## HVTC SPECIFICATIONS
### HVTC CU 3/C 90EPR TS LSZH SOLONON® 5KV 100% CSA

### PRODUCT HIGHLIGHTS
Southwire’s 5KV HVTC Solonon® low smoke zero halogen jacketed cable is a CSA approved copper tape shielded cable for Industrial and Commercial medium voltage applications. FT4-ST1, -25°C, and 105°C rated for use in harsh Canadian environments. Rated for installation in cable trays, duct banks, direct burial, troughs, continuous rigid cable supports and concrete encaseable. For use in cable trays, exposed run and hazardous locations as per the limitations in the Canadian Electrical Code Part I, particularly Table 19.

### 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 C compact stranded copper
- Strand blocking technology
- Tinning 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
- 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

### TABLE 1 - WEIGHTS & MEASUREMENTS

<table>
<thead>
<tr>
<th>HVTC Product Code</th>
<th>750 ft Reel</th>
<th>1000 ft Reel</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWG or Kcmil</td>
<td>Diameter Over Insulation</td>
<td>Diameter Over Insulation Shield</td>
</tr>
<tr>
<td>CU90L04-002</td>
<td>0.288</td>
<td>7.1</td>
</tr>
<tr>
<td>CU90L04-001</td>
<td>0.322</td>
<td>8.2</td>
</tr>
<tr>
<td>CU90L04-000</td>
<td>0.362</td>
<td>9.2</td>
</tr>
<tr>
<td>CU90L04-020</td>
<td>0.405</td>
<td>10.3</td>
</tr>
<tr>
<td>CU90L04-030</td>
<td>0.456</td>
<td>11.6</td>
</tr>
<tr>
<td>CU90L04-040</td>
<td>0.512</td>
<td>13.0</td>
</tr>
<tr>
<td>CU90L04-200</td>
<td>0.661</td>
<td>16.8</td>
</tr>
<tr>
<td>CU90L04-300</td>
<td>0.889</td>
<td>20.6</td>
</tr>
<tr>
<td>CU90L04-400</td>
<td>1.117</td>
<td>24.4</td>
</tr>
</tbody>
</table>

### Notes:
- 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.
## HVTC SPECIFICATIONS

### DESIGN

**Qualification Standards**
- CSA C68.10 - Shielded Power Cables for Commercial and Industrial Applications - 5 to 46 kV
- CSA C68.3 - Shielded & Concomit Neutral Power Cable - 5 to 46 kV
- CSA C22.2 No. 230 - Tray Cables
- IEC 60228 (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 Flame Test)
- IEEE 333 - Flame Test - (70,000 BTU/HR.)
- IEC 60332-2-20 - Vertical Cable Tray Flame Test - (210,000 BTU/HR)
- ICCA T-29-520 - Vertical Cable Tray Flame Test - (210,000 BTU/HR)

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

**Flame Test Ratings**
- CSA FT4 - for Flame Retardancy rating
- CSA TC-ER ***

### TABLE 2 - ENGINEERING SPECIFICATIONS

<table>
<thead>
<tr>
<th>HVTC Product Code</th>
<th>DC Resistance @ 25°C Ω/m</th>
<th>AC Resistance @ 50°C 60 Hz (triplexed formation) Ω/km</th>
<th>Inductance L</th>
<th>Capacitance C</th>
<th>Inductive Reactance @ 60Hz (triplexed) Ω/km</th>
<th>Capacitive Reactance @ 60Hz (triplexed) Ω/km</th>
<th>Positive - Sequence Impedance* Ω</th>
<th>Zero - Sequence Impedance* Ω</th>
<th>Short Circuit Current (each phase conductor) @ 600 Ohms/km</th>
<th>Allowable Ampacities in Ventilated Cable Tray 1</th>
<th>Allowable Ampacities Directly Buried in Earth 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CU90.04-002</td>
<td>0.159</td>
<td>0.622</td>
<td>0.0194</td>
<td>0.0299</td>
<td>0.0885 + j0.2905</td>
<td>0.0345 + j0.1131</td>
<td>0.0030 + j0.091</td>
<td>0.203 + j0.039</td>
<td>0.569 + j0.033</td>
<td>4.5</td>
<td>172</td>
</tr>
<tr>
<td>CU90.04-001</td>
<td>0.209</td>
<td>0.423</td>
<td>0.161 + j0.530</td>
<td>0.0882</td>
<td>0.2893 + j0.3212</td>
<td>0.0332 + j0.1061</td>
<td>0.0271 + j0.083</td>
<td>0.162 + j0.037</td>
<td>0.532 + j0.051</td>
<td>5.7</td>
<td>197</td>
</tr>
<tr>
<td>CU90.04-010</td>
<td>0.254</td>
<td>0.335</td>
<td>0.128 + j0.419</td>
<td>0.2604</td>
<td>0.1074 + j0.3525</td>
<td>0.0322 + j0.1057</td>
<td>0.0247 + j0.075</td>
<td>0.128 + j0.036</td>
<td>0.501 + j0.487</td>
<td>7.2</td>
<td>225</td>
</tr>
<tr>
<td>CU90.04-020</td>
<td>0.314</td>
<td>0.266</td>
<td>0.102 + j0.332</td>
<td>0.2724</td>
<td>0.1176 + j0.3800</td>
<td>0.0313 + j0.0872</td>
<td>0.0225 + j0.069</td>
<td>0.102 + j0.035</td>
<td>0.477 + j0.464</td>
<td>14.2</td>
<td>260</td>
</tr>
<tr>
<td>CU90.04-030</td>
<td>0.402</td>
<td>0.211</td>
<td>0.081 + j0.265</td>
<td>0.0807</td>
<td>0.2647 + j0.4257</td>
<td>0.0304 + j0.0996</td>
<td>0.0204 + j0.062</td>
<td>0.082 + j0.034</td>
<td>0.456 + j0.439</td>
<td>11.4</td>
<td>297</td>
</tr>
<tr>
<td>CU90.04-040</td>
<td>0.507</td>
<td>0.167</td>
<td>0.084 + j0.211</td>
<td>0.0785</td>
<td>0.2576 + j0.4692</td>
<td>0.0296 + j0.0971</td>
<td>0.0186 + j0.057</td>
<td>0.065 + j0.033</td>
<td>0.440 + j0.412</td>
<td>14.3</td>
<td>342</td>
</tr>
<tr>
<td>CU90.04-050</td>
<td>0.600</td>
<td>0.141</td>
<td>0.054 + j0.179</td>
<td>0.0778</td>
<td>0.1479 + j0.4852</td>
<td>0.0293 + j0.0983</td>
<td>0.0179 + j0.055</td>
<td>0.053 + j0.032</td>
<td>0.429 + j0.398</td>
<td>19.9</td>
<td>376</td>
</tr>
<tr>
<td>CU90.04-060</td>
<td>0.700</td>
<td>0.101</td>
<td>0.039 + j0.129</td>
<td>0.0751</td>
<td>0.2463 + j0.5613</td>
<td>0.0293 + j0.0929</td>
<td>0.0155 + j0.047</td>
<td>0.040 + j0.031</td>
<td>0.407 + j0.348</td>
<td>23.7</td>
<td>460</td>
</tr>
<tr>
<td>CU90.04-070</td>
<td>0.800</td>
<td>0.071</td>
<td>0.028 + j0.083</td>
<td>0.0726</td>
<td>0.2381 + j0.5988</td>
<td>0.0133 + j0.0400</td>
<td>0.0229 + j0.029</td>
<td>0.365 + j0.036</td>
<td>0.385 + j0.355</td>
<td>33.9</td>
<td>556</td>
</tr>
<tr>
<td>CU90.04-080</td>
<td>0.900</td>
<td>0.055</td>
<td>0.020 + j0.065</td>
<td>0.0706</td>
<td>0.2315 + j0.5764</td>
<td>0.0286 + j0.0873</td>
<td>0.0115 + j0.025</td>
<td>0.302 + j0.028</td>
<td>0.360 + j0.025</td>
<td>50.8</td>
<td>678</td>
</tr>
<tr>
<td>CU90.04-090</td>
<td>1.000</td>
<td>0.035</td>
<td>0.016 + j0.053</td>
<td>0.0680</td>
<td>0.2263 + j0.8612</td>
<td>0.0258 + j0.0853</td>
<td>0.0101 + j0.021</td>
<td>0.207 + j0.028</td>
<td>0.341 + j0.222</td>
<td>67.8</td>
<td>798</td>
</tr>
</tbody>
</table>

* Calculations are based on 5 mil 25 % overlapping 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

**Notes:**
- For use in cable trays, exposed run and hazardous locations as per the limitations in the Canadian Electrical Code Part I, particularly Table 19.

© 2016 Southwire Company, LLC. All Rights Reserved.