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

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. Silicone-Free



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:

- 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
- CSA C22.2 No.230 Tray Cables - Rated TC
- CSA C22.2 No. 239 Control and instrumentation cables

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- 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
- 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

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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	DC Resistance @ 25°C	AC Resistance @ 75°C	Inductive Rectance	Min Bending Radius	Allowable Ampacity 75°C	Allowable Ampacity 90°C	Jacket Color
	AWG	No.	strands	inch	mil	mil	inch	lb / 1000ft	lb / 1000ft	Ω /1000ft	Ω /1000ft	Ω/1000ft	inch	Amp	Amp	
18 AWG																
677315◊	18	3	7	0.044	15	50	0.288	15	52	6.659	8.265	0.036	1.2	-	14	BK
677530◊	18	4	16	0.044	15	50	0.306	20	55	6.659	8.265	0.036	1.2	-	11	BK
677316◊	18	5	16	0.044	15	50	0.332	25	75	6.659	8.265	0.036	1.3	-	11	BK
665090	18	6	16	0.044	15	45	0.348	30	85	6.659	8.265	0.036	1.4	-	11	BK
677531◊	18	7	16	0.044	15	50	0.358	35	92	6.659	8.265	0.036	1.4	-	10	BK
665089	18	8	16	0.044	15	45	0.401	40	111	6.659	8.265	0.036	1.6	-	10	BK
677532◊	18	9	16	0.044	15	50	0.411	45	122	6.659	8.265	0.036	1.6	-	10	BK
665091	18	10	16	0.044	15	45	0.438	50	137	6.659	8.265	0.036	1.8	-	7	BK
677533◊	18	12	16	0.044	15	50	0.456	60	129	6.659	8.265	0.036	1.8	-	7	BK
665092	18	14	16	0.044	15	45	0.469	71	140	6.659	8.265	0.036	1.9	-	7	BK
665093	18	16	16	0.044	15	45	0.495	81	165	6.659	8.265	0.036	2	-	7	BK
665094◊	18	19	16	0.044	15	65	0.56	96	237	6.659	8.265	0.036	2.2		7	BK
677317◊	18	25	16	0.044	15	65	0.635	126	255	6.659	8.265	0.036	2.5		6	BK
665095	18	37	16	0.044	15	65	0.732	186	423	6.659	8.265	0.036	2.9	-	6	BK
16 AWG																
665096	16	2	26	0.059	15	50	0.302	16	48	4.181	5.189	0.033	1.2	-	18	BK
677535◊	16	3	26	0.059	15	50	0.318	24	60	4.181	5.189	0.033	1.3	-	18	BK
677536◊	16	4	26	0.059	15	50	0.339	32	72	4.181	5.189	0.033	1.4	-	14	BK
677318◊	16	5	26	0.059	15	50	0.37	41	87	4.181	5.189	0.033	1.5	-	14	BK
665098◊	16	7	26	0.059	15	50	0.4	57	123	4.181	5.189	0.033	1.6	-	13	BK
665099	16	8	26	0.059	15	50	0.431	65	143	4.181	5.189	0.033	1.7	-	13	BK
665097	16	6	26	0.059	15	50	0.462	49	140	4.181	5.189	0.033	1.8	-	14	BK
677320◊	16	9	26	0.059	15	50	0.462	73	164	4.181	5.189	0.033	1.8	-	13	BK
665100	16	10	26	0.059	15	50	0.509	81	154	4.181	5.189	0.033	2	-	9	BK
677321◊	16	12	26	0.059	15	50	0.509	97	175	4.181	5.189	0.033	2	-	9	BK
665101	16	16	26	0.059	15	65	0.601	130	242	4.181	5.189	0.033	2.4	-	9	BK
665102◊	16	19	26	0.059	15	65	0.63	154	316	4.181	5.189	0.033	2.5	-	9	BK
665103	16	24	26	0.059	15	65	0.717	195	340	4.181	5.189	0.033	2.9	-	8	BK
665104	16	30	26	0.059	15	85	0.811	243	439	4.181	5.189	0.033	3.2	-	8	BK
665105	16	37	26	0.059	15	85	0.87	300	528	4.181	5.189	0.033	3.5	-	7	BK
14 AWG																
677258◊	14	3	41	0.073	15	50	0.342	38	78	2.621	3.253	0.058	1.4	20	25	BK
677259◊	14	4	41	0.073	15	50	0.375	51	97	2.621	3.253	0.058	1.5	16	20	BK
665106	14	6	41	0.073	15	50	0.445	77	137	2.621	3.253	0.058	1.8	16	20	BK
653005	14	8	41	0.073	15	50	0.495	102	176	2.621	3.253	0.058	2	14	18	BK
677261◊	14	9	41	0.073	15	50	0.516	115	190	2.621	3.253	0.058	2.1	14	18	BK
665107	14	10	41	0.073	15	65	0.602	128	227	2.621	3.253	0.058	2.4	10	12	BK
677322◊	14	12	41	0.073	15	65	0.608	153	259	2.621	3.253	0.058	2.4	10	12	BK
665108	14	16	41	0.073	15	65	0.666	205	332	2.621	3.253	0.058	2.7	10	12	BK

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	AWG	No.	strands	inch	mil	mil	inch	lb / 1000ft	lb / 1000ft	Ω /1000ft	Ω /1000ft	Ω/1000ft	inch	Amp	Amp	
677262◊	14	18	41	0.073	15	60	0.69	230	415	2.621	3.253	0.058	2.8	10	12	BK
677263◊	14	25	41	0.073	15	65	0.806	318	489	2.621	3.253	0.058	3.2	9	11	BK
12 AWG																
677256◊	12	3	65	0.094	15	50	0.389	61	109	1.652	2.05	0.054	1.6	25	30	BK
677537◊	12	4	65	0.094	15	50	0.42	81	137	1.652	2.05	0.054	1.7	20	24	BK
677538◊	12	5	65	0.094	15	50	0.462	101	166	1.652	2.05	0.054	1.8	20	24	BK
665109	12	6	65	0.094	15	50	0.502	122	195	1.652	2.05	0.054	2	20	24	BK
677257◊	12	7	65	0.094	15	55	0.554	142	228	1.652	2.05	0.054	2.2	18	21	BK
665111◊	12	12	65	0.094	15	65	0.687	243	426	1.652	2.05	0.054	2.7	12	15	BK
10 AWG																
653009◊	10	3	105	0.117	20	50	0.463	97	161	1.04	1.291	0.05	1.9	35	40	BK
677539◊	10	4	105	0.117	20	50	0.505	129	204	1.04	1.291	0.05	2	28	32	BK
677254	10	5	105	0.117	20	60	0.58	162	293	1.04	1.291	0.05	2.3	28	32	BK
677255	10	7	105	0.117	20	60	0.628	227	372	1.04	1.291	0.05	2.5	24	28	BK
455932	10	12	105	0.117	20	85	0.874	388	676	1.04	1.291	0.05	3.5	18	20	BK

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

***** Cond. Number includes green/yellow ground conductor. Constructions with only 2/C do not have a green/yellow ground conductor.

***** 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.

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