Southwire® Machine Flex® CU 600/1000V PVC-Nylon Insulation TPE Black Jacket. THHN

Type TC-ER Machine Tray Power Cable 600/1000 Volt Copper Conductors, Polyvinyl Chloride (PVC) with nylon layer Insulation Thermoplastic Elastomer Jacket, 90°C Dry 75°C Wet -40°C Cold Impact Identification Method 4

Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

1. **Conductor:** Class K, Flexible stranded bare annealed copper per ASTM B3, B172, and B174
2. **Insulation:** Polyvinyl Chloride (PVC) with nylon layer THHN
3. **Ground:** One Green Ground with Yellow Stripe THHN
4. **Jacket:** Black Thermoplastic Elastomer TPE: Other jacket colors available upon request

APPLICATIONS AND FEATURES:

Southwire's Machine Flex® tray power cables 600/1000 Volt conform to NFPA 79 and are suited for use in wet and dry areas, conduits, ducts, troughs, trays, direct burial and where superior electrical properties are desired. Constructions with 3 or more conductors are listed for exposed runs (TC-ER) per NEC® 336.10. These cables are capable of operating continuously at the conductor temperature not in excess of 75°C in wet locations and 90°C in dry locations, 130°C for emergency overload, and 150°C for short circuit conditions. For uses in Class I, II, Division 2 hazardous locations per NEC® Article 501 and 502. Southwire's machine tray cable is ideal to power CNC machines, grinding, cutting, metal forming, buffing, bottling equipment, conveyors, processing & packaging equipment, assembly lines, control panels, food and beverage, oil sands, plant expansion, wind energy and data centers. Multiple approvals for multiple applications. Cable is rated for -40°C cold impact. Two conductor cables contain no green/yellow ground.

SPECIFICATIONS:

- CAN/ULC-S139 UL Electrical Circuit Integrity System #44 (FHIT/7 44)
- ASTM B172 Standard Specification for Rope-Lay-Stranded Copper Conductors Having Bunch-Stranded Copper Conductors
- ASTM B174 Standard Specification for Bunch-Stranded Copper
- UL 13 Power-Limited Circuit Cables
- UL 66 Fixture Wire
- UL 83 Thermoplastic Insulated Wires and Cables
- UL 758 AWM Style 2587
- UL 1277 TC-ER
- UL 1690 Data Processing Cable (DP-1)
- UL 2250 Instrumentation Tray Cable
- UL 2277 Type WTTC
- CSA C22.2 No. 210 Appliance wiring material products I/II A/B (Sizes 16 - 8AWG)
- CSA C22.2 No.230 Tray Cables - Rated TC
- CSA C22.2 No. 239 Control and instrumentation cables

- ICEA S-58-679 Control Cable Conductor Identification Method 4
- ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy
- IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test
- Ecolab Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862
- 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
- NFPA 79 Electrical Standard for Industrial Machinery
- 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

SAMPLE PRINT LEGEND:

18 - 12 AWG:
SOUTHWIRE® XX AWG (X.XXmm2) X/C PVC/NYLON TYPE TC-ER E75755 (UL) 600V 90°C DRY 75°C WET SUN RES OIL RES I/II DIR BUR -40°C OR MTW FLEXING OR DP-1 OR WTTC 1000V OR PLTC OR ITC OR AWM 2587 -- LL90458 CSA CIC/TC FT4 OR AWM I/II A/B 105°C 1000V -40°C FT4 -- {NOM}-ANCE PLTC -- {CE} RoHS-2 MADE IN USA

10 AWG and Larger:
{SQFTG} SOUTHWIRE® XX AWG (XX{mm2}) X/C PVC/NYLON TYPE TC-ER E75755 {UL} 600V 90{D}C DRY 75{D}C WET SUN RES OIL RES I/II DIR BUR -40{D}C OR MTW FLEXING OR DP-1 OR WTTC 1000V OR AWM 2587 -- LL90458 {CSA} CIC/TC FT4 OR AWM I/II A/B 105{D}C 1000V -40{D}C FT4 -- {NOM}-ANCE 90{D}C PVC/NYLON PVC-TPE THHN/THWN FT4 600V -- {CE} RoHS-2 -- MADE IN USA

Table 1 – Physical and Electrical Data

Stock Number	Cond. Size	Cond. Number	Cond. Strands	Diameter Over Cond.	Insul. Thickness	Jacket Thickness	Approx. OD	Copper Weight	Approx. Weight	AC Resistance @ 75°C	Inductive Rectance	Min Bending Radius	Allowable Ampacity 75°C	Allowable Ampacity 90°C
	AWG	No.	strands	inch	mil	mil	inch	lb / 1000ft	lb / 1000ft	Ω /1000ft	Ω/1000ft	inch	Amp	Amp
18 AWG														
677315◊	18	3	16	0.044	20	45	0.281	15	43	8.613	0.036	1.1	-	14
677530◊	18	4	16	0.044	20	45	0.306	20	54	8.613	0.036	1.2	-	11
677316◊	18	5	16	0.044	20	45	0.332	25	63	8.613	0.036	1.3	-	11
665090	18	6	16	0.044	20	45	0.348	30	84	8.613	0.036	1.4	-	11
677531◊	18	7	16	0.044	20	45	0.358	35	80	8.613	0.036	1.4	-	9
665089	18	8	16	0.044	20	45	0.401	40	111	8.613	0.036	1.6	-	9
677532◊	18	9	16	0.044	20	45	0.411	45	102	8.613	0.036	1.6	-	9
665091	18	10	16	0.044	20	45	0.438	50	137	8.613	0.036	1.8	-	7
677533◊	18	12	16	0.044	20	45	0.456	60	132	8.613	0.036	1.8	-	7
665092	18	14	16	0.044	20	45	0.469	70	140	8.613	0.036	1.9	-	7
665093	18	16	16	0.044	20	45	0.495	80	165	8.613	0.036	2.0	-	7
665094◊	18	19	16	0.044	20	65	0.560	95	236	8.613	0.036	2.2	-	7
677317◊	18	25	16	0.044	20	65	0.635	125	254	8.613	0.036	1.3	-	6
665095	18	37	16	0.044	20	65	0.732	186	422	8.613	0.036	2.9	-	5
16 AWG														
665096	16	2	26	0.059	20	50	0.311	16	48	5.406	0.033	1.2	-	18
677535◊	16	3	26	0.059	20	50	0.311	24	58	5.406	0.033	1.2	-	18
677536◊	16	4	26	0.059	20	50	0.339	32	71	5.406	0.033	1.4	-	14
677318◊	16	5	26	0.059	20	45	0.370	40	86	5.406	0.033	1.5	-	14
665098◊	16	7	26	0.059	20	50	0.400	56	122	5.406	0.033	1.6	-	12
665099	16	8	26	0.059	20	50	0.431	64	142	5.406	0.033	1.7	-	12
665097	16	6	26	0.059	20	50	0.462	48	140	5.406	0.033	1.9	-	14
677320◊	16	9	26	0.059	20	50	0.462	72	138	5.406	0.033	1.9	-	12
665100	16	10	26	0.059	20	50	0.509	81	153	5.406	0.033	2.0	-	9
677321◊	16	12	26	0.059	20	50	0.509	97	175	5.406	0.033	2.0	-	9
665101	16	16	26	0.059	20	65	0.601	129	241	5.406	0.033	2.4	-	9
665102◊	16	19	26	0.059	20	65	0.630	154	315	5.406	0.033	2.5	-	9
665103	16	24	26	0.059	20	65	0.716	194	340	5.406	0.033	2.9	-	8
665104	16	30	26	0.059	20	85	0.811	243	439	5.406	0.033	3.2	-	8
665105	16	37	26	0.059	20	85	0.870	299	527	5.406	0.033	3.5	-	7
14 AWG														
677258◊	14	3	41	0.073	20	50	0.342	38	77	3.391	0.058	1.4	20	25
677259◊	14	4	41	0.073	20	50	0.375	51	97	3.391	0.058	1.5	16	20
665106	14	6	41	0.073	20	50	0.445	76	134	3.391	0.058	1.8	16	20
653005	14	8	41	0.073	20	50	0.495	102	175	3.391	0.058	1.9	14	17
677261◊	14	9	41	0.073	20	50	0.516	115	189	3.391	0.058	2.1	14	17
665107	14	10	41	0.073	20	65	0.601	127	226	3.391	0.058	2.4	10	12
677322◊	14	12	41	0.073	20	65	0.608	153	258	3.391	0.058	2.5	10	12
665108	14	16	41	0.073	20	65	0.666	204	332	3.391	0.058	2.7	10	12

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	AWG	No.	strands	inch	mil	mil	inch	lb / 1000ft	lb / 1000ft	Ω /1000ft	Ω/1000ft	inch	Amp	Amp
677262◊	14	18	41	0.073	20	65	0.697	230	419	3.391	0.058	2.8	10	12
677263◊	14	25	41	0.073	20	65	0.806	318	488	3.391	0.058	3.2	9	11
12 AWG														
677256◊	12	3	65	0.094	20	50	0.389	60	108	2.137	0.054	1.6	25	30
677537◊	12	4	65	0.094	20	50	0.420	81	137	2.137	0.054	1.7	20	24
677538◊	12	5	65	0.094	20	50	0.462	101	165	2.137	0.054	1.9	20	24
665109	12	6	65	0.094	20	50	0.502	142	194	2.137	0.054	2.0	20	24
677257◊	12	7	65	0.094	20	50	0.502	141	219	2.137	0.054	2.0	17	21
665111◊	12	12	65	0.094	20	65	0.687	243	425	2.137	0.054	2.8	12	15
10 AWG														
653009◊	10	3	105	0.117	25	50	0.462	97	160	1.339	0.050	2.0	35	40
677539◊	10	4	105	0.117	25	50	0.502	129	202	1.339	0.050	2.0	28	32
677254	10	5	105	0.117	25	50	0.579	161	257	1.339	0.050	2.0	28	32
677255	10	7	105	0.117	25	60	0.628	226	337	1.339	0.050	2.4	24	28
455932	10	12	105	0.117	25	80	0.867	389	671	1.339	0.050	3.5	18	20

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

* 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.