
<td>3366</td>
<td>672</td>
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<tr>
<td>CU115S67-750</td>
<td>750/181</td>
<td>0.988</td>
<td>24.6</td>
<td>1.248</td>
<td>31.7</td>
<td>1.328</td>
<td>33.7</td>
<td>33X14</td>
<td>1.552</td>
<td>3.941</td>
<td>1882</td>
<td>3764</td>
<td>752</td>
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<tr>
<td>CU115S67-1000</td>
<td>1000/61</td>
<td>1.117</td>
<td>28.4</td>
<td>1.397</td>
<td>35.5</td>
<td>1.477</td>
<td>37.5</td>
<td>33X14</td>
<td>1.781</td>
<td>4.471</td>
<td>2091</td>
<td>4182</td>
<td>836</td>
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</table>

NOTE: These are minimum average dimensions as per CSA Standards.
* Other conductor sizes and outer jacket colours are available upon request. (#s in brackets represent # of strands / conductor)
** Longer maximum lengths may be possible. Standard sizes and lengths may be supplied. Reel sizes are not guaranteed. The factory reserves the right to make changes as necessary to optimize manufacturing requirements.
*** Concentric 1/3 Bond size values are available on request

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### DESIGN

**Qualification Standards**
- 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 C22.2 No. 174 - Cables in Hazardous Locations
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 BTU/Hr.)
- CSA HL - for Hazardous Locations rating
- AEIC CS-8 - Qualification Testing Requirements

**Flame Test Ratings**
- FT1 - Flame Test - (1,706 BTU/Hr. nominal - Vertical Wire Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- FT4, Flame Test - (70,000 BTU/Hr. - Vertical Tray Flame Test)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 BTU/Hr.)

**Operating Temperatures**
- -25°C - Min. Installation Temperature
- 105°C - Max. Continuous Operating Temperature
- 250°C for Short Circuit Temperature
- 140°C for Emergency Overload Temperature

**Product Ratings**
- CSA C22.2 No. 2568 & No. 0.3 - Wire and Cable Test Methods
- CSA LTGS - (40°C) - as per C68.10 - for Cold Bend and Impact rating
- CSA FT4 - for Flame Retardancy rating
- CSA SUN RES - for Sunlight Resistant rating

### Ampacities

<table>
<thead>
<tr>
<th>HVTECK Product Code</th>
<th>Maximum Pulling Tension</th>
<th>DC Resistance @ 25°C</th>
<th>AC Resistance @ 90°C &amp; 60 Hz</th>
<th>Inductance L</th>
<th>Capacitance C</th>
<th>Inductive Reactance @ 60Hz</th>
<th>Capacitive Reactance @ 60Hz</th>
<th>Positive - Sequence Impedance</th>
<th>Zero - Sequence Impedance</th>
<th>Short Circuit Current (each phase conductor)</th>
<th>Allowable Ampacities in Ventilated Cable Tray</th>
<th>Allowable Ampacities Directly Buried in Earth</th>
</tr>
</thead>
<tbody>
<tr>
<td>CU115867-002</td>
<td>531 lb</td>
<td>0.162</td>
<td>0.532</td>
<td>0.0973</td>
<td>0.3192</td>
<td>0.0764</td>
<td>0.4747</td>
<td>0.0374</td>
<td>0.0464</td>
<td>0.205 + j0.095</td>
<td>0.501 + j0.109</td>
<td>4.5</td>
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<tr>
<td>CU115867-001</td>
<td>670 lb</td>
<td>0.129</td>
<td>0.423</td>
<td>0.161</td>
<td>0.3599</td>
<td>0.0937</td>
<td>0.3073</td>
<td>0.0839</td>
<td>0.1158</td>
<td>0.165 + j0.033</td>
<td>0.386 + j0.104</td>
<td>5.7</td>
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<tr>
<td>CU115867-010</td>
<td>635 lb</td>
<td>0.110</td>
<td>0.335</td>
<td>0.169</td>
<td>0.3794</td>
<td>0.0909</td>
<td>0.2972</td>
<td>0.0908</td>
<td>0.1190</td>
<td>0.131 + j0.051</td>
<td>0.351 + j0.106</td>
<td>7.2</td>
</tr>
<tr>
<td>CU115867-020</td>
<td>1065 lb</td>
<td>0.081</td>
<td>0.266</td>
<td>0.101</td>
<td>0.3333</td>
<td>0.0878</td>
<td>0.2881</td>
<td>0.0991</td>
<td>0.1252</td>
<td>0.105 + j0.049</td>
<td>0.325 + j0.105</td>
<td>9.0</td>
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<tr>
<td>CU115867-030</td>
<td>1342 lb</td>
<td>0.064</td>
<td>0.211</td>
<td>0.080</td>
<td>0.2644</td>
<td>0.0851</td>
<td>0.2791</td>
<td>0.1089</td>
<td>0.3574</td>
<td>0.0248 + j0.074</td>
<td>0.084 + j0.104</td>
<td>11.4</td>
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<tr>
<td>CU115867-040</td>
<td>1693 lb</td>
<td>0.051</td>
<td>0.167</td>
<td>0.064</td>
<td>0.2100</td>
<td>0.0826</td>
<td>0.2710</td>
<td>0.1197</td>
<td>0.3927</td>
<td>0.0311 + j0.102</td>
<td>0.0222 + j0.068</td>
<td>14.3</td>
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<tr>
<td>CU115867-050</td>
<td>2000 lb</td>
<td>0.043</td>
<td>0.141</td>
<td>0.054</td>
<td>0.1784</td>
<td>0.0816</td>
<td>0.2678</td>
<td>0.1245</td>
<td>0.4086</td>
<td>0.0306 + j0.101</td>
<td>0.0213 + j0.053</td>
<td>16.9</td>
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<tr>
<td>CU115867-060</td>
<td>2600 lb</td>
<td>0.031</td>
<td>0.101</td>
<td>0.029</td>
<td>0.1284</td>
<td>0.0784</td>
<td>0.2574</td>
<td>0.1345</td>
<td>0.4708</td>
<td>0.0296 + j0.071</td>
<td>0.0195 + j0.056</td>
<td>23.7</td>
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<tr>
<td>CU115867-070</td>
<td>4000 lb</td>
<td>0.022</td>
<td>0.071</td>
<td>0.029</td>
<td>0.0811</td>
<td>0.0784</td>
<td>0.2477</td>
<td>0.1670</td>
<td>0.5478</td>
<td>0.0295 + j0.093</td>
<td>0.0159 + j0.048</td>
<td>33.9</td>
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<tr>
<td>CU115867-080</td>
<td>6000 lb</td>
<td>0.014</td>
<td>0.047</td>
<td>0.029</td>
<td>0.0813</td>
<td>0.0731</td>
<td>0.2397</td>
<td>0.1934</td>
<td>0.6537</td>
<td>0.0275 + j0.0904</td>
<td>0.0137 + j0.042</td>
<td>50.8</td>
</tr>
<tr>
<td>CU115867-1000</td>
<td>8000 lb</td>
<td>0.011</td>
<td>0.035</td>
<td>0.029</td>
<td>0.0814</td>
<td>0.0712</td>
<td>0.2368</td>
<td>0.1977</td>
<td>0.7259</td>
<td>0.0268 + j0.085</td>
<td>0.0121 + j0.037</td>
<td>67.8</td>
</tr>
</tbody>
</table>

* Calculations are based on three cables triplexed / 5 mil 25% over lapping copper tape shield / Conductor temperature of 90°C / Shield temperature of 45°C / Earth resistivity of 100 ohms-meter

1 Ampacities are based on Table D17M of the 2015 Canadian Electrical Code Part I (40°C Ambient Air Temperature, indoor installation)

2 Ampacities are based on Table D17A of the 2015 Canadian Electrical Code Part I