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]

Table 1 – Weights and Measurements

Stock Number	Cond. Size	Cond. Number	Strand Count	Diameter Over Conductor	Insul. Thickness	Approx. OD	Copper Weight	Approx. Weight
	AWG/Kcmil		No. of Strands	inch	mil	inch	lb/1000ft	lb/1000ft
648948	500	1	1221	0.858	70	0.998	1514	1641

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

Stock Number	Cond. Size	Cond. Number	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
648948	500	1	3.9	4000	0.023	0.031	0.039	320	380	430

† 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.

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Stock Codes and Colors

Size	BLACK	BROWN	ORANGE	YELLOW	GRAY	GREEN/YELLOW	GREEN	RED
#4	672867	TBA	TBA	TBA	TBA	TBA	674667 ◇	TBA
#3	TBA	TBA	TBA	TBA	TBA	TBA	664229	TBA
#2	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
1/0	TBA	TBA	TBA	TBA	TBA	677368	674668	TBA
3/0	TBA	664217	664220	664223	664226	TBA	TBA	TBA
4/0	679607	TBA	TBA	TBA	TBA	679606	TBA	TBA
250 Kcmil	649414	672218	672217	672219	673792 ◇	677370	673791 ◇	TBA
300 Kcmil	672866	674116	674117	674118	674120	TBA	674121	TBA
350 Kcmil	649415 ◇	674662 ◇	674664 ◇	674665 ◇	674666 ◇	672017	652964 ◇	138181
500 Kcmil	648948 ◇	646978 ◇	646979 ◇	646980 ◇	646981 ◇	646982 ◇	677701	TBA
600 Kcmil	649416 ◇	678431 ◇	678432 ◇	678434 ◇	678435 ◇	678436	673748	TBA
750 Kcmil	649549	677721	677722	677723	677725	677726	671518	TBA
1000 Kcmil	674459	TBA	TBA	TBA	TBA	TBA	TBA	TBA

◇ Cable marked with this symbol is a standard stock item