

AIBeMet® MATERIAL: AM162H

Effective: August 20, 2018

Rev. B

1. SCOPE

- 1.1. This specification defines the requirements for a grade of Aluminum-Beryllium alloy entitled "AM162H" produced by hot isostatic pressing (HIP). The alloy contains nominally 62 weight % beryllium and is produced by powder metallurgy processes.

2. CHEMICAL COMPOSITION

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

Element	Weight % Maximum	Weight % Minimum
Aluminum	-----Balance-----	
Beryllium	64.0	60.0
Oxygen	1.0	---
Carbon	0.1	---
Other Metallics, each	0.2	---

- 2.2. Beryllium shall be determined by titration, Oxygen by Leco inert gas fusion, Carbon by Leco combustion, other metallic's by spectrochemical methods, and aluminum by difference.
- 2.3. Chemical analysis will be performed on a powder blend basis.

DENSITY

- 3.1. The bulk density of the alloy shall range between two values. The density range for all AM162H is listed below:

MATERIAL	Density in g/cm ³ (lbs/in ³)	
	Minimum	Maximum
AM162	2.071(0.075)	2.122(0.077)

- 3.2. Density shall be determined using the water displacement method.
- 3.3. The density of all HIP'd product will be determined after the billet has been subjected to a heat treatment of 24 hours ± 2 hours at 593°C ± 25°C (1100°F ± 45°F).

4.MECHANICAL PROPERTIES

- 4.1 Minimum tensile properties at room temperature, as determined in accordance with ASTM E-8, shall be:

PRODUCT FORM

PROPERTY

Ultimate Strength	Ksi(MPa)	38(262)
Yield Strength	Ksi(MPa)	28(193)
Elongation	%	2

- 4.2. Mechanical properties shall be determined for each material lot. The material lot is defined as follows:

- Each combination of powder blend, HIP run, and heat treatment

Note: properties may be determined from a sample shape (component), test can, or from material produced as an integral part (prolongation) of a shape (component) from the lot.

- 4.3. All mechanical testing will be done on material subjected to a heat treatment of 24 hours \pm 2 hours at 593°C \pm 25°C (1100°F \pm 45°F).
- 4.4. One or more tensile specimen from each lot at any location.

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:

Diameter, Width, Length, or Thickness

-0,+0.250”(-0,+6.350mm)

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.

MATERION BERYLLIUM & COMPOSITES

14710 W Portage River South Rd
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MATERION INC.

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7.REPORTS

- 7.1. Certification of Compliance with this specification will be furnished on request. 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. Each lot material shipped to the customer will be appropriately identified, tagged, packaged and labeled to include the following:

MBI (company name abbreviation)

Lot Number

Specification Number

Purchase Order Number

Warning Beryllium

Product GHS and Corresponding Shipping Label

An SDS can be provided at customer request.

Additional marking and serialization can be performed at customer request.

9.SAFETY / ENVIRONMENTAL

- 9.1. Handling Beryllium Containing Material in solid form poses no special health risk. Like many industrial materials, beryllium-containing materials may pose a health risk if recommended safe handling practices are not followed. Inhalation of airborne beryllium may cause a serious lung disorder in susceptible individuals. The Occupational Safety and Health Administration (OSHA) has set mandatory limits on occupational respiratory exposures. Read and follow the guidance in the Safety Data Sheet (SDS) before working with this material. For additional information on safe handling practices or technical data on Beryllium Containing Material, contact Materion Inc. EH&S Hotline @ USA: 800-862-4118, International: 216-383-4019.

10.INFORMATION

- 10.1 Additional information on the physical, thermal and mechanical properties are available from Materion Brush Inc.

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