

# THHN/THWN Copper Silicone-Free

600 Volts. Copper Conductor. PVC Insulation/Nylon Sheath THHN/THWN. Heat, Moisture, Gasoline and Oil Resistant II. Silicone-Free.



See Table 3 For Other Color Options



Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

- Conductor:** Solid sizes #14 AWG - #10 AWG use soft drawn bare copper per ASTM B3. Stranded sizes #14 AWG - #10 AWG use a combination-unilay stranded soft drawn bare copper per ASTM B787.
- Insulation:** Heat and moisture resistant PVC
- Sheath:** Nylon

## APPLICATIONS AND FEATURES:

### APPLICATION

Southwire THHN copper conductors are primarily used in conduit for branch circuits in commercial or industrial applications as specified in the National Electrical Code® and other applicable codes and standards. Voltage for all applications is 600 volts. These conductors have multiple ratings depending upon the product application. Allowable temperatures are as follows:

- THHN or T90 Nylon- Dry locations not to exceed 90°C
- THWN- Wet locations not to exceed 75°C or dry locations not to exceed 90°C or locations not to exceed 75°C when exposed to oil
- TWN75- Wet locations not to exceed 75°C
- MTW- Wet locations or when exposed to oil at temperatures not to exceed 60°C or dry locations not to exceed 90°C (with ampacity limited to that for 75°C conductor temperature per NFPA 79)
- AWM- Dry locations not to exceed 105°C only when rated and used as appliance wiring material

### FEATURES

- Gasoline and Oil Resistant II
- VW-1 Sizes 14 through 10 AWG
- FT1 All Sizes
- AWM- Sizes 14 through 10 AWG
- MTW- Stranded Constructions Only
- RoHS Compliant

## SPECIFICATIONS:

- ASTM B3 Soft or Annealed Copper Wire
- ASTM B787 19 Wire Combination Unilay-Stranded Copper Conductors
- UL 83 Thermoplastic Insulated Wires and Cables
- UL 758 Standard for Appliance Wiring Material



- UL 1063 Machine Tool Wiring (MTW)
- CSA C22.2 No. 75 Thermoplastic Insulated Wires and Cables
- ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy
- Federal Specification A-A-59544
- NMX-J-010-ANCE Thermoplastic insulated wires and cables
- NOM-063-SCFI Electrical Products – Conductors – Safety Requirements

**SAMPLE PRINT LEGEND:**

**Solid**  
SOUTHWIRE E23919 (UL) (XX AWG) X,XXmm<sup>2</sup> CU TYPE THHN OR THWN PR II AND GR II 600 VOLTS VW-1 OR AWM --- c(UL) T90 NYLON OR TWN75 600 VOLTS FT1 NOM-ANCE 90C --- RoHS

**Stranded**  
SOUTHWIRE E51583 (UL) (XX AWG) X,XXmm<sup>2</sup> CU TYPE MTW OR THWN OR THHN PR II AND GR II 600 VOLTS VW-1 OR AWM --- c(UL) T90 NYLON OR TWN75 600 VOLTS FT1 NOM-ANCE 90C --- RoHS

**Table 1 – Weights and Measurements**

Cond. Size AWG/Kcmil	Cond. Number	Strand Count No. of Strands	Diameter Over Conductor inch	Insul. Thickness mil	Jacket Thickness mil	Approx. OD inch	Copper Weight lb/1000ft	Approx. Weight lb/1000ft
14	1	Solid	0.064	16	5	0.106	12	16
12	1	Solid	0.080	16	5	0.123	19	23
10	1	Solid	0.101	21	5	0.152	30	37
14	1	19	0.073	16	5	0.113	12	18
12	1	19	0.090	16	5	0.132	20	25

All dimensions are nominal and subject to normal manufacturing tolerances  
 ◊ Cable marked with this symbol is a standard stock item

**Table 2 – Electrical and Engineering Data**

Cond. Size AWG/ Kcmil	Cond. Number	Min Bending Radius inch	Max Pull Tension lb	DC Resistance @ 25°C Ω/1000ft	AC Resistance @ 75°C Ω/1000ft	Inductive Reactance @ 60Hz Ω/1000ft	Allowable Ampacity At 75°C Amp	Allowable Ampacity At 90°C Amp
14	1	0.4	32	2.631	3.170	0.058	20	25
12	1	0.5	52	1.662	2.002	0.054	25	30
10	1	0.6	83	1.040	1.253	0.050	35	40
14	1	0.5	32	2.631	3.170	0.058	20	25
12	1	0.5	52	1.662	2.002	0.054	25	30

\* Ampacities based upon 2023 NEC Table 310.16 and do not take into account the overcurrent protection limitations in NEC 240.4(D) of 15 Amps for 14 AWG CU, 20 Amps for 12 AWG CU, and 30 Amps for 10 AWG CU (independent of the conductor temperature rating and stranding if size is present in table). Also, see NEC sections 310.15 and 110.14(C) for additional requirements.

\* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.





**Table 3 - Stock Code Colors ( / means stripe. Blue/White: Blue with White Stripe)**

Size (Strand)	Black	Red	Blue	White	Brown	Orange	Yellow	Gray	Pink	Purple	Tan	Green
14 (Solid)	115790	115816	115824	115808	115865	115857	115840	214668	255331	211243	320150	115832
12 (Solid)	115873	115899	115907	115881	115949	115931	115923	228700	256479	212043		115915
10 (Solid)	115956	115972	115980	115964	116020	116012	116004	229823	258384	253336		115998
14 (19)	229559	229575	229583	229567	229625	229617	229609	229633	244863	239566		229591
12 (19)	229641	229666	229674	229658	229716	229708	229690	229724	242503	232124	320168	229682
10 (19)	229732	229757	229765	229740	229807	229799	229781	229815	260539	256594	320176	229773

**Table 3 - Stock Code Colors ( / means stripe. Blue/White: Blue with White Stripe)**

Size (Strand)	White/Red	White/Black	Blue/White	Green/Yellow	Gray/Orange	Gray/Yellow	Gray/Purple	Green/Yellow	Green/Orange	Red/Black	Gray/Brown	White/Blue
14 (Solid)								566576		662817		
12 (Solid)	566440	311514	662981	575305	575304				575309		575307	566441
14 (19)	565285	611410		401000							575303	565284
12 (19)	551546	551545		611757	575301	575302		575310			575300	
10 (19)	556198	610028		663112	575298	575299	674034				575297	556199

