



# Southwire® Machine Flex® TCU 600V XLPE Insulation Shielded TPE jacket. XHHW-2 Reduced Diameter Flexible Variable Frequency Drive (VFD)

Reduced Diameter Type TC-ER Variable Frequency Drive Cable, 600 Volts or 1000 Volts, Tinned Copper Conductors, Cross-linked Insulation Type XHHW-2, 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.



Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

1. **Conductor:** Class K, flexible stranded tinned annealed copper per ASTM B3, B172, and B174
2. **Insulation:** Cross linked insulation on all conductors (Type XHHW-2 on 14 AWG and larger)
3. **Ground:** One green ground with yellow Stripe cross linked insulation (size equal to phase conductor)
4. **Drain Wire:** Tinned copper drain wire
5. **Shielding:** 100% coverage aluminum/Mylar/aluminum foil, overall 85% coverage tinned copper braid
6. **Jacket:** Black Thermoplastic Elastomer (TPE)

## APPLICATIONS AND FEATURES:

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 B172 Standard Specification for Rope-Lay-Stranded Copper Conductors Having Bunch-Stranded Copper Conductors
- 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
- 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**





- 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:**

SOUTHWIRE® XX AWG (XX{mm<sup>2</sup>}) 4/C VFD TYPE TC-ER E75755 {UL} 600V 90C DRY 90C WET SUN RES OIL RES I/II DIR BUR -40C OR WTTC 1000V OR AWM 20886 105C 1000V OR FLEXIBLE MOTOR SUPPLY CABLE 1000V OR SUBMERSIBLE PUMP CABLE 600V -- LL90458 {CSA} CIC/TC 600V FT4 OR AWM I/II A/B 105C 1000V -40C FT4 -- {CE} ROHS-2 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
	AWG/ Kcmil		No. of Strands	inch	mil	No. x AWG	No. x AWG	inch	mil	inch	lb/1000ft	lb/1000ft
645824◇	16	3	26	0.059	30	1 x 16	1x16	0.314	47	0.408	58	112
645825◇	14	3	41	0.073	30	1 x 14	1x14	0.350	47	0.444	84	145
645826◇	12	3	65	0.094	30	1 x 12	1x12	0.396	47	0.490	124	195
645827◇	10	3	105	0.117	30	1 x 10	1x10	0.467	62	0.591	189	291
677299◇	8	3	168	0.153	45	1 x 8	4x14	0.650	62	0.774	302	480

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. See NEC sections 310.15 and 110.14(C) for additional requirements.

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
645824◇	16	3	4.9	61	4.487	5.406	0.051	0.033	-	18
645825◇	14	3	5.3	98	2.814	3.391	0.043	0.058	20	25
645826◇	12	3	5.9	156	1.774	2.137	0.036	0.054	25	30
645827◇	10	3	7.1	249	1.111	1.339	0.030	0.050	35	40
677299◇	8	3	9.3	396	0.715	0.861	0.033	0.052	50	55

VFD Sizing Calculator

