**HVTECK SPECIFICATIONS**

**HVTECK CU 1/C 90EPR TS LSZH AIA LSZH SOLONON® 5KV 100% CSA**

**PRODUCT HIGHLIGHTS**
Southwire’s 5KV HVTECK Solonon® low smoke zero halogen jacketed cable is a CSA armoured cable for industrial and commercial medium voltage applications. Rated FT4-ST1, -25°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 copper
  - Strand blocking technology
  - Timing on copper conductors

- **Conductor Shield**
  - Extruded semi-conducting thermosetting polymeric layer

- **Insulation**
  - No-lead EPR (Ethylene Propylene Rubber)
  - Thickness: 0.09 inches (2.29mm) - nominal
  - Insulation level: 100% - grounded system
  - 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 ICEA but built to CSA standards

- **Copper Tape Shield**
  - Helically wrapped 5 mil copper tape with 25% overlap
  - Not designed to carry ground fault current
  - A separate bonding/grounding conductor may be required

- **Inner Jacket**
  - Black PVC
  - Thickness:
    - No.2 AWG to No.1/0 AWG = 0.06 inches (1.52mm)
    - No.2/0 AWG to 1000 kcmil = 0.08 inches (2.03mm)

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

- **Overall Jacket**
  - Black - Low Smoke Zero Halogen XLPE Solonon jacket
  - Nominal Thickness:
    - No.2 AWG to 250 kcmil = 0.05 inches (1.3mm)
    - 500 kcmil to 1000 kcmil = 0.06 inches (1.52mm)

- **Typical Print Legend**
  - (CSA SOUTHWIRE [INESC] #4 #4AWG or #4kcmil) CU 90 EPR AIA 5KV 100% INS LEVEL 25% TS SUN RES T5 5FT4 ST1 LSZH SOLONON HL (-25°C LTDD RoHS YEAR [SEQUENTIAL METER MARKS])

**TABLE 1 - WEIGHTS & MEASUREMENTS**

<table>
<thead>
<tr>
<th></th>
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<td>691</td>
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<td>4899</td>
<td>2222</td>
<td>78/54</td>
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<td>0.695</td>
<td>0.875</td>
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<td>1.295</td>
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<tr>
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<td>1.346</td>
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<td>1177</td>
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<td>3730</td>
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<td>0.778</td>
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<td>22.8</td>
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<td>3483</td>
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<td>16533</td>
<td>7498</td>
<td>108/70.5</td>
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<td>750(61)</td>
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<td>1.278</td>
<td>1.458</td>
<td>1.778</td>
<td>1.838</td>
<td>45.2</td>
<td>22.8</td>
<td>579</td>
<td>3483</td>
<td>5184</td>
<td>16533</td>
<td>7498</td>
<td>108/70.5</td>
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<tr>
<td>CU90140-1000</td>
<td>1000(81)</td>
<td>1.117</td>
<td>1.347</td>
<td>1.352</td>
<td>1.538</td>
<td>1.807</td>
<td>1.937</td>
<td>49.2</td>
<td>23.7</td>
<td>627</td>
<td>4542</td>
<td>6825</td>
<td>16468</td>
<td>7470</td>
<td>108/70.5</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)

**TABLE 1 - WEIGHTS & MEASUREMENTS**

- **Max. Reel Weight**
  - (reel and cable)

- **Max. External Diameter / Width**

- **Max. External Length of Cable on Reel**

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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
- IEEA 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. - 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)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)
- CSA ST1 Smoke Test - marked FT4-ST1

**Operating Temperatures**
- -25°C - CSA Cold Bend and Impact Temperature
- -10°C - Min. Installation Temperature
- 105°C - Max. Continuous Operating Temperature
- 140°C for Emergency Overload Temperature
- 250°C for Short Circuit Temperature

**Product Ratings**
- CSA C22.2 No. 2568 & No. 0.3 - Wire and Cable Test Methods
- CSA LTD - (25°C) - as per C68.10 - for Cold Bend and Impact rating
- CSA HL - for Hazardous Locations rating
- CSA FT4 - for Flame Retardancy rating
- CSA SUN RES - for Sunlight Resistant rating

**Table 2 - Engineering Specifications**

<table>
<thead>
<tr>
<th>HVTECK Product Code</th>
<th>Maximum Pulling Tension</th>
<th>DC Resistance @ 25°C Rv</th>
<th>AC Resistance @ 90°C 60 Hz (triplex formation) Rv</th>
<th>Inductance L</th>
<th>Capacitance C</th>
<th>Inductive Reactance @ 60Hz (tripled) X</th>
<th>Capacitive Reactance @ 60Hz (tripled) X</th>
<th>Positive - Sequence Impedance</th>
<th>Zero - Sequence Impedance</th>
<th>Short Circuit Current (each phase conductor) @ GHZ</th>
<th>Allowable Ampacities in Ventilated Cable Tray 1</th>
<th>Allowable Ampacities Directly Buries in Earth 1</th>
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<tr>
<td>CU90140-002</td>
<td>531</td>
<td>0.162</td>
<td>0.532</td>
<td>0.203</td>
<td>0.665</td>
<td>0.0914</td>
<td>0.2999</td>
<td>0.0885</td>
<td>0.2905</td>
<td>0.0345 + 0.1131</td>
<td>0.023 + 0.054</td>
<td>0.552 + 0.524</td>
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<td>CU90140-001</td>
<td>670</td>
<td>0.129</td>
<td>0.423</td>
<td>0.161</td>
<td>0.529</td>
<td>0.0882</td>
<td>0.2893</td>
<td>0.0979</td>
<td>0.3212</td>
<td>0.0332 + 0.1091</td>
<td>0.0271 + 0.083</td>
<td>0.162 + 0.051</td>
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<tr>
<td>CU90140-010</td>
<td>845</td>
<td>0.102</td>
<td>0.335</td>
<td>0.128</td>
<td>0.419</td>
<td>0.0855</td>
<td>0.2804</td>
<td>0.1074</td>
<td>0.3525</td>
<td>0.0322 + 0.1057</td>
<td>0.0247 + 0.075</td>
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<td>CU90140-020</td>
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<td>0.081</td>
<td>0.266</td>
<td>0.101</td>
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<td>0.2724</td>
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<td>0.3800</td>
<td>0.0313 + 0.1027</td>
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<td>0.064</td>
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<td>0.2647</td>
<td>0.1297</td>
<td>0.4257</td>
<td>0.0304 + 0.0996</td>
<td>0.0204 + 0.063</td>
<td>0.081 + 0.047</td>
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<td>0.084</td>
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<td>0.0785</td>
<td>0.2576</td>
<td>0.1430</td>
<td>0.4692</td>
<td>0.0296 + 0.0971</td>
<td>0.0186 + 0.057</td>
<td>0.065 + 0.045</td>
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<td>0.054</td>
<td>0.178</td>
<td>0.0778</td>
<td>0.2564</td>
<td>0.1479</td>
<td>0.4852</td>
<td>0.0293 + 0.0983</td>
<td>0.0179 + 0.055</td>
<td>0.056 + 0.044</td>
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<td>CU90140-400</td>
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<td>0.071</td>
<td>0.028</td>
<td>0.081</td>
<td>0.0726</td>
<td>0.2381</td>
<td>0.1988</td>
<td>0.6556</td>
<td>0.0274 + 0.0896</td>
<td>0.0133 + 0.040</td>
<td>0.029 + 0.039</td>
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<td>0.0706</td>
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<td>0.2305</td>
<td>0.7564</td>
<td>0.0266 + 0.0873</td>
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<td>0.0260 + 0.0853</td>
<td>0.016 + 0.036</td>
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* 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

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

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

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End View