



Alpha Wire | 711 Lidgerwood Avenue, Elizabeth, NJ 07207  
Tel: 1-800-52 ALPHA (25742), Web: [www.alphawire.com](http://www.alphawire.com)

# Customer Specification

## PART NO. GRP-160-1/4

### Construction

1) Tubing Type	Expandable Sleeving
2) Tubing Material	Heavy Duty Braided Nylon 6-6 polyamide
3) Minimum Supplied ID(In)	0.250
4) Maximum Expanded ID (In)	0.500
5) Nominal Wall Thickness +/- 0.005(In)	0.050
6) Number of Carriers	20
7) Number of Yarns	3
8) Total Number of Monofilaments	60
9) Color(s)	BLACK

### Applicable Specifications

### 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	-45 to 150°C	
2) Tensile Strength	19psi, Min	ASTM D638
3) Specific Gravity	1.14, Max	ASTM D792
Electrical Properties		
Chemical Properties		
1) Water Absorption	2.50%, Max	ASTM D570
2) Corrosion(0°C, 16hrs)	no corrosion	AMS-DTL-23053
3) Fungus Resistance	Pass	AMS-DTL-23053
4) Halogen Free	Yes	
5) Lead Free	Yes	

## Other

Packaging	
250 FT, 50 FT	Notes
1) Recommended cutting method: Hot knife	
2) Monofilament diameter: 0.020"	
3) UV Resistant	

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## EU/China ROHS CERTIFICATE OF COMPLIANCE

To Whom It May Concern:

Alpha Wire Part Number: GRP-160-1/4

GRP-160-1/4 , RoHS-Compliant Commencing With 9/24/2010 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)

The information provided in this document and disclosure is correct to the best of Alpha Wire's knowledge, information and belief at the date of its release. The information provided is designed only as a general guide for the safe handling, storage, and any other operation of the product itself or the one that it will become part of. The intent of this document is not to be considered a warranty or quality specification. Regulatory information is for guidance purposes only. Product users are responsible for determining the applicability of legislation and regulations based on their individual usage of the product.

Authorized Signatory for the Alpha Wire Company:

A handwritten signature in black ink, appearing to read 'Dave Watson', is written over a faint, light-colored rectangular stamp.

Dave Watson, Director of Engineering & QA

5/10/2013