

SUPREMEX™ MATERIAL: EX-B135H

Effective: March 8, 2011

1.SCOPE

- 1.1. This specification defines the requirements for a grade of Boron Carbide particulate reinforced Aluminum entitled “EX-B135H” produced by hot isostatic pressing (HIP). The metal matrix composite contains nominally 35 volume % Boron Carbide balance AA1050 Aluminum and is produced by powder metallurgy processes.

2.VOLUMETRIC CHEMICAL COMPOSITION

- 2.1. The volumetric chemical composition shall conform to the following:

Element	Volume % Maximum	Volume % Minimum
Aluminum	-----Balance-----	
Boron Carbide	35.5	34.5

- 2.2. The volumetric chemical composition of EX-B135H shall be determined through conversion of measured input material weight percentages.

3.DENSITY

- 3.1. The bulk density of the metal matrix composite shall range between two values. The density range for all EX-B135H is listed below:

<u>MATERIAL</u>	Density in lbs/in ³ (g/cm ³)	
	<u>Minimum</u>	<u>Maximum</u>
EX-B135H	0.094 <u>(2.615)</u>	0.096 <u>(2.665)</u>

- 3.2. Density shall be determined using the water displacement method.
- 3.3. The density of a slice machined from the HIP’ed product will be determined using the water displacement method.

4.MECHANICAL PROPERTIES

- 4.1. Tensile properties of EX-B135H, HIP’ed billet at room temperature, as determined in accordance with ASTM E-8, shall be provided for informational purposes.

- 4.2. Mechanical properties shall be determined for each material lot. The material lot is defined as the combination of powder blend and HIP run.
- 4.3. One tensile specimen shall be tested from each lot at any location.
- 4.4. Specification minimums, if required, shall be dictated by the customer's purchase order.

5. TOLERANCES

- 5.1. Materials furnished under this specification shall conform to the dimensions and dimensional tolerances as established by the purchase order and applicable drawings. If tolerances are not specified by purchase order, the following standard tolerances shall apply employing ANSI 14.5M:

<u>Diameter, Width or Thickness</u>	<u>Tolerance</u>
Up to 76.2mm (3"), inclusive	-0, +0.250" (-0, +6.35mm)
Over 76.2mm to 533mm (Over 3" to 21"), inclusive	-0, +0.250" (-0, +6.35mm)

<u>Length</u>	<u>Tolerance</u>
Up to 508mm (20"), inclusive	-0, +0.250" (-0, +6.35mm)
Over 508mm (20")	-0, +0.250" (-0, +6.35mm)

<u>ID</u>	<u>Tolerance</u>
Up to 533mm (Up to 21"), inclusive	+0,-0.250" (+0,-6.35mm)

6. SURFACE FINISH

Materials furnished under this specification shall conform to the surface finish established by the purchase order and applicable drawings. If no surface finish is specified, the material shall be furnished with an as-sawed surface finish or better.

7. REPORTS

7.1. Certification of Compliance with this specification will be furnished for all shipments. Other information can be provided, including actual test results and calculations, when specified in the purchase order. Testing in accordance with individual customer instructions will be performed if mutually acceptable and actual test results will be provided.

8. MARKING

8.1. Unless otherwise specified by the purchase order, each lot of material shipped to the customer will be appropriately identified, tagged, packaged and labeled to include the following:

Materion Brush Inc.

Lot Number (billet number)

Specification Number

Purchase Order Number

Product MSDS and Corresponding Shipping Label

Marking will be performed by Materion Brush Inc. procedures unless otherwise indicated by the purchase order.

9. SAFETY / ENVIRONMENTAL

9.1. Read and follow the guidance in the product specific Material Safety Data Sheet (MSDS) before working with this material. For additional information on safe handling practices or technical data contact your Materion Brush Inc. representative.

10. INFORMATION

10.1 Additional information on the physical, thermal and mechanical properties of this material is available from Materion Brush Inc.

BRUSH BERYLLIUM & COMPOSITES

14710 W Portage River South Rd
Elmore, OH 43416-9502
P: 419.862.4533 or 419.862.4171 Intl: 419.862.4127
e: beryllium@materion.com

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www.materion.com/beryllium

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