**PRODUCT HIGHLIGHTS**

Southwire’s 28KV 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 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
- Class B compact stranded copper
- Class B compressed 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: 0.345 inches (8.76mm) - 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
- Phase identification as per ICEA Method 3, using printed circuit numbers
- Meets requirement of ICEA but built to CSA standards

**Bonding Conductor**
- Class B compressed stranded bare copper
  - in accordance with ASTM B3 and B8

**Fillers**
- Non-wicking, non-hygroscopic

**Overall Jacket**
- Black PVC (optional colours available)
- Nominal Thickness:
  - No.1 AWG to No.1/0 AWG = 0.11 inches (2.79mm)
  - No.2/0 AWG to 500 kcmil = 0.14 inches (3.56mm)

**Typical Print Legend**
- (CSA) SOUTHWIRE [NESC] #P# 3/C [#AWG or #kcmil] CPT AL 345 EPR 28KV 133% INS LEVEL 25% TS SUN RES TC-ER 105° FT4 (-40°C) LGTg RoHS YEAR [SEQUENTIAL METER MARKS]

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**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>Bonding Cond. Size</th>
<th>Approx. Overall Diameter</th>
<th>Minimum Bend Radius</th>
<th>Approx. Weight of Cable</th>
<th>Max. Reel Weight (real and cable)**</th>
<th>Max. Diameter/Width **</th>
<th>Max. Length of Cable on Reel **</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL34D42-001</td>
<td>1(19)</td>
<td>0.299</td>
<td>7.6</td>
<td>1.019</td>
<td>25.9</td>
<td>1.099</td>
<td>27.9</td>
<td>6</td>
<td>2.637</td>
<td>67.0</td>
<td>649</td>
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<tr>
<td>AL34D42-010</td>
<td>1/0(19)</td>
<td>0.336</td>
<td>8.5</td>
<td>1.056</td>
<td>26.8</td>
<td>1.136</td>
<td>28.9</td>
<td>6</td>
<td>2.717</td>
<td>69.0</td>
<td>19.0</td>
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<tr>
<td>AL34D42-020</td>
<td>2/0(19)</td>
<td>0.376</td>
<td>9.6</td>
<td>1.096</td>
<td>27.8</td>
<td>1.176</td>
<td>29.9</td>
<td>6</td>
<td>2.863</td>
<td>72.7</td>
<td>20.0</td>
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<tr>
<td>AL34D42-030</td>
<td>3/0(19)</td>
<td>0.423</td>
<td>10.7</td>
<td>1.143</td>
<td>29.0</td>
<td>1.223</td>
<td>31.1</td>
<td>6</td>
<td>2.965</td>
<td>75.3</td>
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<tr>
<td>AL34D42-040</td>
<td>4/0(19)</td>
<td>0.475</td>
<td>12.1</td>
<td>1.185</td>
<td>30.4</td>
<td>1.275</td>
<td>32.4</td>
<td>6</td>
<td>3.077</td>
<td>78.2</td>
<td>21.5</td>
</tr>
<tr>
<td>AL34D42-250</td>
<td>250(37)</td>
<td>0.520</td>
<td>13.2</td>
<td>1.250</td>
<td>31.8</td>
<td>1.330</td>
<td>33.8</td>
<td>4</td>
<td>3.196</td>
<td>81.2</td>
<td>22.4</td>
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<tr>
<td>AL34D42-350</td>
<td>350(37)</td>
<td>0.616</td>
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<td>1.346</td>
<td>34.2</td>
<td>1.426</td>
<td>36.2</td>
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<td>500(37)</td>
<td>0.736</td>
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<td>1.466</td>
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<td>1.546</td>
<td>39.3</td>
<td>3</td>
<td>3.663</td>
<td>93.0</td>
<td>25.6</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 AL 3/C 345EPR TS PVC 28KV 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./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.)

### 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

### 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.)

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## Table 2 - Engineering Specifications

| HVTC Product Code | Maximum Pulling Tension | DC Resistance @ 25°C $|\Omega_{1000 ft.}|$ | AC Resistance @ 50°C (triplex formation) $|\Omega_{1000 ft.}|$ | Inductance $L$ | Capacitance $C$ | Inductive Reactance @ 60Hz $|\Omega|\text{/km}$ | Capacitive Reactance @ 60Hz $|\Omega|\text{/km}$ | Positive - Sequence Impedance* | Zero - Sequence Impedance* | Short Circuit Current (each phase conductor) @ 60Hz | Allowable Ampacities in Ventilated Cable Tray † | Allowable Ampacities Directly Buried in Earth ‡ |
|------------------|-------------------------|------------------------|-----------------------------------------------|--------------|----------------|-----------------------------|-----------------------------|-------------------------------|-----------------------------------------------|---------------------------------|---------------------------------------------|---------------------------------|---------------------------------------------|
| AL345D42-001     | 1506                    | 6701                   | 0.211                                         | 0.892        | 0.265          | 0.870                       | 0.1233                       | 0.0432                        | 0.0411                         | 0.1315                         | 0.0499                         | 0.1637                         | 0.0862                          | 0.0202                         | 0.268 + j0.052                  | 0.622 + j0.325                  | 3.7                             | 158                            | 177                           |
| AL345D42-010     | 1901                    | 8455                   | 0.168                                         | 0.551        | 0.211          | 0.693                       | 0.1274                       | 0.0418                        | 0.0429                         | 0.1408                         | 0.0480                         | 0.1576                         | 0.0618                          | 0.0188                         | 0.212 + j0.050                  | 0.565 + j0.312                  | 4.7                             | 181                            | 200                           |
| AL345D42-020     | 2396                    | 10857                  | 0.133                                         | 0.436        | 0.167          | 0.549                       | 0.1228                       | 0.0429                        | 0.0459                         | 0.1507                         | 0.0463                         | 0.1519                         | 0.0577                          | 0.0176                         | 0.168 + j0.048                  | 0.517 + j0.300                  | 5.9                             | 208                            | 228                           |
| AL345D42-030     | 3020                    | 13435                  | 0.105                                         | 0.345        | 0.132          | 0.433                       | 0.1182                       | 0.0394                        | 0.0464                         | 0.1462                         | 0.0537                         | 0.1614                         | 0.133 + j0.046                  | 0.476 + j0.296                  | 7.4                             | 239                            | 256                           |
| AL345D42-040     | 3809                    | 16942                  | 0.084                                         | 0.274        | 0.105          | 0.345                       | 0.1138                       | 0.0374                        | 0.0425                         | 0.1406                         | 0.0496                         | 0.1522                         | 0.108 + j0.045                  | 0.446 + j0.271                  | 9.4                             | 273                            | 292                           |
| AL345D42-250     | 4500                    | 20017                  | 0.071                                         | 0.232        | 0.089          | 0.292                       | 0.1110                       | 0.0363                        | 0.0419                         | 0.1374                         | 0.0473                         | 0.1444                         | 0.080 + j0.044                  | 0.424 + j0.258                  | 11.1                            | 302                            | 321                           |
| AL345D42-350     | 6300                    | 28024                  | 0.051                                         | 0.166        | 0.064          | 0.208                       | 0.1052                       | 0.0342                        | 0.0422                         | 0.1292                         | 0.0375                         | 0.1232                         | 0.0451                          | 0.0113                         | 0.084 + j0.041                  | 0.388 + j0.236                  | 15.5                            | 368                            | 385                           |
| AL345D42-500     | 9000                    | 40034                  | 0.035                                         | 0.116        | 0.045          | 0.147                       | 0.0986                       | 0.0326                        | 0.0713                         | 0.2340                         | 0.0375                         | 0.1232                         | 0.0372                          | 0.0113                         | 0.045 + j0.039                  | 0.358 + j0.212                  | 22.2                            | 454                            | 462                           |

* 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 Amperages are based on Table D17N of the 2015 Canadian Electrical Code Part I (40°C Ambient Air Temperature, indoor installation)
2 Amperages are based on Table D17E of the 2015 Canadian Electrical Code Part I
3 For use in cable trays, exposed run and hazardous locations as per the limitations in the Canadian Electrical Code Part I, particularly Table 19.