



# CU 600V XLPE Insulation Shielded Signal Pair 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 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.



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
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 (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{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**

| 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      |
| 12         | 3            | 65             | 0.094                   | 30               | 1 x 12    | 1x18       | 0.492            | 60               | 0.616      | 158           | 261            |

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

† Reduced signal pair (see Table 3 below)

**Table 2 – Electrical and Engineering Data**

| 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                        |
| 12         | 3            | 7.7                | 156              | 1.774                | 2.137                | 0.047                       | 0.054                      | 25                         | 30                         |

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

**Table 3 - Twisted Shielded Pair Construction**

| Stock Number | Signal Pair Conductor Size | Drain Conductor Size |
|--------------|----------------------------|----------------------|
| No           | AWG                        | AWG                  |
| TBA          | -                          | -                    |
| TBA          | -                          | -                    |
| 139306       | 18                         | 20                   |
| TBA          | -                          | -                    |
| TBA          | -                          | -                    |
| TBA          | -                          | -                    |
| TBA          | -                          | -                    |
| TBA          | -                          | -                    |





**Table 4 - Twisted Shielded Pair Size**

|                     | Phase Conductor Size | Signal Pair Conductor Size | Signal Pair Drain Conductor Size |
|---------------------|----------------------|----------------------------|----------------------------------|
|                     | AWG                  | AWG                        | AWG                              |
| Normal Signal Pair  | 16                   | 16                         | 18                               |
|                     | 14                   | 16                         | 18                               |
|                     | 12                   | 16                         | 18                               |
|                     | 10                   | 16                         | 18                               |
|                     | 8                    | 14                         | 14                               |
| Reduced Signal Pair | 16                   | 18                         | 18                               |
|                     | 14                   | 18                         | 18                               |
|                     | 12                   | 18                         | 18                               |

