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

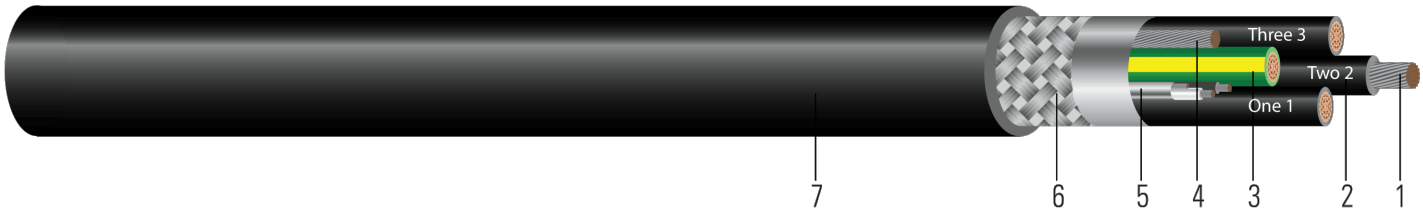

Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

1. **Conductor:** Class K, flexible stranded tinned annealed copper per ASTM B33 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 two AWG sizes smaller than signal size
5. **Twisted Shielded Pair:** 100% coverage aluminum/Mylar foil shield (color code: black, white)
6. **Shielding:** 100% coverage aluminum/Mylar/aluminum foil, overall 85% coverage tinned copper braid
7. **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
- 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**

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- 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{mm2}) X/C + XX AWG (XX{mm2}) 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 WTTC 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	0.4	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	0.82	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	Inductive Reactance @ 60Hz	Allowable Ampacity At 75°C	Allowable Ampacity At 90°C
	AWG/ Kcmil		inch	lb	Ω/1000ft	Ω/1000ft	Ω/1000ft	Amp	Amp
TBA	16	3	3.5	61	4.487	5.406	0.033	-	18
139306◊	14	3	4.4	98	2.814	3.391	0.058	20	25
TBA	12	3	4.3	156	1.774	2.137	0.054	25	30
TBA	10	3	4.7	249	1.111	1.339	0.05	35	40
TBA	8	3	5.7	396	0.715	0.861	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

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