

**ALPHA WIRE**  
**CUSTOMER PRODUCT SPECIFICATION**

<b>Part Number: 17-1648</b> <b>Page 1 of 2 Pages</b>	<b>Issue: 3</b> <b>Issue Date: 12/13/2023</b> <b>Effective Date: 12/22/2023</b>
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- A. Construction** Diameters (In)
- 1) Component 1 5 X 1 PAIR
    - a) Conductor 22 (7/30) AWG Tinned Copper 0.030
    - b) Insulation 0.010" Wall, Nom. PVC, Semi Rigid 0.050
    - (1) Color(s)

Pair	Color	Pair	Color	Pair	Color
1	RED-BLACK	3	BLUE-GRAY	5	ORANGE-BROWN
2	WHITE-GREEN	4	PURPLE-YELLOW		

- c) Pair 2/Cond Cabled Together
- (1) Twists: 8.0 Twists/foot (min)
- 2) Cable Assembly 5 Components Cabled
  - a) Twists: 4.8 Twists/foot (min)
  - b) Orientation: Components to be arranged from INSIDE LAYER to OUTSIDE LAYER
  - c) Core Wrap Nonwoven Polyester Tape, 25% Overlap, Min.
- 3) Shield: Alum/Mylar Tape, 25% Overlap, Min.
  - a) Foil Direction Foil Facing In
  - b) Drain Wire 22 (7/30) AWG Tinned Copper
- 4) Jacket 0.032" Wall, Nom., Polyurethane (TPU) 0.295 (0.311 Max.)
  - a) Color(s) YELLOW, ORANGE
  - b) Ripcord 1 End 810 Denier Nylon
  - c) Print ALPHA WIRE-\* P/N 17-1648 5PR 22 AWG  
RU AWM 20668 VW-1 --- LLXXXXXX CSA  
AWM I/II A/B 90C 300V FT1 CE  
ROHS (SEQ FOOTAGE)

\* = Factory Code  
[Note: Product may have c(UL) or CSA markings depending upon plant of manufacture.]

**B. Applicable Specifications**

- 1) UL
  - a) Component 1 AWM/STYLE 10002 105°C / 300 V<sub>RMS</sub>
  - b) Overall AWM/STYLE 20668 80°C / 300 V<sub>RMS</sub>
- 2) CSA International AWM I/II A/B 90°C / 300 V<sub>RMS</sub>
- 3) CE: FT1  
EU Low Voltage Directive 2014/35/EU

**C. Environmental Compliance**

- 1) CE: EU Directive 2011/65/EU(RoHS2), EU Directive 2015/863/EU (RoHS3):  
This product complies with European Directive 2011/65/EU (RoHS Directive) of the European Parliament and of the Council of 8 June 2011 and the amending Directive 2015/863/EU of 4 June 2015. No Exemptions are required for RoHS Compliance on this item.
- 2) REACH Regulation (EC 1907/2006): This product does not contain Substances of Very High Concern (SVHC) listed on the European Union's REACH candidate list in excess of 0.1% mass of the item.
- 3) California Proposition 65: This product may contain substances known to the State of California to cause Cancer or Reproductive Harm, but is exempt from labeling based on the Consent Judgement. See the Alpha Wire website for more information.

**D. Physical & Mechanical Properties**

- 1) Temperature Range -30 to 90°C
- 2) Bend Radius 10X Cable Diameter
- 3) Pull Tension 60 Lbs, Maximum

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- 4) Sunlight Resistance Yes  
(For Engineering purposes only)
- E. Electrical Properties**
- 1) Voltage Rating 300 V<sub>RMS</sub>
  - 2) Mutual Capacitance 26 pF/ft @1 kHz, Nominal
  - 3) Ground Capacitance 47 pF/ft @1 kHz, Nominal
  - 4) Characteristic Impedance 71 Ω
  - 5) Inductance 0.18 μH/ft, Nominal
  - 6) Conductor DCR 16.7 Ω/1000ft @20°C, Nominal
  - 7) OA Shield DCR 11.8 Ω/1000ft @20°C, Nominal
- F. Other**
- 1) Packaging Flange x Traverse x Barrel (inches)
    - a) Bulk(Made-to-order)

**This Design is custom, Made-To-Order and requires review by a qualified party at the customer.**

Accepted By: <i>Matt Hawks</i>	Date: 1/8/2024
Company: <i>Caterpillar</i>	Title: <i>Engineering Manager</i>

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