Southwire® Machine Flex® Power PVC THHN

90°C Wet or Dry. 600 Volts. Flexible Stranded Copper Conductor. PVC Insulation and Nylon Jacket (THHN/THWN-2). Oil & Gasoline Resistant. Sunlight Resistant. Rated UL VW-1 and CSA FT1 & FT4 Flame Resistant.



Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

1. **Conductor:** 8 - 4/0 AWG: Class K, flexible stranded bare copper. 250 - 750 kcmil: Class I, flexible stranded bare copper
2. **Insulation:** Polyvinyl Chloride (PVC) with Nylon sheath

APPLICATIONS AND FEATURES:

Southwire's Machine Flex® power cables are suited for use in wet and dry areas, conduits, ducts, troughs, trays, aerial supported by a messenger, and where superior electrical properties are desired. These cables are capable of operating continuously at the conductor temperature not in excess of 90°C for normal operation in wet and dry locations, 130°C for emergency overload, and 150°C for short circuit conditions. 1/0 AWG & larger rated for CT use.

SPECIFICATIONS:

- ASTM B3 Soft or Annealed Copper Wire
- ASTM B172 Standard Specification for Rope-Lay-Stranded Copper Conductors Having Bunch-Stranded Copper Conductors
- ASTM B174 Standard Specification for Bunch-Stranded Copper
- UL 83 Thermoplastic Insulated Wires and Cables
- UL 758 Standard for Appliance Wiring Material Style 2463 (80C, 600V)
- UL 1063 Machine Tool Wiring (MTW)
- UL 1685 FT4 Vertical-Tray Fire Propagation and Smoke Release Test (1/0 and Larger)
- ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy
- **CE/RoHS-2 – The CE Marking has been applied solely to express the conformance to the material restrictions identified in the RoHS-2 (2011/65/EU) Directive**
- Made in America: Compliant with both Buy American and Buy America Act (BAA) requirements per 49 U.S.C. § 5323(j) and the Federal Transit Administration Buy America requirements per 49 C.F.R. part 661

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SAMPLE PRINT LEGEND:

8AWG-1AWG
SOUTHWIRE #P# (UL) 1 AWG (42.406 mm2) CU TYPE THHN/THWN-2 600V 90(D)C DRY/90(D)C WET PRI/GRI VW-1 OR AWM [Applicable Styles] OR MTW SUN RES --- (CSA) T90 NYLON OR TWN75 FT1 FT4 --- CE RoHS-2 Made in USA. [SEQUENTIAL FOOTAGE MARKS]

1/0 AWG - 500 KCMIL
SOUTHWIRE #P# (UL) 500 KCMIL (253.35mm2) CU TYPE THHN/THWN-2 600V 90(D)C DRY/90(D)C WET PRI/GRI VW-1 FOR CT USE OR AWM [Applicable Styles] OR MTW SUN RES --- (CSA) T90 NYLON OR TWN75 FT1 FT4 --- CE RoHS-2 Made in USA. [SEQUENTIAL FOOTAGE MARKS]

600 - 1000 KCMIL
{SQFTG} SOUTHWIRE #P# (UL) XX KCMIL XX STRAND CLASS I (XXMM2) CU TYPE THHN/THWN-2 600V 90ºC DRY/90ºC WET PRI/GRI VW-1 FOR CT USE SUN RES OR AWM 1321 OR MTW --- (CSA) T90 NYLON OR TWN75 FT1 FT4 --- (NOM)-ANCE THWN/THHN 600V 90ºC --- CE RoHS-2 MADE IN USA

Table 1 – Weights and Measurements

Stock Number	Cond. Size	Strand Count	Diameter Over Conductor	Insul. Thickness	Approx. OD	Copper Weight	Approx. Weight	Jacket Color
	AWG/Kcmil	No. of Strands	inch	mil	inch	lb/1000ft	lb/1000ft	
TBA	8	168	0.153	45	0.243	52	64	BK
516835	2	665	0.302	50	0.402	210	243	
TBA	6	273	0.198	60	0.318	89	110	BK
672867	4	413	0.235	40	0.333	130	157	BK
664229	3	525	0.304	40	0.368	169	198	GN
456258	1	836	0.3	50	0.46	260	303	GN
677368	1/0	1064	0.354	50	0.488	335	381	BK
TBA	2/0	1330	0.4	80	0.56	381	433	BK
457120	3/0	1672	0.533	50	0.601	518	576	BK
679607	4/0	2109	0.55	50	0.664	665	740	BK
649414	250	627	0.605	60	0.747	764	850	BK
672866	300	741	0.638	60	0.78	930	1020	BK
649415	350	893	0.67	60	0.812	1084	1179	BK
648948	500	1221	0.858	60	1	1514	1633	BK
649416	600	1480	0.963	70	1.127	1860	2014	BK
649549	750	1850	1.094	70	1.258	2368	2541	BK
674459	1000	2516	1.19	70	1.354	3045	3233	BK

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
TBA stock codes are estimations only and actual product may vary. Please wait until a stock code is assigned to purchase connectors and/or fittings.

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Table 2 – Electrical and Engineering Data

Stock Number	Cond. Size	Min Bending Radius	Max Pull Tension	DC Resistance @ 25°C	AC Resistance @ 75°C	Inductive Reactance @ 60Hz	Allowable Ampacity At 60°C	Allowable Ampacity At 75°C	Allowable Ampacity At 90°C
	AWG/ Kcmil	inch	lb	Ω/1000ft	Ω/1000ft	Ω/1000ft	Amp	Amp	Amp
TBA	8	1	132	0.666	0.827	0.052	40	50	55
516835	2	1.6	530	0.179	0.207	0.045	95	115	130
TBA	6	1.3	209	0.419	0.52	0.051	55	65	75
672867	4	1.3	333	0.263	0.326	0.048	70	85	95
664229	3	1.5	420	0.211	0.262	0.047	85	100	115
456258	1	1.8	669	0.132	0.164	0.046	110	130	145
677368	1/0	2	844	0.105	0.13	0.044	125	150	170
TBA	2/0	2.2	1064	0.085	0.105	0.043	145	175	195
457120	3/0	2.4	1342	0.067	0.083	0.042	165	200	225
679607	4/0	2.7	1692	0.053	0.066	0.041	195	230	260
649414	250	3	2000	0.045	0.056	0.041	215	255	290
672866	300	3.1	2400	0.038	0.048	0.041	240	285	320
649415	350	3.2	2800	0.032	0.041	0.04	260	310	350
648948	500	4	4000	0.022	0.029	0.039	320	380	430
649416	600	5.6	4800	0.018	0.024	0.039	350	420	475
649549	750	6.3	6000	0.015	0.021	0.038	400	475	535
674459	1000	6.8	8000	0.011	0.016	0.037	455	545	615

† 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.
† Ampacities have been adjusted for more than Three Current-Carrying Conductors.
* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.

Stock Codes and Colors

Size (Strand)	Black	Red	Brown	Orange	Yellow	Gray	Green	Pink	Purple	Tan	Gray/Purple	Green/Yellow
4 (413)	672867						674667					
3 (525)							664229					
2 (665)							516835					
1 (836)							456258					
1/0 (1044)							674668					677368
2/0 (1330)							456257					
3/0 (1672)	457120	457121	664217	664220	664223	664226						
4/0 (2109)	679607	456271	456253	456254	456255		456256					679606
250 (627)	649414		672218	672217	672219	673792	673791					677370
300 (741)	672866		674116	674117	674118	674120	674121					
350 (893)	649415	138181	674662	674664	674665	674666	652964					672017
500 (1221)	648948		646978	646979	646980	646981	677701	456461	456462	456463	456464	646982
600 (1480)	649416		678431	678432	678434	678435	673748					678436
750 (1850)	649549	139016	677721	677722	677723	677725	671518					677726
1000 (2516)	674459		671527	671524	671521							

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