



# Southwire® Machine Flex® TCU 600/1000V XLPE Insulation Shielded Signal Pair TPE Jacket. XHHW-2 Reduced Diameter Flexible Variable Frequency Drive (VFD). Silicone-Free

Reduced Diameter Type TC-ER Variable Frequency Drive Cable, 600 Volts or 1000 Volts, Tinned Copper Conductors, Cross-linked Insulation Type XHHW-2 With Shielded Pair, Thermoplastic Elastomer Jacket, Rated 90°C Dry or Wet, -40°C Cold Impact, Identification Method 4. 1000 Volts Flexible Motor Supply. CSA CIC/TC FT4 Flame. Silicone-Free



Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

- Conductor:** Class K, flexible stranded tinned annealed copper per ASTM B33 and B174
- Insulation:** Cross linked insulation on all conductors (Type XHHW-2 on 14 AWG and larger)
- Ground:** One green ground with yellow Stripe cross linked insulation (size equal to phase conductor)
- Drain Wire:** Tinned copper drain wire two AWG sizes smaller than signal size
- Twisted Shielded Pair:** 100% coverage aluminum/Mylar foil shield (color code: black, white)
- Shielding:** 100% coverage aluminum/Mylar/aluminum foil, overall 85% coverage tinned copper braid
- Jacket:** Black Thermoplastic Elastomer (TPE)

## APPLICATIONS AND FEATURES:

Power supply cable for VFDs and motors, suitable for cable tray, conduit, raceways, exposed run (TC-ER) and conforming to NFPA 79 2018. Suitable for free air and direct burial. Its flexible design is ideal for use on operation processes in accordance with NEC® Articles 336, 501 and 502 including, but not limited to: fans, pumps, conveyors, compressors, elevators and lifts, extruders, crushers and presses, assembly lines, food and beverage, wind energy and data centers. Cable is rated for -40C Cold Bend and Impact. Multiple approvals for multiple applications.

## SPECIFICATIONS:

- ASTM B33 Standard Specification for Tin-Coated Soft or Annealed Copper Wire
- ASTM B174 Standard Specification for Bunch-Stranded Copper
- UL 44 Thermoset-Insulated Wires and Cables
- UL 758 Standard for Appliance Wiring Material Style 20886
- UL 1277 Type TC-ER Standard Power and Control Cables (1000V 14AWG and Larger)
- UL 2277 Flexible Motor Supply Cable and Wind Turbine Tray Cable
- 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
- **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:**

{SQFTG} SOUTHWIRE{R} XX AWG (XX{mm<sup>2</sup>}) X/C + XX AWG (XX{mm<sup>2</sup>}) X PR VFD XHHW-2 TYPE TC-ER E75755 {UL} 1000V 90{D}C DRY 90{D}C WET SUN RES OIL RES I/II DIR BUR -40{D}C OR WTTTC 1000V OR AWM 20886 105{D}C 1000V OR FLEXIBLE MOTOR SUPPLY CABLE 1000V -- LL90458 {CSA} CIC/TC 600V FT4 OR AWM I/II A/B 105{D}C 1000V -40{D}C FT4 -- {CE} ROHS-3 MADE IN USA

**Table 1 – Weights and Measurements**

Stock Number	Cond. Size	Cond. Number	Strand Count	Diameter Over Conductor	Insul. Thickness	Ground	Drain Wire	Dia. Over Shield	Jacket Thickness	Approx. OD	Copper Weight	Approx. Weight	Jacket Color
	AWG/ Kcmil		No. of Strands	inch	mil	No. x AWG	No. x AWG	inch	mil	inch	lb/1000ft	lb/1000ft	
TBA	16	3	26	0.059	30	1 x 16	1x20	0.400	45	0.494	83	116	BK
139306◇	14	3	41	0.071	45	1 x 14	1x18	0.503	60	0.627	109	233	BK
TBA	12	3	65	0.094	30	1 x 12	1x16	0.492	60	0.616	158	261	BK
TBA	10	3	105	0.117	30	1 x 10	1x14	0.553	60	0.677	233	344	BK
TBA	8	3	168	0.153	45	1 x 8	1x12	0.696	60	0.820	367	526	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.

**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	Capacitive Reactance @ 60Hz	Inductive Reactance @ 60Hz	Allowable Ampacity At 75°C	Allowable Ampacity At 90°C
	AWG/ Kcmil		inch	lb	Ω/1000ft	Ω/1000ft	MΩ*1000ft	Ω/1000ft	Amp	Amp
TBA	16	3	6.6	61	4.487	5.406	0.065	0.033	-	18
139306◇	14	3	7.5	98	2.814	3.391	0.057	0.058	20	25
TBA	12	3	7.7	156	1.774	2.137	0.047	0.054	25	30
TBA	10	3	8.8	249	1.111	1.339	0.040	0.050	35	40
TBA	8	3	10.8	396	0.715	0.861	0.040	0.052	50	55

\* Ampacities based upon 2023 NEC Table 310.16. See NEC sections 310.15 and 110.14(C) for additional requirements.

VFD Sizing Calculator

