**HVTECK SPECIFICATIONS**

**HVTECK CU 3/C 175EPR TS PVC AIA PVC 15KV 100% CSA**

**PRODUCT HIGHLIGHTS**

Southwire’s 15KV 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 encaseable.

**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**
- Extruded semi-conducting thermostetting polymeric layer

**Insulation**
- No-lead EPR (Ethylene Propylene Rubber)
- Thickness: 0.175 inches (4.45mm) - nominal
- Insulation level: 100% - grounded system
- 105°C rated

**Insulation Shield**
- Extruded Semi-conducting thermostetting polymeric layer
- CSA 68.10 - Shield Removal/termination requirements are printed on the surface

- Phase identification as per ICEA Method 3, using printed circuit numbers
- Meets requirement of ICEA but built to CSA standards

**Copper Tape Shield**
- Helically wrapped 5 mil copper tape with 25% overlap

**Bonding Conductor**
- Class B compressed stranded bare copper
- in accordance with ASTM B3 and B8

**Fillers**
- Non-wicking, non-hygroscopic

**Inner Jacket**
- Black PVC

**Thickness:**
- No.2 AWG to 350 kcmil = 0.11 inches (2.79mm)
- 500 kcmil to 750 kcmil = 0.14 inches (3.56mm)

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

**Overall Jacket**
- Red PVC (optional colours available)
- Nominal Thickness:
  - No.2 AWG = 0.08 inches (1.52mm)
  - No.1 AWG to 250 kcmil = 0.075 inches (1.91mm)
  - 350 kcmil to 750 kcmil = 0.085 inches (2.16mm)

**Typical Print Legend**
- (CSA) SOUTHwire [NESC] #4/3/C (#AWG or #kcmil) CU 175 EPR AIA 15KV 100% INS LEVEL 25% TS SUN RES 105ºF FT4 HL (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

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**TABLE 1 - WEIGHTS & MEASUREMENTS**

<table>
<thead>
<tr>
<th>HVTECK Product Code</th>
<th>AWG or kcmil</th>
<th>Conductor Diameter</th>
<th>Diameter Over Insulation</th>
<th>Diameter Over Insulation Shield</th>
<th>Bonding Cond. Size</th>
<th>Diameter Over Inner Jacket</th>
<th>Diameter Over Armour</th>
<th>Approx. Overall Diameter</th>
<th>Minimum Bend Radius</th>
<th>Approx. Weight of Cable</th>
<th>Max. Real Weight ( reel and cable )</th>
<th>Max. Real Diameter / Width</th>
<th>Max. Real Length of Cable (on Reel)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CU175K02-002</td>
<td>2/1(1)</td>
<td>0.283</td>
<td>7.2</td>
<td>0.663</td>
<td>16.8</td>
<td>0.743</td>
<td>18.9</td>
<td>6</td>
<td>1.168</td>
<td>47.4</td>
<td>21.98</td>
<td>55.8</td>
<td>2.318</td>
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<tr>
<td>CU175K02-001</td>
<td>2/1(1)</td>
<td>0.322</td>
<td>8.2</td>
<td>0.702</td>
<td>17.8</td>
<td>0.782</td>
<td>19.9</td>
<td>6</td>
<td>1.952</td>
<td>49.6</td>
<td>2.262</td>
<td>58.0</td>
<td>2.432</td>
</tr>
<tr>
<td>CU175K02-010</td>
<td>1/0(1/9)</td>
<td>0.362</td>
<td>9.2</td>
<td>0.742</td>
<td>18.8</td>
<td>0.822</td>
<td>20.9</td>
<td>6</td>
<td>2.039</td>
<td>51.8</td>
<td>2.369</td>
<td>60.2</td>
<td>2.519</td>
</tr>
<tr>
<td>CU175K02-020</td>
<td>2/0(2/1)</td>
<td>0.405</td>
<td>10.3</td>
<td>0.785</td>
<td>19.9</td>
<td>0.865</td>
<td>22.0</td>
<td>6</td>
<td>2.132</td>
<td>54.1</td>
<td>2.462</td>
<td>62.5</td>
<td>2.612</td>
</tr>
<tr>
<td>CU175K02-030</td>
<td>3/0(3/1)</td>
<td>0.456</td>
<td>11.6</td>
<td>0.836</td>
<td>21.2</td>
<td>0.916</td>
<td>23.3</td>
<td>4</td>
<td>2.242</td>
<td>56.9</td>
<td>2.572</td>
<td>65.3</td>
<td>2.722</td>
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<tr>
<td>CU175K02-040</td>
<td>4/0(4/1)</td>
<td>0.512</td>
<td>13.0</td>
<td>0.892</td>
<td>22.7</td>
<td>0.972</td>
<td>24.7</td>
<td>4</td>
<td>2.363</td>
<td>60.0</td>
<td>2.693</td>
<td>68.4</td>
<td>2.943</td>
</tr>
<tr>
<td>CU175K02-050</td>
<td>5/0(5/1)</td>
<td>0.568</td>
<td>14.2</td>
<td>0.948</td>
<td>24.1</td>
<td>1.028</td>
<td>26.1</td>
<td>4</td>
<td>2.494</td>
<td>63.1</td>
<td>2.814</td>
<td>71.5</td>
<td>2.964</td>
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<tr>
<td>CU175K02-350</td>
<td>350(31)</td>
<td>0.861</td>
<td>18.8</td>
<td>1.051</td>
<td>26.7</td>
<td>1.131</td>
<td>28.7</td>
<td>3</td>
<td>2.706</td>
<td>68.7</td>
<td>3.026</td>
<td>77.1</td>
<td>3.206</td>
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<tr>
<td>CU175K02-300</td>
<td>350(31)</td>
<td>0.789</td>
<td>20.0</td>
<td>1.179</td>
<td>29.9</td>
<td>1.259</td>
<td>32.0</td>
<td>3</td>
<td>3.043</td>
<td>77.3</td>
<td>3.373</td>
<td>85.7</td>
<td>3.543</td>
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<tr>
<td>CU175K02-750</td>
<td>750(61)</td>
<td>0.988</td>
<td>24.6</td>
<td>1.388</td>
<td>34.7</td>
<td>1.448</td>
<td>36.8</td>
<td>2</td>
<td>3.451</td>
<td>87.7</td>
<td>3.781</td>
<td>98.0</td>
<td>3.951</td>
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</tbody>
</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.**

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## HVTECK Specifications

### Design

**Qualification Standards**
- CSA C86.10 - Shielded Power Cables for Commercial and Industrial Applications - 5 to 46 kV
- CSA C86.3 - Shielded & Concentric Neutral Power Cable - 5 to 46 kV
- CSA C22.2 No. 174 - Cables in Hazardous Locations
- IEEE S-93-639 (NEMA WC 74) 5 to 46 kV - Shielded Power Cable
- 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)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 BTU/Hr)

### Product Ratings
- CSA C22.2 No. 2568 & No. 0.3 - Wire and Cable Test Methods
- CSA LTGG (40°C) - as per C88.10 - for Cold Bend and Impact rating
- CSA HT - for Hazardous Locations rating
- CSA FT4 - for Flame Retardancy rating
- CSA SUN RES - for Sunlight Resistant rating

### Operating Temperatures
- -40°C - CSA Cold Bend and Impact Temperature
- -25°C - Min. Installation Temperature
- 25°C - Max. Continuous Operating Temperature
- 140°C - for Emergency Overload Temperature
- 250°C for Short Circuit Temperature

### End View

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## Table 2 - Engineering Specifications

<table>
<thead>
<tr>
<th>HVTECK Product Code</th>
<th>Maximum Pulling Tension (lb)</th>
<th>Newtons</th>
<th>DC Resistance @ 25°C</th>
<th>AC Resistance @ 50°C-60 Hz (triplexed)</th>
<th>Inductance L (µH)</th>
<th>Capacitance C (µF)</th>
<th>Inductive Reactance @ 60Hz (triplexed) Xc</th>
<th>Capacitive Reactance @ 60Hz (triplexed) Xc</th>
<th>Impedance Z (Ω)</th>
<th>Positive Chaos Impedance</th>
<th>Zero Chaos Impedance</th>
<th>Short Circuit Current (each phase conductor) @ 60Hz</th>
<th>Allowable Ampacities in Ventilated Cable Tray</th>
<th>Allowable Ampacities Directly Buried in Earth</th>
</tr>
</thead>
<tbody>
<tr>
<td>CU175K02-002</td>
<td>1593</td>
<td>7084</td>
<td>0.162</td>
<td>0.032</td>
<td>0.203</td>
<td>0.665</td>
<td>0.435</td>
<td>0.0413</td>
<td>0.1354</td>
<td>0.0459</td>
<td>0.0140</td>
<td>0.203 + 0.044</td>
<td>0.578 + 0.451</td>
<td>4.5</td>
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<tr>
<td>CU175K03-001</td>
<td>2009</td>
<td>8835</td>
<td>0.129</td>
<td>0.423</td>
<td>0.161</td>
<td>0.530</td>
<td>0.1051</td>
<td>0.0348</td>
<td>0.1300</td>
<td>0.0421</td>
<td>0.0128</td>
<td>0.162 + 0.043</td>
<td>0.537 + 0.431</td>
<td>5.7</td>
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<tr>
<td>CU175K03-010</td>
<td>2534</td>
<td>11274</td>
<td>0.102</td>
<td>0.335</td>
<td>0.128</td>
<td>0.419</td>
<td>0.1013</td>
<td>0.0325</td>
<td>0.1253</td>
<td>0.0387</td>
<td>0.0118</td>
<td>0.128 + 0.041</td>
<td>0.502 + 0.412</td>
<td>7.2</td>
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<tr>
<td>CU175K03-020</td>
<td>3194</td>
<td>14209</td>
<td>0.081</td>
<td>0.266</td>
<td>0.101</td>
<td>0.333</td>
<td>0.0959</td>
<td>0.3213</td>
<td>0.1211</td>
<td>0.0357</td>
<td>0.0109</td>
<td>0.102 + 0.040</td>
<td>0.475 + 0.393</td>
<td>9.0</td>
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<tr>
<td>CU175K03-030</td>
<td>4027</td>
<td>17914</td>
<td>0.064</td>
<td>0.211</td>
<td>0.081</td>
<td>0.264</td>
<td>0.0945</td>
<td>0.3101</td>
<td>0.0306</td>
<td>0.0327</td>
<td>0.0100</td>
<td>0.081 + 0.038</td>
<td>0.451 + 0.372</td>
<td>11.4</td>
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<tr>
<td>CU175K03-040</td>
<td>5078</td>
<td>22590</td>
<td>0.051</td>
<td>0.167</td>
<td>0.084</td>
<td>0.210</td>
<td>0.0914</td>
<td>0.2999</td>
<td>0.0865</td>
<td>0.0345</td>
<td>0.0081</td>
<td>0.085 + 0.037</td>
<td>0.431 + 0.350</td>
<td>14.3</td>
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<tr>
<td>CU175K03-050</td>
<td>6000</td>
<td>26889</td>
<td>0.043</td>
<td>0.141</td>
<td>0.084</td>
<td>0.178</td>
<td>0.0899</td>
<td>0.2949</td>
<td>0.0927</td>
<td>0.0339</td>
<td>0.0112</td>
<td>0.0286 + 0.036</td>
<td>0.417 + 0.331</td>
<td>16.9</td>
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<tr>
<td>CU175K03-060</td>
<td>8000</td>
<td>37085</td>
<td>0.030</td>
<td>0.129</td>
<td>0.085</td>
<td>0.216</td>
<td>0.0858</td>
<td>0.2916</td>
<td>0.1060</td>
<td>0.0324</td>
<td>0.0102</td>
<td>0.0250 + 0.040</td>
<td>0.394 + 0.296</td>
<td>23.7</td>
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<tr>
<td>CU175K03-070</td>
<td>10000</td>
<td>53379</td>
<td>0.022</td>
<td>0.071</td>
<td>0.082</td>
<td>0.282</td>
<td>0.0821</td>
<td>0.2892</td>
<td>0.1224</td>
<td>0.0309</td>
<td>0.0105</td>
<td>0.0217 + 0.039</td>
<td>0.370 + 0.263</td>
<td>33.9</td>
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<tr>
<td>CU175K03-080</td>
<td>15000</td>
<td>80000</td>
<td>0.014</td>
<td>0.047</td>
<td>0.020</td>
<td>0.064</td>
<td>0.0707</td>
<td>0.2581</td>
<td>0.1412</td>
<td>0.0297</td>
<td>0.0093</td>
<td>0.020 + 0.031</td>
<td>0.343 + 0.222</td>
<td>50.8</td>
</tr>
</tbody>
</table>

*Calculations are based on 5 mil 25% over 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 D17N of the 2015 Canadian Electrical Code Part I (40°C Ambient Air Temperature, indoor installation)

2. Ampacities are based on Table D17E of the 2015 Canadian Electrical Code Part I