## HVTC SPECIFICATIONS

**HVTC AL 1/C 140EPR TS LSZH SOLONON® 8KV 133% CSA**

**PRODUCT HIGHLIGHTS**

Southwire’s 8KV 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 encasable. 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 - compact stranded - 8000 Series Aluminum - ACM

- **Options**
  - Class B compact stranded copper
  - Class B compressed stranded copper
  - Strand blocking technology
  - Tinning on copper conductors

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

- **Insulation**
  - No-lead EPR (Ethylene Propylene Rubber)
  - Thickness: 0.14 inches (3.56mm) - nominal
  - Insulation level: 133%
  - 105°C rated

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

- **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

- **Overall Jacket**
  - Black - Low Smoke Zero Halogen XLPE Solonon jacket
  - Nominal Thickness: No.2 AWG = 0.08 inches (1.52mm)
  - No.1 AWG to 1000 kcmil = 0.08 inches (2.03mm)

- **Typical Print Legend**
  - (CSA) SOUTHWIRE (NESC) #P# (#AWG or #kcmil) CPT AL 140 EPR 105° 133% INS LEVEL 25% TS SUN RES TC-ER 105° HF4-ST1 LSZH SOLONON (-25°C) LTD RoHS YEAR [SEQUENTIAL METER MARKS]

### TABLE 1 - WEIGHTS & MEASUREMENTS

<table>
<thead>
<tr>
<th>HVTC Product Code</th>
<th>Conductor Size</th>
<th>Conductor Diameter</th>
<th>Diameter Over Insulation</th>
<th>Diameter Over Insulation Shield</th>
<th>Approx. Overall Diameter</th>
<th>Minimum Bend Radius</th>
<th>Approx. Weight of Cable</th>
<th>Max. Reel Weight (reel and cable)</th>
<th>Max. Reel Diameter/Width **</th>
<th>Max. Length of Cable on Reel **</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL140X51-002</td>
<td>(7)</td>
<td>0.268</td>
<td>6.8</td>
<td>0.578</td>
<td>14.7</td>
<td>0.658</td>
<td>16.7</td>
<td>0.798</td>
<td>20.3</td>
<td></td>
</tr>
<tr>
<td>AL140X51-001</td>
<td>(11)</td>
<td>0.299</td>
<td>7.6</td>
<td>0.609</td>
<td>15.5</td>
<td>0.689</td>
<td>17.5</td>
<td>0.869</td>
<td>22.1</td>
<td></td>
</tr>
<tr>
<td>AL140X51-010</td>
<td>(1/0)</td>
<td>0.336</td>
<td>8.5</td>
<td>0.646</td>
<td>16.4</td>
<td>0.726</td>
<td>18.4</td>
<td>0.906</td>
<td>23.0</td>
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</tr>
<tr>
<td>AL140X51-020</td>
<td>(2/0)</td>
<td>0.376</td>
<td>9.6</td>
<td>0.686</td>
<td>17.4</td>
<td>0.766</td>
<td>19.5</td>
<td>0.946</td>
<td>24.0</td>
<td></td>
</tr>
<tr>
<td>AL140X51-030</td>
<td>(3/0)</td>
<td>0.423</td>
<td>10.7</td>
<td>0.733</td>
<td>18.6</td>
<td>0.813</td>
<td>20.7</td>
<td>0.993</td>
<td>25.2</td>
<td></td>
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<tr>
<td>AL140X51-040</td>
<td>(4/0)</td>
<td>0.475</td>
<td>12.1</td>
<td>0.785</td>
<td>19.9</td>
<td>0.865</td>
<td>22.0</td>
<td>1.045</td>
<td>26.5</td>
<td></td>
</tr>
<tr>
<td>AL140X51-250</td>
<td>500(37)</td>
<td>0.520</td>
<td>13.2</td>
<td>0.840</td>
<td>21.3</td>
<td>0.920</td>
<td>23.4</td>
<td>1.100</td>
<td>27.9</td>
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</tr>
<tr>
<td>AL140X51-350</td>
<td>750(57)</td>
<td>0.616</td>
<td>15.6</td>
<td>0.926</td>
<td>23.8</td>
<td>1.016</td>
<td>25.8</td>
<td>1.136</td>
<td>30.4</td>
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</tr>
<tr>
<td>AL140X51-500</td>
<td>1000(61)</td>
<td>0.736</td>
<td>18.7</td>
<td>1.056</td>
<td>26.8</td>
<td>1.136</td>
<td>28.9</td>
<td>1.316</td>
<td>33.4</td>
<td></td>
</tr>
<tr>
<td>AL140X51-750</td>
<td>1500(71)</td>
<td>0.908</td>
<td>23.1</td>
<td>1.238</td>
<td>31.4</td>
<td>1.318</td>
<td>33.5</td>
<td>1.498</td>
<td>38.0</td>
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<tr>
<td>AL140X51-1000</td>
<td>2000(81)</td>
<td>1.060</td>
<td>26.9</td>
<td>1.390</td>
<td>35.3</td>
<td>1.470</td>
<td>37.3</td>
<td>1.650</td>
<td>41.9</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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HVTC AL 1/C 140EPR TS LSZH SOLONON® 8KV 133% CSA

DESIGN

Qualification Standards
- CSA C68.10 - Shielded Power Cables for Commercial and Industrial Applications - 5 to 46 kV
- CSA C68.3 - Shielded & Conconic Neutral Power Cable - 5 to 46 kV
- CSA C22.2 No. 230 - Tray Cables
- ICEA S-39-639 (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.)
- CSA ST1 Smoke Test - markted - FT4-ST1

Product Ratings
- CSA C22.2 No. 2568 & No. 0.3 - Wire and Cable Test Methods
- CSA LTDD [-25°C] - as per C68.10 - for Cold Bend and Impact rating
- CSA FT4 - for Flame Retardancy rating
- CSA SUN RES - for Sunlight Resistant rating
- CSA TC-ER (marked TC for No. 1/0 AWG and larger)**

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

TABLE 2 - ENGINEERING SPECIFICATIONS

<table>
<thead>
<tr>
<th>HVTC Product Code</th>
<th>Maximum Pulling Tension</th>
<th>DC Resistance @ 25°C</th>
<th>AC Resistance @ 60Hz (triplex formation)</th>
<th>Inductance</th>
<th>Capacitance</th>
<th>Inductive Reactance @ 60Hz (triplexed)</th>
<th>Capacitive Reactance @ 60Hz (triplexed)</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 Buried in Earth</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL140X51-002</td>
<td>398 lb 1771 Newtons</td>
<td>Ω / 1000 ft</td>
<td>Ω / km</td>
<td>L</td>
<td>F</td>
<td>X</td>
<td>X</td>
<td>Ω / 1000 ft</td>
<td>Ω / 1000 ft</td>
<td>kAmps / Amps / Amps</td>
<td>kAmps / Amps / Amps</td>
<td>kAmps / Amps / Amps</td>
</tr>
<tr>
<td>AL140X51-001</td>
<td>502 lb 2234 Newtons</td>
<td>0.211 0.692</td>
<td>0.265 0.670</td>
<td>0.1009</td>
<td>0.3312</td>
<td>0.0661 0.2267</td>
<td>0.0381 0.1249</td>
<td>0.0384 0.0117</td>
<td>0.266 0.046</td>
<td>0.635 0.472</td>
<td>3.7</td>
<td>194</td>
</tr>
<tr>
<td>AL140X51-010</td>
<td>634 lb 2818 Newtons</td>
<td>0.168 0.551</td>
<td>0.211 0.693</td>
<td>0.0794</td>
<td>0.2467</td>
<td>0.0367 0.1205</td>
<td>0.0353 0.0108</td>
<td>0.212 0.044</td>
<td>0.582 0.453</td>
<td>4.7</td>
<td>222</td>
<td>223</td>
</tr>
<tr>
<td>AL140X51-020</td>
<td>799 lb 3552 Newtons</td>
<td>0.133 0.436</td>
<td>0.167 0.549</td>
<td>0.0942</td>
<td>0.3092</td>
<td>0.0817 0.2682</td>
<td>0.0356 0.1168</td>
<td>0.0325 0.0099</td>
<td>0.168 0.443</td>
<td>5.9</td>
<td>255</td>
<td>250</td>
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<tr>
<td>AL140X51-030</td>
<td>1007 lb 4478 Newtons</td>
<td>0.105 0.345</td>
<td>0.132 0.433</td>
<td>0.0911</td>
<td>0.2889</td>
<td>0.0894 0.2333</td>
<td>0.0343 0.1127</td>
<td>0.0297 0.0059</td>
<td>0.133 0.041</td>
<td>5.03 0.412</td>
<td>7.4</td>
<td>290</td>
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<tr>
<td>AL140X51-040</td>
<td>1270 lb 5647 Newtons</td>
<td>0.084 0.274</td>
<td>0.105 0.345</td>
<td>0.0882</td>
<td>0.2894</td>
<td>0.0978 0.3210</td>
<td>0.0332 0.1091</td>
<td>0.0271 0.0083</td>
<td>0.166 0.040</td>
<td>0.479 0.389</td>
<td>9.4</td>
<td>329</td>
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<td>AL140X51-050</td>
<td>1500 lb 6672 Newtons</td>
<td>0.071 0.232</td>
<td>0.089 0.292</td>
<td>0.0868</td>
<td>0.2848</td>
<td>0.1025 0.3362</td>
<td>0.0327 0.1074</td>
<td>0.0259 0.0079</td>
<td>0.080 0.039</td>
<td>0.456 0.367</td>
<td>11.1</td>
<td>370</td>
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<tr>
<td>AL140X51-060</td>
<td>2100 lb 9341 Newtons</td>
<td>0.051 0.166</td>
<td>0.084 0.209</td>
<td>0.0831</td>
<td>0.2726</td>
<td>0.1175 0.3654</td>
<td>0.0313 0.1020</td>
<td>0.0226 0.0059</td>
<td>0.064 0.037</td>
<td>0.425 0.302</td>
<td>15.5</td>
<td>446</td>
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<tr>
<td>AL140X51-070</td>
<td>3000 lb 13345 Newtons</td>
<td>0.035 0.116</td>
<td>0.054 0.147</td>
<td>0.0986</td>
<td>0.2611</td>
<td>0.1361 0.4467</td>
<td>0.0300 0.0914</td>
<td>0.0195 0.0059</td>
<td>0.046 0.035</td>
<td>0.397 0.294</td>
<td>22.2</td>
<td>533</td>
</tr>
<tr>
<td>AL140X51-080</td>
<td>4520 lb 20017 Newtons</td>
<td>0.024 0.077</td>
<td>0.030 0.100</td>
<td>0.0765</td>
<td>0.2509</td>
<td>0.1058 0.5201</td>
<td>0.0288 0.0946</td>
<td>0.0176 0.0051</td>
<td>0.031 0.033</td>
<td>0.365 0.248</td>
<td>33.2</td>
<td>631</td>
</tr>
<tr>
<td>AL140X51-1000</td>
<td>6000 lb 26689 Newtons</td>
<td>0.018 0.068</td>
<td>0.023 0.076</td>
<td>0.0741</td>
<td>0.2431</td>
<td>0.1813 0.5948</td>
<td>0.0279 0.0916</td>
<td>0.0146 0.0045</td>
<td>0.024 0.032</td>
<td>0.343 0.216</td>
<td>44.3</td>
<td>707</td>
</tr>
</tbody>
</table>

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

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