



# Copper SIMpull THHN/THWN-2®

600 Volts. Copper Conductor. PVC Insulation/Nylon Sheath THHN/THWN-2. Heat, Moisture, Gasoline and Oil Resistant II. SIMpull® Technology for Easier Pulling.



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 or fully annealed bare copper per ASTM B3. Stranded sizes #14 AWG - 3/0 AWG use a combination-unilay stranded soft drawn bare copper per ASTM B787. Sizes 4/0 AWG and larger use compressed stranded bare copper per ASTM B8
- Insulation:** Heat and moisture resistant PVC
- Sheath:** Nylon jacket utilizing SIMpull® Technology

## APPLICATIONS AND FEATURES:

### APPLICATION

Southwire® SIMpull THHN/THWN-2® copper conductors are primarily used in conduit and cable trays for services, feeders, and 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. SIMpull THHN/THWN-2® copper conductors are designed to be installed without application of a pulling lubricant. 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 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

- Sunlight resistant #8 AWG and larger
- Gasoline and Oil Resistant II
- CT Rated 1/0 AWG and Larger
- VW-1 - All Sizes
- FT1 - All Sizes
- AWM - Sizes 14 through 6 AWG
- MTW - Stranded Constructions Only
- RoHS Compliant
- LEED v4.1 Materials & Resources Credit MRc6; PBT (Lead Content Below 300 ppm Threshold)





**SPECIFICATIONS:**

- ASTM B3 Soft or Annealed Copper Wire
- ASTM B8 Concentric-Lay-Stranded Copper Conductors
- 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)
- UL 1685 Vertical-Tray Fire Propagation and Smoke Release Test (1/0 and Larger)
- 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:**

SOUTHWIRE SIMpull(TM) E23919 (UL) (XX AWG OR KCMIL) X,XXmm2 CU TYPE THWN-2 OR THHN 600 VOLTS GR II PR II VW-1 OR AWM --- c(UL) T90 NYLON OR TWN75 600 VOLTS FT1 NOM-ANCE 90(D)C --- RoHS PAT www.patentSW.com

**Table 1 – Weights and Measurements**

| Cond. Size<br>AWG/Kcmil | Cond. Number | Strand Count<br>No. of Strands | Diameter Over Conductor<br>inch | Insul. Thickness<br>mil | Jacket Thickness<br>mil | Approx. OD<br>inch | Copper Weight<br>lb/1000ft | Approx. Weight<br>lb/1000ft |
|-------------------------|--------------|--------------------------------|---------------------------------|-------------------------|-------------------------|--------------------|----------------------------|-----------------------------|
| 600                     | 1            | 61                             | 0.865                           | 70                      | 10                      | 1.030              | 1852                       | 1992                        |

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<br>AWG/<br>Kcmil | Cond. Number | Min Bending<br>Radius<br>inch | Max Pull<br>Tension<br>lb | DC Resistance @<br>25°C<br>Ω/1000ft | AC Resistance @<br>75°C<br>Ω/1000ft | Inductive Reactance<br>@ 60Hz<br>Ω/1000ft | Allowable Ampacity<br>At 75°C<br>Amp | Allowable Ampacity<br>At 90°C<br>Amp |
|-----------------------------|--------------|-------------------------------|---------------------------|-------------------------------------|-------------------------------------|---|--------------------------------------|--------------------------------------|
| 600                         | 1            | 5.2                           | 4800                      | 0.018                               | 0.025                               | 0.039                                     | 420                                  | 475                                  |

\* 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 Reactance is based on non-ferrous conduit with one diameter spacing.





**Table 3 - Stock Code Colors**

| Size (Strand) | Black  | Red    | Blue   | White  | Brown  | Orange | Yellow | Gray   | Green  | Purple |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 14 (Solid)    | 580285 | 580293 | 580287 | 580294 | 580288 | 580292 | 580295 | 580289 | 580291 | 580286 |
| 12 (Solid)    | 580265 | 580273 | 580267 | 580275 | 580268 | 580272 | 580276 | 580269 | 580271 | 580264 |
| 10 (Solid)    | 580203 | 580214 | 580204 | 580215 | 580205 | 580213 | 580220 | 580206 | 580211 | 580202 |
| 14 (19)       | 580170 | 580179 | 580171 | 580180 | 580172 | 580177 | 580181 | 580173 | 580176 | 580178 |
| 12 (19)       | 580182 | 580198 | 580184 | 580199 | 585461 | 580196 | 580200 |        | 580195 |        |
| 10 (19)       | 580221 | 580254 | 580222 | 580255 | 580223 | 585465 | 585470 | 580250 | 585464 | 580253 |
| 8 (19)        | 204883 | 204909 | 204917 | 204891 | 238477 | 238493 | 238485 | 238501 | 204925 | 256586 |
| 6 (19)        | 204933 | 204958 | 204966 | 204941 | 260695 | 260679 | 260687 | 254649 | 204974 | 485607 |
| 4 (19)        | 204990 | 204982 | 205633 | 205005 | 411702 | 411710 | 411694 | 611778 | 251728 | 552486 |
| 3 (19)        | 243469 | 243485 | 372763 | 243477 | 551078 | 551079 | 551080 | 551081 | 601971 | 552533 |
| 2 (19)        | 205021 | 205013 | 315812 | 205039 | 610169 | 610171 | 420653 | 610172 | 295832 | 552534 |
| 8 (19)        | 204883 | 204909 | 204917 | 204891 | 238477 | 238493 | 238485 | 238501 | 204925 | 256586 |
| 6 (19)        | 204933 | 204958 | 204966 | 204941 | 260695 | 260679 | 260687 | 254649 | 204974 | 485607 |
| 4 (19)        | 204990 | 204982 | 205633 | 205005 | 411702 | 411710 | 411694 | 611778 | 251728 | 552486 |
| 3 (19)        | 243469 | 243485 | 372763 | 243477 | 551078 | 551079 | 551080 | 551081 | 601971 | 552533 |
| 1 (19)        | 205047 | 344598 | 481945 | 344580 | 550890 | 550888 | 550887 | 550891 | 400192 | 552488 |
| 1/0 (19)      | 205054 | 558773 | 558774 | 558771 | 558778 | 558779 | 558777 | 558781 | 556315 | 551539 |
| 2/0 (19)      | 205062 | 556113 | 556114 | 556111 | 556119 | 556117 | 556116 | 558784 | 556115 | 552535 |
| 3/0 (19)      | 205070 | 556121 | 556122 | 556120 | 556127 | 556125 | 556124 | 556698 | 556123 | 551541 |
| 4/0 (19)      | 205088 | 556129 | 556130 | 556128 | 556135 | 556133 | 556132 | 556697 | 556131 | 551540 |
| 250 (37)      | 205096 | 556137 | 556138 | 556136 | 556143 | 556141 | 556140 | 556552 | 556139 | 551025 |
| 300 (37)      | 205104 | 556145 | 556146 | 556144 | 556150 | 556149 | 556148 | 556551 | 556147 | 551026 |
| 350 (37)      | 205112 | 556152 | 556153 | 556151 | 556157 | 556156 | 556155 | 556707 | 556154 | 551027 |
| 400 (37)      | 205120 | 556160 | 556161 | 556158 | 556165 | 556164 | 556163 | 556550 | 556162 | 551029 |
| 500 (37)      | 205138 | 556168 | 556169 | 556166 | 556173 | 556172 | 556171 | 556549 | 556170 | 551599 |
| 600 (61)      | 321471 | 556176 | 556177 | 556174 | 556181 | 556180 | 556179 | 558859 | 556178 | 552485 |
| 750 (61)      | 320994 | 564946 | 564944 | 564945 | 550909 | 550908 | 550907 | 550910 | 551700 | 552536 |
| 1000 (61)     | 289710 |        |        |        | 552644 | 552645 | 552647 | 564234 |        |        |





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

| Size (Strand) | Pink           | Tan    | White/Red | Gray/Purple | Gray/Orange | Gray/Yellow | Gray/Brown | Green/Yellow | White/Blue | White/Black |
|---------------|----------------|--------|-----------|-------------|-------------|-------------|------------|--------------|------------|-------------|
| 14 (Solid)    |                |        | 580622    |             |             |             |            |              |            |             |
| 12 (Solid)    | 581931         |        | 580283    | 580263      | 580278      | 580279      | 580277     | 584566       | 580281     | 580280      |
| 10 (Solid)    |                |        | 580219    | 580201      | 580208      | 580210      | 580226     | 580212       | 580218     | 580216      |
| 14 (19)       | 581933         |        |           |             |             |             |            |              | 581899     | 581898      |
| 12 (19)       | 581932         |        | 580194    | 580188      | 580189      | 580190      |            | 583863       | 580193     | 580192      |
| 10 (19)       | 581930         |        | 580262    | 580227      | 580257      | 580259      | 580207     | 584567       | 580261     | 580260      |
| 8 (19)        | 577515, 570785 | 597981 |           |             |             |             |            |              |            |             |
| 6 (19)        | 578288         | 578287 |           |             |             |             |            |              |            |             |
| 4 (19)        | 597980         | 597979 |           |             |             |             |            |              |            |             |
| 3 (19)        | 597978         | 597977 |           |             |             |             |            | 679383       |            |             |
| 2 (19)        |                |        |           |             |             |             |            |              |            |             |
| 8 (19)        | 570785         | 597981 |           |             |             |             |            |              |            |             |
| 6 (19)        | 578288         | 578287 |           |             |             |             |            |              |            |             |
| 4 (19)        | 597980         | 597979 |           |             |             |             |            |              |            |             |
| 3 (19)        | 597978         | 597977 |           |             |             |             |            | 679383       |            |             |
| 1 (19)        | 578284         | 578285 |           |             |             |             |            | 679438       |            |             |
| 1/0 (19)      | 597975         | 597976 |           | 678121      |             |             |            |              |            |             |
| 2/0 (19)      | 647637         | 647638 |           | 674310      |             |             |            |              |            |             |
| 3/0 (19)      | 679272         | 679273 |           | 677828      |             |             |            | 679380       |            |             |
| 4/0 (19)      | 551059         | 568845 |           |             |             |             |            | 679379       |            |             |
| 250 (37)      | 592681         | 592682 |           | 678119      |             |             |            | 646952       |            |             |
| 300 (37)      | 578109         | 578110 |           |             |             |             |            |              |            |             |
| 350 (37)      | 586062         | 586063 |           | 678120      |             |             |            | 679458       |            |             |
| 400 (37)      | 581797         | 581798 |           | 674311      |             |             |            |              |            |             |
| 500 (37)      | 581782         | 581783 |           |             |             |             |            |              |            |             |
| 600 (61)      | 560486         | 560487 |           | 664610      |             |             |            |              |            |             |
| 750 (61)      | 597954         | 597955 |           |             |             |             |            |              |            |             |
| 1000 (61)     |                |        |           |             |             |             |            |              |            |             |

