



Customer Specification

PART NO. SPCM-400

Construction

| | |
|--|---|
| 1) Tubing Type | Adhesive Lined Heat Shrinkable Tubing |
| 2) Tubing Material | Irr Polyolefin w/ Medium Wall Thermoplastic Bonding Layer |
| 3) Minimum Supplied ID(In) | 0.400 |
| 4) Maximum Recovered ID(In) | 0.150 |
| 5) Nominal Recovered Wall Thickness(In) | 0.050 |
| 6) Minimum Recovered Adhesive Wall Thickness(In) | 0.040 |
| 7) Color(s) | BLACK |

Applicable Specifications

| | |
|----------|--------------------------|
| 1) Other | AMS-DTL-23053/15 Class 2 |
|----------|--------------------------|

Environmental

| | |
|-------------------------------------|---|
| 1) EU Directive 2011/65/EU(RoHS2): | All materials used in the manufacture of this part are in compliance with European Directive 2011/65/EU regarding the restriction of use of certain hazardous substances in electrical and electronic equipment. 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: | The outer surface materials used in the manufacture of this part meet the requirements of California Proposition 65. |

Properties

| Physical & Mechanical Properties | | |
|----------------------------------|--------------------------------|---------------|
| 1) Temperature Range | -55 to 110°C | |
| 2) Shrink Ratio | Approximately 3:1 | |
| 3) Minimum Shrink Temperature | 120°C | |
| 4) Tensile Strength | 2400psi, Min | ASTM D638 |
| 5) Elongation | 475%, Min | ASTM D638 |
| 6) Low Temperature Flex(-55°C) | no cracking | AMS-DTL-23053 |
| 7) Cold Impact(-55°C) | no cracking | ASTM D746 |
| 8) Heat Resistance(175°C,168hrs) | 100% Elongation, Min | ASTM D638 |
| 9) Heat Shock(225°C,4hrs) | no cracking | AMS-DTL-23053 |
| 10) Secant Modulus | 1.4x10 ⁶ psi, Min | ASTM D882 |
| 11) Longitudinal Change | +1%/-10% | AMS-DTL-23053 |
| 12) Specific Gravity | 1.25, Max | ASTM D792 |
| 13) Shelf Life | 25 Years @ 18 to 35°C | |
| Electrical Properties | | |
| 1) Dielectric Strength | 500 V/mil, Min | ASTM D876 |
| 2) Volume Resistivity | 1x10 ¹⁵ ohm-cm, Min | ASTM D876 |
| Chemical Properties | | |
| 1) Water Absorption | 0.02%, Max | ASTM D570 |
| 2) Corrosion(175°C,16hrs) | no corrosion | AMS-DTL-23053 |
| 3) Fungus Resistance | Pass | AMS-DTL-23053 |
| 4) Halogen Free | No | |
| 5) Lead Free | Yes | |

Other

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|-----------|
| Packaging |
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EU/China ROHS CERTIFICATE OF COMPLIANCE

To Whom It May Concern:

Alpha Wire Part Number: SPCM-400

SPCM-400 , RoHS-Compliant Commencing With 11/1/2005 Production

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, with regards to restrictions of the use of certain hazardous substances used in the manufacture of electrical and electronic equipment. The reader is referred to this Directive for the specific definitions and extents of this Directive. **No Exemptions are required for RoHS Compliance on this item.** It should be noted that this product does not fall within the scope of Directive 2011/65/EU, but this Certificate is offered for cases where this product will be used within EEE that does fit within the Directive's scope. 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 11364-2006.

| 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) , Including Deca-BDE | 0.1% by weight (1000 ppm) |

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Authorized Signatory for the Alpha Wire Company:

Dave Watson, Director of Engineering & QA

5/16/2013