

# THWN or THHN

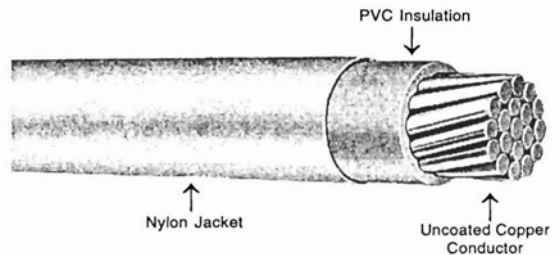
## PVC Insulation, Nylon Jacket, 600 Volts

**APPLICATION:** General purpose wiring in accordance with the National Electrical Code, maximum conductor temperature of 90°C in dry locations and 75°C in wet locations, 600 volts, for installation in conduit or other recognized raceway. Also used for wiring of machine tools (stranded), appliances, and control circuits not exceeding 600 volts.

**STANDARDS:**

1. Listed by UL as Type THHN or THWN per Standard 83, and as Type MTW per Standard 1063 (stranded items).
2. Listed by UL as Gasoline and Oil Resistant 11.
3. Listed by UL as Sunlight Resistant (1/0 AWG and larger, black only).
4. 1/0 AWG and larger pass UL and IEEE-383 ribbon burner flame test and are listed For CT Use.
5. Listed by UL as 105°C Appliance Wiring Material, 60°C where exposed to oil (stranded items only).
6. C(UL) listed as Type T90 Nylon or TWN75, FT1.
7. Conforms to Federal Specification J-C-30B.

**CONSTRUCTION:** Annealed uncoated copper conductor, PVC insulation, nylon jacket, surface printed.



USAWC Part #	Size AWG or kcmil	No. of Strands	Thickness in Mils		Nominal Diam. Inches	NEC Ampacity*		Approx. Wt. lbs/1000 ft	
			PVC Insulation	Nylon Jacket		75°C THWN	90°C THHN	Net	Copper
<b>Solid (THWN or THHN)</b>									
14-01SOLTHHN	14	Solid	15	4	.105	20	25	16	12
12-01SOLTHHN	12	Solid	15	4	.122	25	30	24	20
10-01SOLTHHN	10	Solid	20	4	.153	35	40	38	31
<b>Stranded (MTW or THWN or THHN)</b>									
14-01THHN	14	19	15	4	.112	20	25	16	12
12-01THHN	12	19	15	4	.130	25	30	24	18
10-01THHN	10	19	20	4	.164	35	40	38	32
8-01THHN	8	19	30	5	.220	50	55	64	51
6-01THHN	6	19	30	5	.256	65	75	98	81
4-01THHN	4	19	40	6	.325	85	95	155	129
3-01THHN	3	19	40	6	.353	100	110	190	163
2-01THHN	2	19	40	6	.386	115	130	236	205
1-01THHN	1	19	50	7	.443	130	150	300	258
1/0-01THHN	1/0	19	50	7	.484	150	170	372	326
2/0-01THHN	2/0	19	50	7	.529	175	195	462	411
3/0-01THHN	3/0	19	50	7	.579	200	225	575	518
4/0-01THHN	4/0	19	50	7	.635	230	260	716	653
250-01THHN	250	37	60	8	.703	255	290	846	772
300-01THHN	300	37	60	8	.756	285	320	1005	926
350-01THHN	350	37	60	8	.806	310	350	1165	1081
400-01THHN	400	37	60	8	.851	335	380	1325	1235
500-01THHN	500	37	60	8	.934	380	430	1640	1544
600-01THHN	600	61	70	9	1.03	420	475	1995	1853
750-01THHN	750	61	70	9	1.14	475	535	2480	2316
1000-01THHN	1000	61	70	9	1.32	545	615	3300	3088

\*Ampacity in accordance with NEC for not more than three conductors in raceway.

## Specification

### THWN or THHN

### PVC - Nylon, 600 Volts

#### 1. SCOPE

- 1.1 This specification describes single conductor THWN or THHN, a general purpose building wire insulated with polyvinyl chloride (PVC) and covered with a tough protective sheath of nylon intended for lighting and power circuits at 600 Volts or less, in residential, commercial and industrial buildings. The wire may be operated at 90°C maximum continuous temperature in dry locations and 75°C in wet locations and is listed by Underwriters Laboratories for use in accordance with Article 310 of the National Electrical Code. The wire shall also be C(UL) listed as Types T90 Nylon or T90 Nylon or T90 Nylon, FT1 indicating suitability for use in accordance with the Canadian Code.

#### 2. APPLICABLE STANDARDS

- 2.1 The following standards form a part of this specification to the extent specified herein:
  - 2.1.1 Underwriters Laboratories Standard 83 for Thermoplastic Insulated Wires.
  - 2.1.2 Underwriters Laboratories Standard 1063 for Machine-Tool Wires and Cables (Stranded items only).
  - 2.1.3 Underwriters Laboratories Standard 758 for 105°C Appliance Wiring Materials (Stranded items only).
  - 2.1.4 CSA Standard C22.2 No. 75 and Electrical Bulletin No. 1451 for Type T90 Nylon or T90 Nylon.
  - 2.1.5 Federal Specification J-C-30B.

#### 3. CONDUCTORS

- 3.1 Conductors shall be solid, Class B or Class C stranded, annealed uncoated copper per UL Standards 83 or 1063.

#### 4. INSULATION

- 4.1 Each conductor shall be insulated with PVC and sheathed with nylon complying with requirements of UL Standard 83 for Types THHN or THWN, UL Standard 1063 for Type MTW and CSA C22.2 No. 75 for T90 Nylon. In addition, Types THWN or THHN shall comply with the optional Gasoline and Oil Resistant II rating of UL Standard 83. The insulation on stranded sizes shall also comply with UL requirements for 105°C Appliance Wiring Material.
- 4.2 The average thickness of PVC insulation, for a given conductor size, shall be as specified in UL Standard 83 for Types THWN or THHN. The minimum thickness at any point, of the PVC insulation, shall be not less than 90% of the specified average thickness. The minimum thickness at any point of the nylon sheath, shall be as specified in UL Standard 83 for Types THWN or THHN. The PVC insulation shall be applied tightly to the conductor and shall be free-stripping.

#### 5. IDENTIFICATION

- 5.1 The wire shall be identified by surface marking indicating manufacturer's identification, conductor size and metal, voltage rating, UL Symbol, type designations and optional ratings. The wire shall also be identified as C(UL) Type T90 Nylon or T90 Nylon, FT1.

#### 6. TESTS

- 6.1 Wire shall be tested in accordance with the requirements of UL Standard 83 for Types THWN or THHN wire and for the optional Gasoline and Oil Resistant II listings; as Type MTW to UL Standard 1063 (stranded items); as AWM to UL Standard 758 (stranded items); and as C(UL) Type T90 Nylon or T90 Nylon.

#### 7. LABELS

- 7.1 The wire shall bear the Underwriters Laboratories labels for Types THWN or THHN (solid conductors) and Type MTW (stranded conductors) and the C(UL) label for Types T90 Nylon or T90 Nylon, FT1.