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# Customer Specification

## PART NO. 45299

### Construction

|                   |             | Diameters (In)  |              |                    |              |
|-------------------|-------------|---|--------------|--------------------|--------------|
| 1) Component 1    |             | 9 X 1 PAIR  |              |                    |              |
| a) Conductor      |             | 20 (7/28) AWG Tinned Copper   |              | 0.038              |              |
| b) Insulation     |             | 0.016" Wall, Nom. TPE   |              | 0.070              |              |
| (1) Color Code    |             | Alpha Wire Color Code B   |              |                    |              |
| Pair              | Color       | Pair  | Color        | Pair               | Color        |
| 1                 | WHITE-BLACK | 4   | WHITE-ORANGE | 7                  | WHITE-BLUE   |
| 2                 | WHITE-BROWN | 5   | WHITE-YELLOW | 8                  | WHITE-VIOLET |
| 3                 | WHITE-RED   | 6   | WHITE-GREEN  | 9                  | WHITE-SLATE  |
| c) Pair           |             | 2/Cond Cabled Together  |              |                    |              |
| (1) Twists:       |             | 6.0 Twists/foot (min)   |              |                    |              |
| 2) Cable Assembly |             | 9 Components Cabled   |              |                    |              |
| a) Twists:        |             | 2.4 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:        |             | A/P/A Tape, 25% Overlap, Min.   |              |                    |              |
| a) Drain Wire     |             | 20 (7/28) AWG Tinned Copper   |              |                    |              |
| b) Braid          |             | Tinned Copper, 70% Coverage, Min.   |              |                    |              |
| 4) Jacket         |             | 0.055" Wall, Nom., TPE  |              | 0.561 (0.585 Max.) |              |
| a) Color(s)       |             | Slate, Black, Yellow, Orange, Blue, Green, Red, Sand Beige, White   |              |                    |              |
| b) Ripcord        |             | 1 End 810 Denier Nylon  |              |                    |              |
| c) Print          |             | ALPHA WIRE-* P/N 45299 9PR 20 AWG<br>XTRAGUARD(R) 4 (UL) TYPE PLTC 105C SUN RES OR AWM<br>20237/21918 125C 300 V OR<br>CRU AWM I/II A/B 125C 300 V FT1<br>P-07-KA140023-MSHA CE ROHS<br>(SEQ FOOTAGE)<br>* = Factory Code |              |                    |              |

### Applicable Specifications

|                      |   |                              |
|----------------------|---|------------------------------|
| 1) UL                | AWM/STYLE 20237                             | 125°C / 300 V <sub>RMS</sub> |
|                      | PLTC  | 105°C                        |
|                      | AWM/STYLE 21918                             | 125°C / 300 V <sub>RMS</sub> |
|                      | SUN RES                                     |                              |
| 2) CSA International | C(RU) AWM I/II A/B FT1                      | 125°C / 300 V <sub>RMS</sub> |
|                      | SUN RES (Black only)                        |                              |
| 3) Other             | PENNSYLVANIA BUREAU OF MINE SAFETY APPROVED |                              |
| 4) CE:               | EU Low Voltage Directive 2014/35/EC         |                              |

## Environmental

|  |   |
|--|---|
| 1) CE: EU Directive 2011/65/EU(RoHS2): |   |
|  | 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. Consult Alpha Wire's web site for RoHS C of C. |
| 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. For up-to-date information, please see Alpha's REACH SVHC Declaration.   |
| 3) California Proposition 65:          |   |
|  | Exempt from warning labels based on the Consent Judgment. Please see Alpha's CA Prop 65 Statement for more information.   |

## Properties

|  |                              |
|--|------------------------------|
| Physical & Mechanical Properties                         |                              |
| 1) Temperature Range                                     | -50 to 125°C                 |
| 2) Bend Radius   | 10X Cable Diameter           |
| 3) Pull Tension  | 175 Lbs, Maximum             |
| 4) Sunlight Resistance                                   | Yes                          |
| Electrical Properties<br>(For Engineering purposes only) |                              |
| 1) Voltage Rating  | 300 V <sub>RMS</sub>         |
| 2) Mutual Capacitance                                    | 16.4 pF/ft @1 kHz, Nominal   |
| 3) Ground Capacitance                                    | 30 pF/ft @1 kHz, Nominal     |
| 4) Characteristic Impedance                              | 98 Ω                         |
| 5) Inductance  | 0.19 μH/ft, Nominal          |
| 6) Conductor DCR   | 10.4 Ω/1000ft @20°C, Nominal |
| 7) OA Shield DCR   | 1.66 Ω/1000ft @20°C, Nominal |

## Other

|  |                                     |
|--|-------------------------------------|
| <b>Packaging</b>   | Flange x Traverse x Barrel (inches) |
| a) Bulk(Made-to-order)   |                                     |
| <b>Notes:</b>  |                                     |
| a) Print legend will contain CSA SUN RES on black cables only. |                                     |

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# EU/China ROHS CERTIFICATE OF COMPLIANCE

To Whom It May Concern:

Alpha Wire Part Number: 45299

45299 , RoHS-Compliant Commencing With 10/1/2014 Production

Note: all colors and put-ups

This document certifies that the Alpha part number cited above is manufactured in accordance with Directive 2011/65/EU of the European Parliament, better known as the RoHS Directive (commonly known as RoHS 2), with regards to restrictions of the use of certain hazardous substances used in the manufacture of electrical and electronic equipment. This certification extends to amending Directive 2015/863/EU which expanded the list of restricted substances to 10 items (commonly known as RoHS 3) The reader is referred to these Directives for the specific definitions and extents of the Directives. **No Exemptions are required for RoHS Compliance on this item.** Additionally, Alpha certifies that the listed part number is in compliance with China RoHS "Marking for Control of Pollution by Electronic Information Products" standard SJ/T 11364-2014.

| Substance   | Maximum Control Value      |
|---|----------------------------|
| Lead  | 0.1% by weight (1000 ppm)  |
| Mercury   | 0.1% by weight (1000 ppm)  |
| Cadmium   | 0.01% by weight (100 ppm)  |
| Hexavalent Chromium   | 0.1% by weight (1000 ppm ) |
| Polybrominated Biphenyls (PBB)                                | 0.1% by weight (1000 ppm)  |
| Polybrominated Diphenyl Ethers (PBDE) ,<br>Including Deca-BDE | 0.1% by weight (1000 ppm)  |
| Bis(2-ethylhexyl) phthalate (DEHP)                            | 0.1% by weight (1000 ppm)  |
| Butyl benzyl phthalate (BBP)                                  | 0.1% by weight (1000 ppm)  |
| Dibutyl phthalate (DBP)                                       | 0.1% by weight (1000 ppm)  |
| Diisobutyl phthalate (DIBP)                                   | 0.1% by weight (1000 ppm)  |

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Authorized Signatory for the Alpha Wire:

Dave Watson, Director of Engineering & QA

5/3/2017

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