## HVTECK SPECIFICATIONS

**HVTECK CU 1/C 220TRXLPE CB PVC AIA PVC 15KV 133% 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. 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**
- Extruded semi-conducting thermosetting polymeric layer

**Insulation**
- TR-XLPE - (Tree Retardent Cross Linked Polyethylene)
- Thickness: 0.22 inches (5.59mm) - nominal
- Insulation level: 133%
- 105°C rated

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

**Copper Full Bond Wire Shield**
- Concentrically applied copper bond / shield wires
- *** Complies with greater than the minimum requirement as per Table 44, CSA Standard C88.10 and Table 16A, Canadian Electrical Code Part 1

**Inner Jacket**
- Black PVC
- Thickness:
  - No.2 AWG to 500 kcmil = 0.08 inches (2.03mm)
  - 750 kcmil to 1000 kcmil = 0.11 inches (2.79mm)

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

**Overall Jacket**
- Red PVC (optional colours available)
- Nominal Thickness:
  - No.2 AWG to No.2/0 AWG = 0.25 inches (6.35mm)
  - No.3/0 AWG to 750 kcmil = 0.14 inches (3.60mm)
  - 1000 kcmil = 0.11 inches (2.79mm)

**Typical Print Legend**
- [CSA] SOUTHWIRE (NESG) #F# (AWG or kcmil) CU 220 TRXLPE AIA 15KV 133% INS LEVEL CB (No. x SIZE) AWG SUN RES 105º FT4 HL (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

### TABLE 1 - WEIGHTS & MEASUREMENTS

<table>
<thead>
<tr>
<th>HVTECK Product Code</th>
<th>Conductor Size **</th>
<th>Diameter Over Insulation</th>
<th>Diameter Over Insulation Shield</th>
<th>CB Shield **</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>Weight (cable and armour) **</th>
<th>Max. Real Diameter/Width **</th>
<th>Max. Real Length of Cable on Roll **</th>
</tr>
</thead>
<tbody>
<tr>
<td>CU220K44-002</td>
<td>2/0</td>
<td>0.283</td>
<td>0.753</td>
<td>0.833</td>
<td>21.2</td>
<td>11X16</td>
<td>1.044</td>
<td>1.364</td>
<td>1.464</td>
<td>37.2</td>
<td>17.6</td>
<td>446</td>
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<tr>
<td>CU220K44-010</td>
<td>1/0</td>
<td>0.322</td>
<td>0.792</td>
<td>0.872</td>
<td>22.1</td>
<td>17X16</td>
<td>1.083</td>
<td>1.403</td>
<td>1.563</td>
<td>38.2</td>
<td>18.0</td>
<td>458</td>
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<tr>
<td>CU220K44-020</td>
<td>2/0</td>
<td>0.362</td>
<td>0.832</td>
<td>0.912</td>
<td>23.2</td>
<td>17X16</td>
<td>1.123</td>
<td>1.443</td>
<td>1.543</td>
<td>39.2</td>
<td>18.5</td>
<td>470</td>
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<tr>
<td>CU220K44-030</td>
<td>3/0</td>
<td>0.405</td>
<td>0.875</td>
<td>0.955</td>
<td>24.3</td>
<td>17X16</td>
<td>1.166</td>
<td>1.486</td>
<td>1.586</td>
<td>40.3</td>
<td>19.0</td>
<td>483</td>
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<td>CU220K44-040</td>
<td>4/0</td>
<td>0.456</td>
<td>0.926</td>
<td>1.006</td>
<td>25.6</td>
<td>21X16</td>
<td>1.273</td>
<td>1.537</td>
<td>1.657</td>
<td>42.1</td>
<td>19.9</td>
<td>505</td>
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<tr>
<td>CU220K44-250</td>
<td>250</td>
<td>0.279</td>
<td>0.589</td>
<td>1.256</td>
<td>30.2</td>
<td>21X16</td>
<td>0.706</td>
<td>1.706</td>
<td>1.495</td>
<td>44.9</td>
<td>21.2</td>
<td>539</td>
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<tr>
<td>CU220K44-350</td>
<td>350</td>
<td>0.389</td>
<td>0.789</td>
<td>1.349</td>
<td>34.3</td>
<td>21X16</td>
<td>1.175</td>
<td>2.103</td>
<td>1.549</td>
<td>47.9</td>
<td>22.6</td>
<td>575</td>
</tr>
<tr>
<td>CU220K44-500</td>
<td>500</td>
<td>0.329</td>
<td>0.989</td>
<td>1.367</td>
<td>35.7</td>
<td>21X16</td>
<td>1.329</td>
<td>2.164</td>
<td>1.589</td>
<td>49.9</td>
<td>22.6</td>
<td>575</td>
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<tr>
<td>CU220K44-750</td>
<td>750</td>
<td>0.988</td>
<td>2.158</td>
<td>2.543</td>
<td>54.3</td>
<td>31X16</td>
<td>1.822</td>
<td>3.331</td>
<td>2.692</td>
<td>57.7</td>
<td>27.3</td>
<td>693</td>
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<td>CU220K44-1000</td>
<td>1000</td>
<td>1.117</td>
<td>2.674</td>
<td>3.587</td>
<td>62.8</td>
<td>31X16</td>
<td>1.971</td>
<td>3.687</td>
<td>2.851</td>
<td>62.3</td>
<td>29.4</td>
<td>747</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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# HVTECK SPECIFICATIONS

## DESIGN

**Qualification Standards**
- CSA C68.10 - Shielded Power Cables for Commercial and Industrial Applications - 5 to 46 kV
- CSA C68.3 - Shielded & Conductor Neutral Power Cable - 5 to 46 kV
- CSA C22.2 No. 174 - Cables in Hazardous Locations
- ICEA S-93-639 (NEMA WC 74) 5 to 46 kV - Shielded Power Cable
- AEC 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)

## Operating Temperatures
- -40°C - CSA Cold Bend and Impact Temperature
- 200°C for Short Circuit Temperature
- 124°C for Emergency Overload Temperature
- 250°C for Short Circuit Temperature

## TABLE 2 - ENGINEERING SPECIFICATIONS

<table>
<thead>
<tr>
<th>HVTECK Product Code</th>
<th>Maximum Pulling Tension</th>
<th>DC Resistance @ 25°C (Ω/km)</th>
<th>AC Resistance @ 90°C 60 Hz (triplexed) (Ω/km)</th>
<th>Inductance L</th>
<th>Capacitance C</th>
<th>Inductive Reactance @ 60Hz (Ω/km)</th>
<th>Capacitive Reactance @ 60Hz (Ω/km)</th>
<th>Positive-Sequence Impedance</th>
<th>Zero-Sequence Impedance</th>
<th>Short Circuit Current (each phase conductor) @ 60Hz</th>
<th>Allowable Ampacities in Ventilated Cable Tray</th>
<th>Allowable Ampacities Directly Buries in Earth</th>
</tr>
</thead>
<tbody>
<tr>
<td>CU220K44-002</td>
<td>531</td>
<td>0.162</td>
<td>0.532</td>
<td>0.203</td>
<td>0.065</td>
<td>0.1172</td>
<td>0.3847</td>
<td>0.0398</td>
<td>0.1307</td>
<td>0.0442/0.01450</td>
<td>0.0666/0.0203</td>
<td>0.205/0.0599/0.498/0.197</td>
</tr>
<tr>
<td>CU220K44-001</td>
<td>670</td>
<td>0.129</td>
<td>0.423</td>
<td>0.161</td>
<td>0.529</td>
<td>0.1124</td>
<td>0.3689</td>
<td>0.0433</td>
<td>0.1421</td>
<td>0.0424/0.1391</td>
<td>0.0612/0.0187</td>
<td>0.164/0.057/0.384/0.114</td>
</tr>
<tr>
<td>CU220K44-010</td>
<td>845</td>
<td>0.102</td>
<td>0.335</td>
<td>0.128</td>
<td>0.419</td>
<td>0.1083</td>
<td>0.3564</td>
<td>0.0468</td>
<td>0.1537</td>
<td>0.0408/0.1340</td>
<td>0.0656/0.0173</td>
<td>0.131/0.055/0.350/0.113</td>
</tr>
<tr>
<td>CU220K44-020</td>
<td>1065</td>
<td>0.081</td>
<td>0.266</td>
<td>0.101</td>
<td>0.333</td>
<td>0.1045</td>
<td>0.3430</td>
<td>0.0506</td>
<td>0.1600</td>
<td>0.0394/0.1233</td>
<td>0.0524/0.0160</td>
<td>0.104/0.053/0.324/0.111</td>
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<tr>
<td>CU220K44-030</td>
<td>1342</td>
<td>0.064</td>
<td>0.211</td>
<td>0.080</td>
<td>0.264</td>
<td>0.1008</td>
<td>0.3306</td>
<td>0.0550</td>
<td>0.1805</td>
<td>0.0390/0.1246</td>
<td>0.0482/0.0147</td>
<td>0.084/0.051/0.269/0.085</td>
</tr>
<tr>
<td>CU220K44-040</td>
<td>1693</td>
<td>0.051</td>
<td>0.184</td>
<td>0.064</td>
<td>0.210</td>
<td>0.0973</td>
<td>0.3192</td>
<td>0.0598</td>
<td>0.1694</td>
<td>0.0367/0.1203</td>
<td>0.0443/0.0135</td>
<td>0.067/0.049/0.252/0.084</td>
</tr>
<tr>
<td>CU220K44-250</td>
<td>2000</td>
<td>0.043</td>
<td>0.141</td>
<td>0.054</td>
<td>0.178</td>
<td>0.0954</td>
<td>0.3130</td>
<td>0.0628</td>
<td>0.1380</td>
<td>0.0422/0.0129</td>
<td>0.0598/0.047</td>
<td>0.206/0.082/18.0</td>
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<tr>
<td>CU220K44-350</td>
<td>2600</td>
<td>0.031</td>
<td>0.101</td>
<td>0.039</td>
<td>0.128</td>
<td>0.0909</td>
<td>0.2961</td>
<td>0.0714</td>
<td>0.2343</td>
<td>0.0343/0.1124</td>
<td>0.0372/0.0113</td>
<td>0.044/0.045/0.164/0.050</td>
</tr>
<tr>
<td>CU220K44-450</td>
<td>4000</td>
<td>0.022</td>
<td>0.071</td>
<td>0.022</td>
<td>0.081</td>
<td>0.0865</td>
<td>0.2839</td>
<td>0.0820</td>
<td>0.2691</td>
<td>0.0326/0.1070</td>
<td>0.0323/0.0099</td>
<td>0.033/0.042/0.127/0.038</td>
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<tr>
<td>CU220K44-550</td>
<td>6000</td>
<td>0.014</td>
<td>0.047</td>
<td>0.019</td>
<td>0.062</td>
<td>0.0825</td>
<td>0.2708</td>
<td>0.0952</td>
<td>0.3122</td>
<td>0.0311/0.1021</td>
<td>0.0279/0.0085</td>
<td>0.025/0.039/0.101/0.031</td>
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<tr>
<td>CU220K44-1000</td>
<td>8000</td>
<td>0.011</td>
<td>0.035</td>
<td>0.015</td>
<td>0.049</td>
<td>0.0797</td>
<td>0.2616</td>
<td>0.1072</td>
<td>0.3516</td>
<td>0.0201/0.0986</td>
<td>0.0248/0.0075</td>
<td>0.021/0.038/0.097/0.030</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

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