



Designation: B881 – 17

## Standard Terminology Relating to Aluminum- and Magnesium-Alloy Products<sup>1</sup>

This standard is issued under the fixed designation B881; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reappraisal. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

### 1. Scope\*

1.1 This terminology covers the principal terms and definitions relating to aluminum- and magnesium-alloy products. It is published to encourage uniformity of terminology throughout Committee B07 product specifications.

1.2 Certain definitions and definitions of terms specific to a standard will remain in the individual standards and will not be included in this terminology (see 3.4).

1.3 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

### 2. Referenced Documents

#### 2.1 ASTM Standards:<sup>2</sup>

- B26/B26M Specification for Aluminum-Alloy Sand Castings
- B80 Specification for Magnesium-Alloy Sand Castings
- B85 Specification for Aluminum-Alloy Die Castings
- B90/B90M Specification for Magnesium-Alloy Sheet and Plate
- B91 Specification for Magnesium-Alloy Forgings
- B92/B92M Specification for Unalloyed Magnesium Ingot and Stick For Remelting
- B93/B93M Specification for Magnesium Alloys in Ingot Form for Sand Castings, Permanent Mold Castings, and Die Castings
- B94 Specification for Magnesium-Alloy Die Castings
- B107/B107M Specification for Magnesium-Alloy Extruded Bars, Rods, Profiles, Tubes, and Wire

- B108 Specification for Aluminum-Alloy Permanent Mold Castings
- B179 Specification for Aluminum Alloys in Ingot and Molten Forms for Castings from All Casting Processes
- B199 Specification for Magnesium-Alloy Permanent Mold Castings
- B209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate
- B209M Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric)
- B210 Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes
- B211 Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire
- B211M Specification for Aluminum and Aluminum-Alloy Rolled or Cold-Finished Bar, Rod, and Wire (Metric)
- B221 Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
- B234 Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes for Surface Condensers, Evaporators, and Heat Exchangers
- B236 Specification for Aluminum Bars for Electrical Purposes (Bus Bars)
- B236M Specification for Aluminum Bars for Electrical Purposes (Bus Bars) (Metric)
- B241/B241M Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube
- B247 Specification for Aluminum and Aluminum-Alloy Die Forgings, Hand Forgings, and Rolled Ring Forgings
- B247M Specification for Aluminum and Aluminum-Alloy Die Forgings, Hand Forgings, and Rolled Ring Forgings (Metric)
- B308/B308M Specification for Aluminum-Alloy 6061-T6 Standard Structural Profiles
- B313/B313M Specification for Aluminum and Aluminum-Alloy Round Welded Tubes
- B316/B316M Specification for Aluminum and Aluminum-Alloy Rivet and Cold-Heading Wire and Rods
- B317/B317M Specification for Aluminum-Alloy Extruded Bar, Rod, Tube, Pipe, Structural Profiles, and Profiles for Electrical Purposes (Bus Conductor)
- B361 Specification for Factory-Made Wrought Aluminum and Aluminum-Alloy Welding Fittings

<sup>1</sup> This terminology is under the jurisdiction of ASTM Committee B07 on Light Metals and Alloys and is the direct responsibility of Subcommittee B07.03 on Aluminum Alloy Wrought Products.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

\*A Summary of Changes section appears at the end of this standard

- [B373 Specification for Aluminum Foil for Capacitors \(Withdrawn 2015\)<sup>3</sup>](#)
- [B403 Specification for Magnesium-Alloy Investment Castings](#)
- [B429/B429M Specification for Aluminum-Alloy Extruded Structural Pipe and Tube](#)
- [B483/B483M Specification for Aluminum and Aluminum-Alloy Drawn Tube and Drawn Pipe for General Purpose Applications](#)
- [B491/B491M Specification for Aluminum and Aluminum-Alloy Extruded Round Tubes for General-Purpose Applications](#)
- [B547/B547M Specification for Aluminum and Aluminum-Alloy Formed and Arc-Welded Round Tube](#)
- [B594 Practice for Ultrasonic Inspection of Aluminum-Alloy Wrought Products](#)
- [B618 Specification for Aluminum-Alloy Investment Castings](#)
- [B632/B632M Specification for Aluminum-Alloy Rolled Tread Plate](#)
- [B646 Practice for Fracture Toughness Testing of Aluminum Alloys](#)
- [B660 Practices for Packaging/Packing of Aluminum and Magnesium Products](#)
- [B666/B666M Practice for Identification Marking of Aluminum and Magnesium Products](#)
- [B686 Specification for Aluminum Alloy Castings, High-Strength](#)
- [B744/B744M Specification for Aluminum Alloy Sheet for Corrugated Aluminum Pipe](#)
- [B745/B745M Specification for Corrugated Aluminum Pipe for Sewers and Drains](#)
- [B746/B746M Specification for Corrugated Aluminum Alloy Structural Plate for Field-Bolted Pipe, Pipe-Arches, and Arches](#)
- [B807/B807M Practice for Extrusion Press Solution Heat Treatment for Aluminum Alloys](#)
- [B917/B917M Practice for Heat Treatment of Aluminum-Alloy Castings from All Processes](#)
- [B918 Practice for Heat Treatment of Wrought Aluminum Alloys](#)
- [B928/B928M Specification for High Magnesium Aluminum-Alloy Products for Marine Service and Similar Environments](#)
- [B945 Practice for Aluminum Alloy Extrusions Press Cooled from an Elevated Temperature Shaping Process for Production of T1, T2, T5 and T10-Type Tempers](#)
- [B947 Practice for Hot Rolling Mill Solution Heat Treatment for Aluminum Alloy Plate](#)
- [B955/B955M Specification for Aluminum-Alloy Centrifugal Castings](#)

**aluminum clad product**, *n*—a composite aluminum product having an aluminum core and one or more metallurgically bonded aluminum or other metal layers, on one or both sides, that are generally thinner than the core. Clad layers may be applied for a variety of purposes including but not limited to brazing, corrosion protection, enhanced finishing response, and improved formability. Typical clad products are *plate*, *rod*, *sheet*, *tube*, and *wire*.

*Alclad product*, *n*—an aluminum clad product having bonded aluminum layer or layers anodic to the core, thus electrolytically protecting the core against corrosion. If only one side is clad, the product is often named “Alclad One Side”.

**B209, B209M, B210, B211, B211M, B221, B234, B241/B241M, B313/B313M, B547/B547M**

**bar**, *n*—solid wrought product that is long in relation to its cross section which is square or rectangular (excluding plate and flattened wire) with sharp or rounded corners or edges, or is a regular hexagon or octagon, typically supplied in straight lengths.

NOTE 1: In North America, the minimum perpendicular distance between at least one set of parallel faces of a bar is 0.375 in. or >10 mm; below this limit the product is called “wire”.

NOTE 2: In Europe, bar is supplied in straight length; if supplied in coiled form, the product is called “wire”.

**B107/B107M, B211, B211M, B221, B236, B236M, B317/B317M, B594, B666/B666M**

*bus bar*, *n*—rigid electric conductor in the form of a bar.  
**B236, B236M, B317/B317M, B666/B666M**

*extruded bar*, *n*—bar brought to final dimensions by hot extruding. **B107/B107M, B221, B236, B236M, B317/B317M**

*rolled bar*, *n*—bar brought to final dimensions by hot rolling.  
**B211, B211M, B236, B236M**

*saw-plate bar*, *n*—bar brought to final thickness by hot or cold rolling and to final width by sawing. **B236, B236M**

**bus conductor**, *n*—rigid electric conductor of any cross section.  
**B236, B236M, B317/B317M**

**casting**, *n*—product at or near finished shape, formed by solidification of the metal in a mold or a die.

**B666/B666M, B686**

*centrifugal casting*, *n*—casting produced by introducing molten metal into a rotating mold and allowing it to solidify as the mold is spun about a horizontal, inclined or vertical axis.

**B955/B955M**

*centrifuged casting*, *n*—a casting produced in a mold, a number of which may be mounted around a central sprue. The molds are rotated, in a vertical position, about a central axis concentric with the central sprue,

**B955/B955M**

*die casting*, *n*—casting produced by introducing molten metal under substantial pressure, typically above 100 bars, into a metal die and characterized by a high degree of fidelity to the die cavity. The term “pressure die casting” or “high pressure die casting” is often used for this concept.

**B85, B94**

*investment casting*, *n*—precision casting formed by a three step process comprising:

### 3. Terminology

3.1 *Definitions*—The definitions are grouped by subject and listed in alphabetical order.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

a) fabrication of a ceramic mold around a wax or thermoplastic pattern with a refractory slurry that sets at room temperature;

- b) removal of the pattern through the use of heat;  
c) pouring metal into this mold and allowing it to solidify.

**B403, B618**

*permanent mold casting, n*—casting produced by introducing molten metal by gravity or low pressure into a mold constructed of durable material, usually iron or steel, and allowing it to solidify.

NOTE: Permanent mold casting where the metal solidifies in a metal mold under low pressure (typically less than 1 bar above atmospheric pressure) is also referred to as “low pressure die casting”.

**B108, B199**

*precision casting, n*—casting which fulfils special requirements concerning tolerances on form and dimensions.

Precision castings can be produced by different casting processes.

*sand casting, n*—casting produced by pouring molten metal into a sand mold and allowing it to solidify. **B26/B26M, B80**

*semi-permanent mold casting, n*—permanent mold casting which is made using an expendable core such as sand.

**B108, B199**

**circle, n**—circular blank fabricated from plate, sheet, or foil. **B666/B666M**

**extrudate, n**—material exiting an extrusion die subject to further processing (quenching, stretching, cutting), to become an extruded profile. **B807/B807M**

**extrusion billet, n**—final length of material charged into the extrusion press. It is usually cut to length from extrusion log but may be a wrought product or sintered from powder compact. **B807/B807M**

**extrusion ingot, n**—ingot, intended and suitable for extruding, typically of solid circular cross-section, sometimes with a central hollow or a flattened cross-section. **B807/B807M**

**extrusion log, n**—extrusion ingot not cut to length. **B807/B807M**

**foil, n**—generally, a rolled product of rectangular in cross-section of thickness equal to or less than 0.0079 in. (0.20 mm [200 microns]). (Formerly 0.006 inch (0.15 mm), changed to 0.079 inch (0.20 mm) for international harmonization. There is an overlap in the thickness range 0.006-0.0079 in. (0.15-0.20 mm) defined for foil and sheet. Foil products in this thickness range are supplied to foil product specifications. **B373, B666/B666M**

*bright two-side foil, n*—foil having a uniform bright specular finish on both sides. **B373**

*matte one-side foil, n*—foil having a diffuse reflecting finish on one side and a bright specular finish on the other. (Also called pack rolled foil.) **B373**

**forging, n**—wrought product formed by hammering or pressing, typically when hot, between open dies (hand

forging) or closed dies (drop or die forging).

**B91, B247, B247M, B666/B666M**

*blocker-type forging, n*—forging made in a single set of impressions to the general contour of a finished part.

**B247, B247M**

*die forging, n*—forging shaped by working in closed dies.

**B91, B247, B247M, B594, B666/B666M**

*hammer forging, n*—forging produced by repeated blows of a forging hammer. **B91**

*hand forging, n*—forging worked between flat or simply shaped dies by repeated strokes or blows and manipulation of the piece, intending to convert the metallurgical structure from cast to wrought prior to machining into a final part.

**B247, B247M, B594, B666/B666M**

*rolled ring forging, n*—cylindrical product of relatively short height, circumferentially rolled from a hollow section.

**B247, B247M, B594**

**forging stock, n**—solid product, typically ingot, rod, bar or profile, intended and suitable for forging. Forging stock is typically a cast product or an extruded product.

**B247, B247M**

**ingot, n**—cast product intended and suitable for remelting or forming by hot or cold working.

**B92/B92M, B93/B93M, B179, B666/B666M**

**mill finish, adj**—having a naturally occurring finish after rolling which may vary from piece to piece and within a piece, and which may not be entirely free of stains or oil. See also *mill finish sheet & mill finish plate*.

**B209, B209M, B632/B632M**

**parent coil, n**—coil processed to final temper as a single unit, intended to be slit and/or cut into smaller coils or into individual sheets or plates. (Also known as master coil, the preferred term outside of North America.) **B209, B209M**

**parent plate, n**—plate processed to final temper as a single unit, intended to be cut into smaller plates. **B209, B209M**

**pipe, n**—tube in standardized combination of outside diameter and wall thickness, commonly designated by “Nominal Pipe Sizes” and “ANSI Schedule Numbers.”

**B241/B241M, B317/B317M, B429/B429M, B666/B666M**

*drawn pipe, n*—pipe brought to final dimensions by drawing through a die. **B241/B241M**

*extruded pipe, n*—pipe formed by hot extruding.

**B241/B241M, B317/B317M, B429/B429M**

*seamless pipe, n*—pipe which does not contain any junction lines or welds of any type resulting from the method of manufacture.

NOTE: This product may be produced by extruding or by drawing using either die and mandrel or hot piercer processes.

**B241/B241M**

*structural pipe, n*—pipe commonly used for structural applications which may contain junction lines resulting from the method of manufacture using porthole type extrusion dies. This