**HVTECK SPECIFICATIONS**

### PRODUCT HIGHLIGHTS

Southwire's 35KV 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 encasement. 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: 0.42 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 IECB but built to CSA standards

**Copper Full Bond Wire Shield**
- Concentrally 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.1/0 AWG to No.3/0 AWG = 0.08 inches (2.03mm)
  - No.4/0 AWG to 1000 kcmil = 0.11 inches (2.79mm)

### Armour

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

### Overall Jacket

- Black PVC (optional colours available)
- Nominal Thickness:
  - No.1/0 AWG to 250 kcmil = 0.06 inches (1.52mm)
  - 500 kcmil to 1000 kcmil = 0.075 inches (1.91mm)

### Typical Print Legend

- (CSA) SOUTHWIRE (NESC) #P# (#AWG or #kcmil) CU 420 TRXLPE AIA 35KV 133% INS LEVEL CB (No. x SIZE) AWG SUN RES 105° 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>Conductor Diameter</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>
</tr>
</thead>
<tbody>
<tr>
<td>CU240X35-001</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>17X16</td>
<td>1.523</td>
</tr>
<tr>
<td>CU240X35-020</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>17X16</td>
<td>1.566</td>
</tr>
<tr>
<td>CU240X35-030</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>21X16</td>
<td>1.617</td>
</tr>
<tr>
<td>CU240X35-040</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>21X16</td>
<td>1.733</td>
</tr>
<tr>
<td>CU240X35-250</td>
<td>250(37)</td>
<td>0.558</td>
<td>14.2</td>
<td>1.436</td>
<td>36.5</td>
<td>1.518</td>
<td>38.6</td>
<td>27X16</td>
<td>1.789</td>
</tr>
<tr>
<td>CU240X35-350</td>
<td>350(37)</td>
<td>0.661</td>
<td>16.8</td>
<td>1.541</td>
<td>38.1</td>
<td>1.621</td>
<td>41.2</td>
<td>21X14</td>
<td>1.905</td>
</tr>
<tr>
<td>CU240X35-500</td>
<td>500(37)</td>
<td>0.789</td>
<td>20.0</td>
<td>1.669</td>
<td>42.4</td>
<td>1.748</td>
<td>44.4</td>
<td>27X14</td>
<td>2.033</td>
</tr>
<tr>
<td>CU240X36-750</td>
<td>750(37)</td>
<td>0.888</td>
<td>24.6</td>
<td>1.858</td>
<td>47.2</td>
<td>1.938</td>
<td>49.2</td>
<td>33X14</td>
<td>2.222</td>
</tr>
<tr>
<td>CU240X36-1000</td>
<td>1000(61)</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>33X14</td>
<td>2.391</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.

*** Concentric 1/3 Bond size values are available on request

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### HVTECK SPECIFICATIONS

**HVTECK CU 1/C 420TRXLPE CB PVC AIA 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. 174 - Cables in Hazardous Locations
- IEEE 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 - (70,000 BTU/Hr. - Vertical Wire Flame Test)
- FT4, Flame Test - (1706 BTU/Hr. nominal - Vertical Tray Flame Test)
- IEEE 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- ICEA S-93-639 (NEMA WC 74) 5 to 46 kV - Shielded Power Cable
- CSA SUN RES - for Sunlight Resistant rating

**Product Ratings**
- CSA C22.2 No. 2568 & No. 0.3 - Wire and Cable Test Methods
- CSA LT69 (40°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

**Operating Temperatures**
- -25°C - Min. Installation Temperature
- 105°C - Max. Continuous Operating Temperature
- 140°C for Emergency Overload Temperature
- 250°C for Short Circuit Temperature

**Applications**
- 5 to 46 kV

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### TABLE 2 - ENGINEERING SPECIFICATIONS

<table>
<thead>
<tr>
<th>HVTECK Product Code</th>
<th>Maximum Pulling Tension</th>
<th>DC Resistance @ 25°C</th>
<th>AC Resistance @ 60°C</th>
<th>Inductance L</th>
<th>Capacitance C</th>
<th>Inductive Reactance @ 60Hz</th>
<th>Capacitive Reactance @ 60Hz</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>CU20X35-010</td>
<td>845 lb</td>
<td>3758 ft</td>
<td>0.102 Ω</td>
<td>0.35 ft</td>
<td>0.128 Ω</td>
<td>0.419 mH</td>
<td>0.1222 mH</td>
<td>0.0318 mH</td>
<td>0.1044 mH</td>
<td>0.0499 Ω / 1000 ft</td>
<td>0.0833 Ω / 1000 ft</td>
<td>0.130 + j0.060 Ω / 1000 ft</td>
</tr>
<tr>
<td>CU20X35-020</td>
<td>1065 lb</td>
<td>4736 ft</td>
<td>0.081 Ω</td>
<td>0.266 ft</td>
<td>0.101 Ω</td>
<td>0.333 mH</td>
<td>0.1275 mH</td>
<td>0.0340 mH</td>
<td>0.1115 mH</td>
<td>0.0481 Ω / 1000 ft</td>
<td>0.0780 Ω / 1000 ft</td>
<td>0.104 + j0.058 Ω / 1000 ft</td>
</tr>
<tr>
<td>CU20X35-030</td>
<td>1245 lb</td>
<td>5971 ft</td>
<td>0.064 Ω</td>
<td>0.211 ft</td>
<td>0.080 Ω</td>
<td>0.264 mH</td>
<td>0.1227 mH</td>
<td>0.0365 mH</td>
<td>0.1198 mH</td>
<td>0.0462 Ω / 1000 ft</td>
<td>0.0726 Ω / 1000 ft</td>
<td>0.104 + j0.056 Ω / 1000 ft</td>
</tr>
<tr>
<td>CU20X35-040</td>
<td>1693 lb</td>
<td>7530 ft</td>
<td>0.051 Ω</td>
<td>0.167 ft</td>
<td>0.084 Ω</td>
<td>0.210 mH</td>
<td>0.1181 mH</td>
<td>0.0333 mH</td>
<td>0.288 mH</td>
<td>0.0445 Ω / 1000 ft</td>
<td>0.0876 Ω / 1000 ft</td>
<td>0.251 + j0.092 Ω / 1000 ft</td>
</tr>
<tr>
<td>CU20X35-250</td>
<td>2600 lb</td>
<td>8896 ft</td>
<td>0.043 Ω</td>
<td>0.141 ft</td>
<td>0.054 Ω</td>
<td>0.178 mH</td>
<td>0.1153 mH</td>
<td>0.0412 mH</td>
<td>0.1351 mH</td>
<td>0.0435 Ω / 1000 ft</td>
<td>0.0844 Ω / 1000 ft</td>
<td>0.205 + j0.070 Ω / 1000 ft</td>
</tr>
<tr>
<td>CU20X35-350</td>
<td>2800 lb</td>
<td>12455 ft</td>
<td>0.031 Ω</td>
<td>0.101 ft</td>
<td>0.039 Ω</td>
<td>0.129 mH</td>
<td>0.1092 mH</td>
<td>0.0460 mH</td>
<td>0.1511 mH</td>
<td>0.0412 Ω / 1000 ft</td>
<td>0.0767 Ω / 1000 ft</td>
<td>0.204 + j0.057 Ω / 1000 ft</td>
</tr>
<tr>
<td>CU20X35-500</td>
<td>4000 lb</td>
<td>17733 ft</td>
<td>0.027 Ω</td>
<td>0.071 ft</td>
<td>0.028 Ω</td>
<td>0.090 mH</td>
<td>0.1032 mH</td>
<td>0.0389 mH</td>
<td>0.1707 mH</td>
<td>0.0389 Ω / 1000 ft</td>
<td>0.0510 Ω / 1000 ft</td>
<td>0.216 + j0.044 Ω / 1000 ft</td>
</tr>
<tr>
<td>CU20X35-750</td>
<td>6000 lb</td>
<td>26689 ft</td>
<td>0.014 Ω</td>
<td>0.047 ft</td>
<td>0.019 ft</td>
<td>0.062 mH</td>
<td>0.0973 mH</td>
<td>0.0398 mH</td>
<td>0.1393 mH</td>
<td>0.0367 Ω / 1000 ft</td>
<td>0.0444 Ω / 1000 ft</td>
<td>0.101 + j0.037 Ω / 1000 ft</td>
</tr>
<tr>
<td>CU20X35-1000</td>
<td>8000 lb</td>
<td>35858 ft</td>
<td>0.011 Ω</td>
<td>0.035 ft</td>
<td>0.015 ft</td>
<td>0.048 mH</td>
<td>0.0933 mH</td>
<td>0.0361 mH</td>
<td>0.1393 mH</td>
<td>0.0367 Ω / 1000 ft</td>
<td>0.0444 Ω / 1000 ft</td>
<td>0.101 + j0.036 Ω / 1000 ft</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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