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 encasable. 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: 0.345 inches (8.76mm) - nominal

Extruded Semi-conducting thermosetting polymeric layer

Meets requirement of ICEA but built to CSA standards

Copper Full Bond Wire Shield
• Concentrically 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

Insulation Shield
• Extruded Semi-conducting thermosetting polymeric layer

Meets requirement of ICEA but built to CSA standards

 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 500 kcmil = 0.06 inches (1.52mm)
  750 kcmil to 1000 kcmil = 0.075 inches (1.91mm)

Typical Print Legend
• (CSA) SOUTHWIRE (NESC) #P# (#AWG or #kcmil) CU 345 TRXLPE AIA 35KV 100% INS LEVEL CB (No. x SIZE) AWG SUN RES 105° FT4 HL (40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

Insulation
- 350 kcmil to 1000 kcmil = 0.11 inches (2.79mm)
- 750 kcmil to 1000 kcmil = 0.075 inches (1.91mm)
- No.1/0 AWG to 500 kcmil = 0.06 inches (1.52mm)

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

**Product Code**

Copper conductor, concentric neutral power cable - 35kV 100% CSA

#### Operating Temperatures
- **-40°C - CSA Cold Bend and Impact Temperature**
- **-25°C - Min. Installation Temperature**
- **105°C - Max Continuous Operating Temperature**
- **140°C for Emergency Overload Temperature**
- **250°C for Short Circuit Temperature**

#### 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)
- CSA 1202 - Flame Test - (70,000 BTU/Hr. - Vertical Tray Test)
- ICEA S-93-639 (NEMA WC 74) 5 to 46 kV - Shielded Power Cable
- ICEA T-29-520 - Vertical Cable Tray Flame Test - (210,000 BTU/Hr)
- IEEE 383 - Flame Test - (70,000 BTU/Hr.)

#### Flame Test Ratings
- 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 C68.10 - Shielded Power Cables for Commercial and Industrial Applications - 5 to 46 kV
- CSA C68.10 - Shielded Power Cables for Commercial and Industrial Applications - 5 to 46 kV

#### 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
  - ICEA S-93-639 (NEMA WC 74) 5 to 46 kV - Shielded Power Cable
  - AEIC CS-8 - Qualification Testing Requirements

#### End View

### Table 2 - Engineering Specifications

<table>
<thead>
<tr>
<th>HVTECK Product Code</th>
<th>Maximum Pulling Tension</th>
<th>DC Resistance @ 25°C $R_C$</th>
<th>AC Resistance @ 30°C, 60 Hz (triplexed) $R_{AC}$</th>
<th>Inductance $L$</th>
<th>Capacitance $C$</th>
<th>Inductive Reactance @ 60Hz (triplexed) $X_L$</th>
<th>Capacitive Reactance @ 60Hz (triplexed) $X_C$</th>
<th>Positive-Sequence Impedance $\Delta$</th>
<th>Zero-Sequence Impedance $a_0$</th>
<th>Short Circuit Current (each phase conductor) @ 60Hz</th>
<th>Allowable Ampacities in Ventilated Cable Tray $t$</th>
<th>Allowable Ampacities Directly Buried in Earth $t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>CU345F33-010</td>
<td>845</td>
<td>0.102</td>
<td>0.355</td>
<td>0.128</td>
<td>0.419</td>
<td>0.1243</td>
<td>0.4079</td>
<td>0.0356</td>
<td>0.1168</td>
<td>0.0469 + j0.1538</td>
<td>0.0745 + j0.0227</td>
<td>0.130 + j0.058</td>
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<tr>
<td>CU345F33-020</td>
<td>1065</td>
<td>0.081</td>
<td>0.266</td>
<td>0.101</td>
<td>0.333</td>
<td>0.1199</td>
<td>0.3933</td>
<td>0.0382</td>
<td>0.2525</td>
<td>0.0462 + j0.1483</td>
<td>0.104 + j0.056</td>
<td>0.372 + j0.118</td>
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<tr>
<td>CU345F33-030</td>
<td>1342</td>
<td>0.064</td>
<td>0.211</td>
<td>0.080</td>
<td>0.394</td>
<td>0.1153</td>
<td>0.3784</td>
<td>0.0411</td>
<td>0.3504</td>
<td>0.0854 + j0.0197</td>
<td>0.193 + j0.054</td>
<td>0.268 + j0.081</td>
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<tr>
<td>CU345F33-040</td>
<td>1693</td>
<td>0.051</td>
<td>0.167</td>
<td>0.064</td>
<td>0.410</td>
<td>0.1111</td>
<td>0.3645</td>
<td>0.0444</td>
<td>0.2561</td>
<td>0.0419 + j0.1374</td>
<td>0.187 + j0.052</td>
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<tr>
<td>CU345F33-250</td>
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<td>0.278</td>
<td>0.1086</td>
<td>0.3562</td>
<td>0.0466</td>
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<td>0.0409 + j0.1340</td>
<td>0.222 + j0.056</td>
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<tr>
<td>CU345F33-350</td>
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<td>0.101</td>
<td>0.039</td>
<td>0.219</td>
<td>0.1029</td>
<td>0.3377</td>
<td>0.0524</td>
<td>0.1719</td>
<td>0.0398 + j0.1273</td>
<td>0.136 + j0.048</td>
<td>0.216 + j0.087</td>
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<tr>
<td>CU345F33-500</td>
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<td>0.022</td>
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<td>0.019</td>
<td>0.195</td>
<td>0.0975</td>
<td>0.3199</td>
<td>0.0595</td>
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<td>0.0368 + j0.1206</td>
<td>0.0446 + j0.036</td>
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<tr>
<td>CU345F33-750</td>
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<td>0.014</td>
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<td>CU345F33-1000</td>
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<td>0.0767</td>
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<td>0.021 + j0.040</td>
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</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

- 71.9 ± 0.033
- 60.7 ± 0.033
- 53.9 ± 0.033
- 41.5 ± 0.033
- 31.7 ± 0.033
- 22.5 ± 0.033

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