

# TC-THHN/THWN-2 Copper, PVC/Nylon Insulated

PVC Jacketed, VW-1; SR; ER; FT4; Dir Bur; 600 V

## Features

UL Listed as TC.

Jacket is rated Sunlight Resistance.

Singles meet VW-1 flame test.

The complete cable (18 AWG and up) is UL listed as FT4 rated and meets the following 70,000 Btu/h Vertical Tray Flame Tests:

- IEEE 383
- ICEA T-30-520
- IEEE 1202/FT4

Also, passed the 210,000 Btu flame test per ICEA T-29-520.

Single conductors are dual rated THHN/THWN-2 in sizes 8 AWG and larger, and THHN/THWN for sizes 18 AWG up to 10 AWG.

Cable is rated ER with conductor sizes 18 AWG and larger and Direct Burial in sizes 14 AWG and larger.

*On request, can have overall shield. A metal laminated shield tape with drain will be used for conductor sizes smaller than 6 AWG and copper braid shield will be used for conductor 6 AWG and larger.*

## Application

These cables are specifically approved for power, control, lighting and signal circuits, in manufacturing, industrial and commercial installations.

For use in accordance with NEC, Article 336, in cable trays, in raceways, or where supported in outdoor locations supported by a messenger wire.

In cable tray in hazardous (classified) locations Class I, Division 2 per NEC, also as Class I circuits per Article 725.

## Standards

UL 1277

Electrical Power and Control Tray Cables with Optional Optical Fiber Members.

UL 83

Thermoplastic-Insulated Wires and Cables.

ICE A S-73-5 32

NEMA WC57

Standard for Control Cables.

ICE A S-95-658

Standard for Non-shielded Power Cables Rated 2000 Volts or Less.

## Specifications

Maximum operating voltage:

- 600 volts

Maximum conductor operation temperatures:

- THWN-2: 90 °C wet and dry
- THHN/THWN: 75 °C wet/90 °C dry

## Engineering Information

**1. Conductor:** Soft annealed uncoated copper compressed Class B or C stranding or unilay-compressed per ASTM B8, or combination unilay per ASTM B787.

**Sizes:** 14 AWG up to 1000 kcmil.



**2. Insulation:** Flame retardant thermoplastic polyvinyl chloride (PVC) and nylon covering.

**Conductor Identification ICEA:**

**14 AWG – 10 AWG:** Color coded per Method 1 Table E-2, **without White and Green colors.**

*On request, Table E-1, which includes White and Green colors.*

**Sizes 8 AWG – 1000 kcmil:**

Black insulation with Printed numbers, 1, 2, 3, or 4.

*On request, Color coded, BL, WH and Red or Green.*

**3. Grounding (Optional):**

One bare or one or more insulated conductors.

**4. Assembly:** Phase and optional grounding conductor(s) cabled with non hygroscopic fillers, as required and binder tape.

**5. Jacket:** Black sunlight resistant and flame retardant polyvinyl chloride (PVC) compound.

Technical Data

## THHN/THWN-2 3 Conductors with Ground, 600 V

| Description  | Part Number | Size AWG or kcmil | Number of Strands | Insulation Thickness | Optional Grounding* | Jacket Thickness | Approximate Outside Diameter | Approximate Net Weight |
|--|-------------|-------------------|-------------------|----------------------|---------------------|------------------|------------------------------|------------------------|
|  |             |                   |                   | PVC/Nylon mil        | Conductor AWG       | mil              | in                           | lb/kft                 |
| <b>Stock Items</b>   |             |                   |                   |                      |                     |                  |                              |                        |
| #14-3Conductor w/Insulated Ground  | TC143WGCUT  | 14                | 19                | 15/5                 | 14                  | 45               | 0.37                         | 98                     |
| #12-3Conductor w/Insulated Ground  | TC123WGCUT  | 12                | 19                | 15/5                 | 12                  | 45               | 0.41                         | 136                    |
| #10-3Conductor w/Insulated Ground  | TC103WGCUT  | 10                | 19                | 20/5                 | 10                  | 45               | 0.49                         | 215                    |
| #10-3Conductor w/Bare Ground   | TC103BGCUT  | 10                | 19                | 20/5                 | 10                  | 45               | 0.49                         | 215                    |
| #8-3Conductor w/Bare Ground  | TC83BGCUT   | 8                 | 7                 | 30/6                 | 10                  | 60               | 0.59                         | 315                    |
| #6-3Conductor w/Bare Ground  | TC63BGCUT   | 6                 | 19                | 30/6                 | 8                   | 60               | 0.67                         | 453                    |
| #4-3Conductor w/Bare Ground  | TC43BGCUT   | 4                 | 19                | 40/7                 | 8                   | 60               | 0.82                         | 667                    |
| #2-3Conductor w/Bare Ground  | TC23BGCUT   | 2                 | 19                | 40/7                 | 6                   | 80               | 0.99                         | 1021                   |
| #1-3Conductor w/Bare Ground  | TC13BGCUT   | 1                 | 19                | 50/8                 | 6                   | 80               | 1.12                         | 1269                   |
| 1/0-3Conductor w/Bare Ground   | TC1/03BGCUT | 1/0               | 19                | 50/8                 | 6                   | 80               | 1.21                         | 1525                   |
| 2/0-3Conductor w/Bare Ground   | TC2/03BGCUT | 2/0               | 19                | 50/8                 | 6                   | 80               | 1.30                         | 1842                   |
| 3/0-3Conductor w/Bare Ground   | TC3/03BGCUT | 3/0               | 19                | 50/8                 | 4                   | 80               | 1.41                         | 2276                   |
| 4/0-3Conductor w/Bare Ground   | TC4/03BGCUT | 4/0               | 19                | 50/8                 | 4                   | 80               | 1.56                         | 2792                   |
| <b>Non-stock Items - Made to Order Only (subject to minimum runs and lead time.)</b> |             |                   |                   |                      |                     |                  |                              |                        |
| 250 MCM-3Conductor w/Bare Ground   | TC2503BGCUT | 250               | 37                | 60/9                 | 4                   | 110              | 1.74                         | 3352                   |
| 300 MCM-3Conductor w/Bare Ground   | TC3003BGCUT | 300               | 37                | 60/9                 | 3                   | 110              | 1.85                         | 3938                   |
| 350 MCM-3Conductor w/Bare Ground   | TC3503BGCUT | 350               | 37                | 60/9                 | 3                   | 110              | 1.96                         | 4498                   |
| 400 MCM-3Conductor w/Bare Ground   | TC4003BGCUT | 400               | 37                | 60/9                 | 2                   | 110              | 2.07                         | 5375                   |
| 500 MCM-3Conductor w/Bare Ground   | TC5003BGCUT | 500               | 37                | 60/9                 | 2                   | 110              | 2.24                         | 6183                   |
| 600 MCM-3Conductor w/Bare Ground   | TC6003BGCUT | 600               | 61                | 80/10                | 2                   | 110              | 2.50                         | 7435                   |
| 750 MCM-3Conductor w/Bare Ground   | TC7503BGCUT | 750               | 61                | 80/10                | 1                   | 110              | 2.72                         | 9109                   |

## THHN/THWN-2 3 Conductors without Ground, 600 V

| Description                 | Part Number | Size AWG or kcmil | Number of Strands | Insulation Thickness | Jacket Thickness | Approximate Outside Diameter | Approximate Net Weight |
|-----------------------------|-------------|-------------------|-------------------|----------------------|------------------|------------------------------|------------------------|
|                             |             |                   |                   | PVC/Nylon mil        | mil              | in                           | lb/kft                 |
| <b>Stock Items</b>          |             |                   |                   |                      |                  |                              |                        |
| #14-3Conductor w/Out Ground | TC143WOGCUT | 14                | 19                | 15/5                 | 45               | 0.34                         | 78                     |
| #12-3Conductor w/Out Ground | TC123WOGCUT | 12                | 19                | 15/5                 | 45               | 0.38                         | 114                    |
| #10-3Conductor w/Out Ground | TC103WOGCUT | 10                | 19                | 20/5                 | 45               | 0.45                         | 169                    |

## THHN/THWN-2 4 Conductors without Ground, 600 V

| Description                 | Part Number | Size AWG or kcmil | Number of Strands | Insulation Thickness | Jacket Thickness | Approximate Outside Diameter | Approximate Net Weight |
|-----------------------------|-------------|-------------------|-------------------|----------------------|------------------|------------------------------|------------------------|
|                             |             |                   |                   | PVC/Nylon mil        | mil              | in                           | lb/kft                 |
| <b>Stock Items</b>          |             |                   |                   |                      |                  |                              |                        |
| #12-4Conductor w/Out Ground | TC124WOGCUT | 12                | 19                | 15/5                 | 45               | 0.41                         | 136                    |
| #10-4Conductor w/Out Ground | TC104WOGCUT | 10                | 19                | 20/15                | 45               | 0.49                         | 215                    |

The above data are approximate and subject to normal manufacturing tolerances. Where required, the compatibility with glands, connectors and accessories should be verified using actual dimensions of the product. Other sizes available upon request.

**Ampacities:** Refer to beginning of section.

\* At the option of manufacturer, Ground Conductor can be divided in three, one in each interstice.