



# SIMpull<sup>®</sup> THHN/THWN-2 Copper

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



See Table 3 For Other Color Options



Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

1. **Conductor:** Sizes #8 AWG - 3/0 AWG use a stranded combination-unilay soft drawn annealed bare copper per ASTM B787. Sizes 4/0 AWG and larger use a stranded compressed annealed bare copper per ASTM B8
2. **Insulation:** Heat and moisture resistant PVC
3. **Sheath:** Nylon jacket utilizing SIMpull<sup>®</sup> Technology

## APPLICATIONS AND FEATURES:





Southwire SIMpull<sup>®</sup> 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<sup>®</sup> and other applicable codes and standards. Voltage for all applications is 600 volts. SIMpull<sup>®</sup> THHN/THWN-2 copper conductors are designed to be installed without the 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

- Sizes 8 - 2 use Class C stranding
- Sizes 1 - 1000 use Class B stranding
- Sunlight resistant #8 AWG and larger
- Gasoline and Oil Resistant II
- CT Rated 1/0 AWG and Larger
- VW-1 All Sizes
- FT-1 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 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,XXmm<sup>2</sup> 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 AWG/Kcmil	Strand Count No. of Strands	Diameter Over Conductor inch	Insul. Thickness mil	Insulation Color	Jacket Thickness mil	Approx. OD inch	Copper Weight lb/1000ft	Approx. Weight lb/1000ft
8	19	0.141	30	PK	5	0.217	50	63
6	19	0.177	30	TN	5	0.253	81	95
4	19	0.225	40	TN	5	0.324	128	154
3	19	0.252	40	TN	5	0.352	162	190
2	19	0.286	41	PE	7	0.382	204	235
1	19	0.322	52	PE	8	0.439	258	301
1/0	19	0.361	52	PE	8	0.480	326	374
2/0	19	0.405	52	PE	8	0.524	410	464
3/0	19	0.456	52	PE	8	0.574	518	578
4/0	19	0.512	52	PE	8	0.627	653	719
250	37	0.558	62	PE	9	0.684	771	844
300	37	0.610	60	PK	5	0.736	926	1005
350	37	0.661	60	PE	5	0.783	1080	1164
400	37	0.705	60	PK	5	0.827	1235	1323
500	37	0.789	60	PK	5	0.908	1543	1641
600	61	0.865	70	PK	10	1.004	1852	1969
750	61	0.968	70	GY	10	1.103	2315	2441
1000	61	1.117	70	BK	10	1.281	3087	3264

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	Min Bending Radius	Max Pull Tension	DC Resistance @ 25°C	AC Resistance @ 75°C	Inductive Reactance @ 60Hz	Allowable Ampacity At 75°C	Allowable Ampacity At 90°C
AWG/ Kcmil	inch	lb	Ω/1000ft	Ω/1000ft	Ω/1000ft	Amp	Amp
8	0.9	132	0.653	0.786	0.052	50	55
6	1.0	209	0.411	0.495	0.051	65	75
4	1.3	333	0.258	0.310	0.048	85	95
3	1.4	420	0.205	0.246	0.047	100	115
2	1.5	530	0.162	0.195	0.045	115	130
1	1.8	669	0.128	0.154	0.046	130	145
1/0	1.9	844	0.102	0.122	0.044	150	170
2/0	2.1	1064	0.081	0.097	0.043	175	195
3/0	2.3	1342	0.064	0.078	0.042	200	225
4/0	2.5	1692	0.051	0.062	0.041	230	260
250	2.7	2000	0.043	0.053	0.041	255	290
300	2.9	2400	0.036	0.045	0.041	285	320
350	3.1	2800	0.031	0.039	0.040	310	350
400	3.3	3200	0.027	0.035	0.040	335	380
500	3.6	4000	0.022	0.029	0.039	380	430
600	5.0	4800	0.018	0.025	0.039	420	475
750	5.5	6000	0.014	0.022	0.038	475	535
1000	6.4	8000	0.011	0.018	0.037	545	615

- Notes:**
- 1) 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.
  - 2) Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center
  - 3) There is no need to look up the minimum bending radius value on this spec sheet if you purchase Southwire's Patent Pending Re3™ Minimum Bend Radius Device: [SPEC 11123](#)





**Table 3 - Stock Code Colors**

Size (Strand)	Black	Red	Blue	White	Brown	Orange	Yellow	Gray	Green	Purple
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
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
8 (19)	570785	597981								
6 (19)	578288	578287								
4 (19)	597980	597979								
3 (19)	597978	597977						679383		
2 (19)										
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)										

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Pending Building Wire  
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