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# Customer Specification

## PART NO. SPC-400

### Construction

1) Tubing Type	Adhesive Lined Heat Shrinkable Tubing
2) Tubing Material	Irr Polyolefin w/ Heavy Wall Thermoplastic Bonding Layer
3) Minimum Supplied ID(In)	0.400
4) Maximum Recovered ID(In)	0.150
5) Nominal Recovered Wall Thickness(In)	0.060
6) Minimum Recovered Adhesive Wall Thickness(In)	0.050
7) Color(s)	BLACK

### Applicable Specifications

1) Other	AMS-DTL-23053/15, Class 1	
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### 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.
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:	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 <sup>5</sup> psi, Min	ASTM D882
11) Longitudinal Change	+1%/-10%	AMS-DTL-23053
12) Specific Gravity	1.28, 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 <sup>15</sup> 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

Packaging
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# EU/China ROHS CERTIFICATE OF COMPLIANCE

To Whom It May Concern:

Alpha Wire Part Number: SPC-400

SPC-400 , RoHS-Compliant Commencing With 11/1/2005 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) ,	
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

5/28/2020

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