CSA TRAY RATED

HVTC SPECIFICATIONS

HVTC CU 1/C 420TRXLPE TS PVC 35KV 133% CSA

PRODUCT HIGHLIGHTS
Southwire’s 35KV HVTC is a CSA approved copper tape shielded cable for Industrial and Commercial medium voltage applications. FT4, -40°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 encasement. 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 B compact stranded copper

Conductor Shield
- Extruded semi-conducting thermosetting polymeric layer

Insulation
- TR-XLPE - (Tree Retardent Cross Linked Polyethylene)
  - Thickness: 0.42 inches (10.67mm) - nominal
  - Insulation level: 133%
  - 105°C rated

Insulation Shield
- Extruded Semi-conducting thermosetting polymeric layer
  - CSA 68.10 - 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

Overall Jacket
- Black PVC (optional colours available)
  - Nominal Thickness:
    No.1/0 AWG to No.4/0 AWG = 0.08 inches (2.03mm)
    250 kcmil to 1000 kcmil = 0.11 inches (2.79mm)

Typical Print Legend
- (ICSA) SOUTHWIRE [NESC] #P# [#AWG or #kcmil] CU 420 TRXLPE 35KV 133% INS LEVEL 25% TS SUN RES TC-ER 105° FT4 (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

TABLE 1 - WEIGHTS & MEASUREMENTS

<table>
<thead>
<tr>
<th>HVTC Product Code</th>
<th>AWG or Kcmil</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>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>CU420N5-010</td>
<td>1/0(19)</td>
<td>0.362</td>
<td>9.2</td>
<td>1.232</td>
<td>31.3</td>
<td>1.312</td>
<td>33.3</td>
<td>1.492</td>
<td>37.9</td>
<td>17.9</td>
</tr>
<tr>
<td>CU420N5-020</td>
<td>2/0(19)</td>
<td>0.405</td>
<td>10.3</td>
<td>1.275</td>
<td>32.4</td>
<td>1.355</td>
<td>34.4</td>
<td>1.535</td>
<td>39.0</td>
<td>18.4</td>
</tr>
<tr>
<td>CU420N5-030</td>
<td>3/0(19)</td>
<td>0.456</td>
<td>11.6</td>
<td>1.326</td>
<td>33.7</td>
<td>1.406</td>
<td>35.7</td>
<td>1.686</td>
<td>40.3</td>
<td>19.0</td>
</tr>
<tr>
<td>CU420N5-040</td>
<td>4/0(19)</td>
<td>0.512</td>
<td>13.0</td>
<td>1.382</td>
<td>35.1</td>
<td>1.462</td>
<td>37.1</td>
<td>1.972</td>
<td>41.7</td>
<td>20.9</td>
</tr>
<tr>
<td>CU420N5-250</td>
<td>250(37)</td>
<td>0.558</td>
<td>14.2</td>
<td>1.438</td>
<td>36.5</td>
<td>1.518</td>
<td>39.6</td>
<td>2.158</td>
<td>44.7</td>
<td>21.1</td>
</tr>
<tr>
<td>CU420N5-350</td>
<td>350(37)</td>
<td>0.661</td>
<td>16.8</td>
<td>1.541</td>
<td>39.1</td>
<td>1.621</td>
<td>41.2</td>
<td>2.331</td>
<td>47.3</td>
<td>22.3</td>
</tr>
<tr>
<td>CU420N5-500</td>
<td>500(37)</td>
<td>0.799</td>
<td>20.0</td>
<td>1.645</td>
<td>42.4</td>
<td>1.749</td>
<td>44.4</td>
<td>2.498</td>
<td>50.5</td>
<td>23.9</td>
</tr>
<tr>
<td>CU420N5-750</td>
<td>750(37)</td>
<td>0.968</td>
<td>24.6</td>
<td>1.858</td>
<td>47.2</td>
<td>1.938</td>
<td>49.2</td>
<td>2.718</td>
<td>55.3</td>
<td>26.1</td>
</tr>
<tr>
<td>CU420N5-1000</td>
<td>1000(37)</td>
<td>1.117</td>
<td>28.4</td>
<td>2.007</td>
<td>51.0</td>
<td>2.107</td>
<td>53.5</td>
<td>2.847</td>
<td>59.6</td>
<td>28.2</td>
</tr>
</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.
### HVTC SPECIFICATIONS

**HVTC CU 1/C 420TRXLPE TS PVC 35KV 133% CSA**

#### 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. 230 - Tray Cables
- ICEA 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./ft. 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/ft.)

**Operating Temperatures**
- -40°C - CSA Cold Bend and Impact Temperature
- -25°C - Min. Installation Temperature
- 105°C - Max. Continuous Operating 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 RDC</th>
<th>AC Resistance @ 90°C 60 Hz (triplexed) RAC</th>
<th>Inductance L</th>
<th>Capacitance C</th>
<th>Inductive Reactance @ 60Hz (triplexed) XL</th>
<th>Capacitive Reactance @ 60Hz (triplexed) XC</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>CU420N55-010</td>
<td>845 lb</td>
<td>0.102 Ω/1000 ft.</td>
<td>0.128 Ω/km</td>
<td>0.419 Ω/km</td>
<td>0.1222 mH/1000 ft.</td>
<td>0.0318 mH/km</td>
<td>0.0499 Ω/1000 ft.</td>
<td>0.0254 Ω/km</td>
<td>0.128 + j0.054</td>
<td>0.463 + j0.270</td>
<td>7.6 kA</td>
<td>278 A</td>
</tr>
<tr>
<td>CU420N55-020</td>
<td>1065 lb</td>
<td>0.081 Ω/1000 ft.</td>
<td>0.101 Ω/km</td>
<td>0.333 Ω/km</td>
<td>0.1275 mH/1000 ft.</td>
<td>0.0340 mH/km</td>
<td>0.0481 Ω/1000 ft.</td>
<td>0.0238 Ω/km</td>
<td>0.102 + j0.052</td>
<td>0.432 + j0.259</td>
<td>9.6 kA</td>
<td>316 A</td>
</tr>
<tr>
<td>CU420N55-030</td>
<td>1342 lb</td>
<td>0.064 Ω/1000 ft.</td>
<td>0.080 Ω/km</td>
<td>0.264 Ω/km</td>
<td>0.1227 mH/1000 ft.</td>
<td>0.0365 mH/km</td>
<td>0.0462 Ω/1000 ft.</td>
<td>0.0198 Ω/km</td>
<td>0.081 + j0.050</td>
<td>0.406 + j0.247</td>
<td>12.1 kA</td>
<td>356 A</td>
</tr>
<tr>
<td>CU420N55-040</td>
<td>1693 lb</td>
<td>0.051 Ω/1000 ft.</td>
<td>0.064 Ω/km</td>
<td>0.210 Ω/km</td>
<td>0.1181 mH/1000 ft.</td>
<td>0.0393 mH/km</td>
<td>0.0445 Ω/1000 ft.</td>
<td>0.0146 Ω/km</td>
<td>0.065 + j0.048</td>
<td>0.384 + j0.234</td>
<td>15.2 kA</td>
<td>403 A</td>
</tr>
<tr>
<td>CU420N55-050</td>
<td>2000 lb</td>
<td>0.043 Ω/1000 ft.</td>
<td>0.141 Ω/km</td>
<td>0.178 Ω/km</td>
<td>0.1153 mH/1000 ft.</td>
<td>0.0412 mH/km</td>
<td>0.0435 mH/1000 ft.</td>
<td>0.0131 Ω/km</td>
<td>0.164 + j0.048</td>
<td>0.336 + j0.223</td>
<td>18.0 kA</td>
<td>465 A</td>
</tr>
<tr>
<td>CU420N55-060</td>
<td>2600 lb</td>
<td>0.031 Ω/1000 ft.</td>
<td>0.101 Ω/km</td>
<td>0.129 Ω/km</td>
<td>0.1090 mH/1000 ft.</td>
<td>0.0352 mH/km</td>
<td>0.0365 mH/1000 ft.</td>
<td>0.0120 Ω/km</td>
<td>0.159 + j0.045</td>
<td>0.314 + j0.204</td>
<td>25.2 kA</td>
<td>537 A</td>
</tr>
<tr>
<td>CU420N55-075</td>
<td>3000 lb</td>
<td>0.022 Ω/1000 ft.</td>
<td>0.072 Ω/km</td>
<td>0.090 Ω/km</td>
<td>0.1022 mH/1000 ft.</td>
<td>0.0305 mH/km</td>
<td>0.0311 mH/1000 ft.</td>
<td>0.0096 Ω/km</td>
<td>0.134 + j0.045</td>
<td>0.294 + j0.159</td>
<td>33.9 kA</td>
<td>716 A</td>
</tr>
<tr>
<td>CU420N55-100</td>
<td>8000 lb</td>
<td>0.011 Ω/1000 ft.</td>
<td>0.035 Ω/km</td>
<td>0.049 Ω/km</td>
<td>0.0853 mH/1000 ft.</td>
<td>0.0203 mH/km</td>
<td>0.0200 mH/1000 ft.</td>
<td>0.0035 Ω/km</td>
<td>0.056 + j0.039</td>
<td>0.276 + j0.142</td>
<td>71.9 kA</td>
<td>825 A</td>
</tr>
</tbody>
</table>

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

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