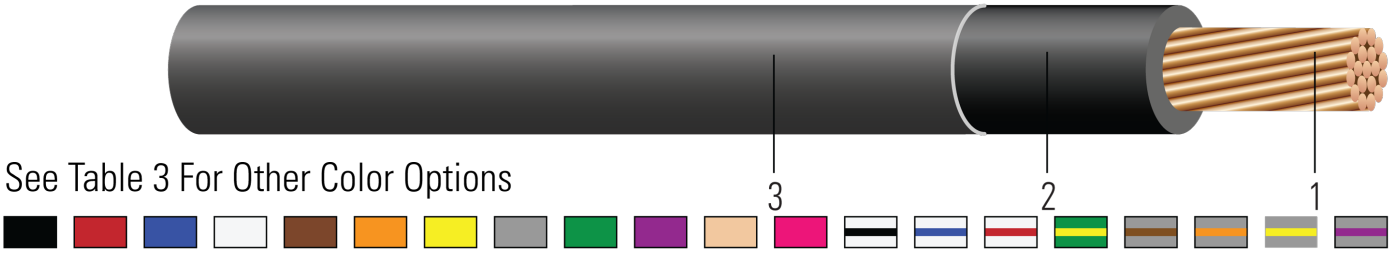
# THHN/THWN-2 Copper Silicone-Free

600 Volts. Copper Conductor. PVC Insulation/Nylon Sheath THHN/THWN-2 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:

1. **Conductor:** Solid sizes 14 - 10 AWG use soft drawn annealed bare copper per ASTM B3. Stranded sizes 14 - 10 AWG use combination-unilay soft drawn annealed bare copper per ASTM B3 and B787.
2. **Insulation:** Heat and moisture resistant Polyvinyl Chloride (PVC)
3. **Sheath:** Nylon

## APPLICATIONS AND FEATURES:

### APPLICATION

Southwire THHN/THWN-2 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-2: Wet locations not to exceed 90° C
- 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

## SPECIFICATIONS: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- 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
- NEMA 70901-2-2024 Make It American Compliance with Domestic Preference Requirements Pt. 2 Wire & Cable

## SAMPLE PRINT LEGEND:

SOUTHWIRE E23919 (UL) (XX AWG) X.XXmm2 CU TYPE THHN OR THWN-2 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 | Cond. Number | Strand Count | Diameter Over Conductor | Insul. Thickness | Insulation Color | Dia. Over Insulation | Jacket Thickness | Approx. OD | Copper Weight | Approx. Weight |
|---|---|---|---|---|---|---|---|---|---|---|
| AWG/ Kcmil | | No. of Strands | inch | mil | | inch | mil | inch | lb/1000ft | lb/1000ft |
| 12 | 1 | SOLID | 0.081 | 16 | BK | 0.113 | 5 | 0.123 | 19 | 23 |

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 | Cond. Number | Min Bending Radius | DC Resistance @ 25°C | AC Resistance @ 75°C | Inductive Reactance @ 60Hz | Allowable Ampacity At 75°C | Allowable Ampacity At 90°C |
|---|---|---|---|---|---|---|---|
| AWG/ Kcmil | | inch | Ω/1000ft | Ω/1000ft | Ω/1000ft | Amp | Amp |
| 12 | 1 | 0.5 | 1.662 | 2.063 | 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 | 320127 | 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 |


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

| Size (Strand) | White/Red | White/Black | Green/Yellow | Gray/Orange | Gray/Yellow | Gray/Purple | Green/Yellow | Green/Orange | Gray/Brown | White/Blue |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 (Solid) | 565285 | 565284 | 401000 | 575304 | 575305 | | | | 575303 | 611410 |
| 10 (Solid) | 551546 | 551545 | 611757 | 575301 | 575302 | | | | 575300 | 551547 |
| 14 (19) | | | | | | | 566576 | | | |
| 12 (19) | 566440 | 311514 | | | 575310 | | 663013 | 575309 | 575307 | 566441 |
| 10 (19) | 556198 | 610028 | 663112 | 575298 | 575299 | 674034 | | | 575297 | 556199 |

Award Winning Patent Pending Building Wire Selector


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