



Designation: B 881 – 05

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

This standard is issued under the fixed designation B 881; 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 reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 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).

### 2. Referenced Documents

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

**B 26/B 26M** Specification for Aluminum-Alloy Sand Castings

**B 80** Specification for Magnesium-Alloy Sand Castings

**B 85** Specification for Aluminum-Alloy Die Castings

**B 90/B 90M** Specification for Magnesium-Alloy Sheet and Plate

**B 91** Specification for Magnesium-Alloy Forgings

**B 92/B 92M** Specification for Magnesium Ingot and Stick for Remelting

**B 93/B 93M** Specification for Magnesium Alloys in Ingot Form for Sand Castings, Permanent Mold Castings, and Die Castings

**B 94** Specification for Magnesium-Alloy Die Castings

**B 107/B 107M** Specification for Magnesium-Alloy Extruded Bars, Rods, Shapes, Tubes, and Wire

**B 108** Specification for Aluminum-Alloy Permanent Mold Castings

**B 179** Specification for Aluminum Alloys in Ingot and Molten Forms for Castings from all Casting Processes

**B 199** Specification for Magnesium-Alloy Permanent Mold Castings

**B 209** Specification for Aluminum and Aluminum-Alloy Sheet and Plate

**B 210** Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes

**B 211** Specification for Aluminum and Aluminum-Alloy Bar, Rod, and Wire

**B 221** Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes

**B 234** Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes for Condensers and Heat Exchangers

**B 236** Specification for Aluminum Bars for Electrical Purposes (Bus Bars)

**B 241/B 241M** Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube

**B 247** Specification for Aluminum and Aluminum-Alloy Die Forgings, Hand Forgings, and Rolled Ring Forgings

**B 308/B 308M** Specification for Aluminum Alloy 6061-T6 Standard Structural Profiles

**B 313/B 313M** Specification for Aluminum and Aluminum-Alloy Round Welded Tubes

**B 316/B 316M** Specification for Aluminum and Aluminum-Alloy Rivet and Cold Heading-Wire and Rods

**B 317** Specification for Aluminum Alloy Extruded Bar, Rod, Tube, Pipe, and Structural Profiles for Electrical Purposes (Bus Conductor)

**B 345/B 345M** Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube for Gas and Oil Transmission and Distribution Piping Systems

**B 361** Specification for Factory-Made Wrought Aluminum and Aluminum-Alloy Welding Fittings

**B 373** Specification for Aluminum Foil for Capacitors

**B 403** Specification for Magnesium-Alloy Investment Castings

**B 404/B 404M** Specification for Aluminum and Aluminum-Alloy Seamless Condenser and Heat-Exchanger Tubes with Integral Fins

**B 429** Specification for Aluminum-Alloy Extruded Structural Pipe and Tube

**B 479** Specification for Annealed Aluminum and Aluminum-Alloy Foil for Flexible Barrier, Food Contact, and Other Applications

**B 483/B 483M** Specification for Aluminum and

<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.

Aluminum-Alloy Drawn Tubes for General Purpose Applications

**B 491/B 491M** Specification for Aluminum and Aluminum-Alloy Extruded Round Tubes for General-Purpose Applications

**B 547/B 547M** Specification for Aluminum and Aluminum-Alloy Formed and Arc-Welded Round Tube

**B 594** Practice for Ultrasonic Inspection of Aluminum-Alloy Wrought Products for Aerospace Applications

**B 618** Specification for Aluminum-Alloy Investment Castings

**B 632/B 632M** Specification for Aluminum-Alloy Rolled Thread Plate

**B 666/B 666M** Practice for Identification Marking of Aluminum and Magnesium Products

**B 686** Specification for Aluminum Alloy Castings, High Strength

**B 736** Specification for Aluminum, Aluminum Alloy, and Aluminum-Clad Steel Cable Shielding Stock

**B 807** Practice for Extrusion Press Solution Heat Treatment of Aluminum Alloys

**B 917/B 917M** Practice for Heat Treatment of Aluminum-Alloy Castings from All Processes

**B 918** Practice for Heat Treatment of Wrought Aluminum Alloys

**B 928/B 928** Specification for High Magnesium Aluminum-Alloy Sheet and Plate for Marine Service

### 3. Terminology

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

**Alclad**, *adj*—having an aluminum or aluminum-alloy coating that is metallurgically bonded to either one side or both surfaces of an aluminum alloy product, and that is anodic to the alloy to which it is bonded, thus electrolytically protecting the core alloy against corrosion. (See also individual product type such as *Alclad plate*, *Alclad sheet*, and so forth). **B 209, B 210, B 211, B 221, B 234, B 241/B 241M, B 313/B 313M, B 345/B 345M, B 404/B 404M, B 547/B 547M**

**bar**, *n*—solid wrought product that is long in relation to its cross section, is square or rectangular with sharp or rounded corners/edges (excluding plate and flattened wire), or is a regular hexagon or octagon, and in which at least one perpendicular distance between parallel faces is 0.375 in. or greater [over 10.00 mm]. **B 107/B 107M, B 211, B 221, B 236, B 317, B 594, B 666/B 666M**

*bus bar*, *n*—rigid electric conductor in the form of a bar. **B 236, B 317, B 666/B 666M**

*extruded bar*, *n*—bar brought to final dimensions by hot extruding. **B 107/B 107M, B 221, B 236, B 317**

*rolled bar*, *n*—bar brought to final dimensions by hot rolling. **B 211, B 236**

*saw-plate bar*, *n*—bar brought to final thickness by hot or cold rolling and to final width by sawing. **B 236**

**bus conductor**, *n*—rigid electric conductor of any cross section. **B 236, B 317**

**casting**, *n*—metal object, at or near dimensions shape, produced by introducing molten metal into a mold or a die and allowing it to solidify. **B 666/B 666M, B 686**

*die casting*, *n*—casting produced by introducing molten metal under substantial pressure into a metal die and characterized by a high degree of fidelity to the die cavity. **B 85, B 94**

*investment casting*, *n*—casting produced by surrounding (investing) an expendable pattern (usually wax or plastic) with a refractory slurry that sets at room temperature, after which the pattern is removed through the use of heat, and the resultant cavity is filled with molten metal and allowed to solidify. **B 403, B 618**

*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. **B 108, B 199**

*sand casting*, *n*—casting produced by pouring molten metal into a sand mold and allowing it to solidify. **B 26/B 26M, B 80**

*semi-permanent mold casting*, *n*—permanent mold casting which is made using an expendable core such as sand. **B 108, B 199**

**circle**, *n*—circular blank fabricated from plate, sheet, or foil. **B 666/B 666M**

**extrudate**, *n*—material exiting an extrusion die subject to further processing (quenching, stretching, cutting), to become an extruded profile. **B 807**

**extrusion billet**, *n*—solid or hollow form, commonly cylindrical, used as the final length of material charged into the extrusion press cylinder, and is usually a cast product, but may be a wrought product or sintered from powder compact. **B 807**

**extrusion ingot**, *n*—solid or hollow cast form, usually cylindrical, suitable for extruding. **B 807**

**extrusion log**, *n*—starting stock for extrusion billet. Extrusion log is usually produced in lengths from which shorter extrusion billets are cut. **B 807**

**foil**, *n*—rolled wrought product, rectangular in cross section, and of thickness less than 0.006 in. [up through 0.15 mm]. **B 373, B 479, B 666/B 666M**

*bright two-side foil*, *n*—foil having a uniform bright specular finish on both sides. **B 373, B 479**

*matte one-side foil*, *n*—foil having a diffuse reflecting finish on one side and a bright specular finish on the other. **B 373, B 479**

**forging**, *n*—metal part worked to a predetermined shape by one or more processes such as hammering, upsetting, pressing, rolling, and so forth. **B 91, B 247, B 666/B 666M**

*blocker-type forging*, *n*—forging made in a single set of impressions to the general contour of a finished part. **B 247**

*die forging*, *n*—forging formed to the required shape and size by working in impression dies. **B 91, B 247, B 594, B 666/B 666M**

*hammer forging*, *n*—forging produced by repeated blows of a forging hammer. **B 91**

- hand forging*, *n*—forging, manually-manipulated, which is worked, through repeated strokes or blows, between flat or simply shaped dies. **B 247, B 594, B 666/B 666M**
- rolled ring forging*, *n*—cylindrical product of relatively short height, circumferentially rolled from a hollow section. **B 247, B 594**
- forging stock**, *n*—wrought or cast rod, bar, or other section suitable for forging. **B 247**
- ingot**, *n*—cast form suitable for fabricating (rolling, forging, extruding, and so forth) or remelting. **B 92/B 92M, B 93/B 93M, B 179, B 666/B 666M**
- mill finish**, *adj*—having a nonuniform finish 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*. **B 209, B 632/B 632M**
- parent coil or plate**, *n*—coil of sheet or a plate that has been processed to final temper as a single unit and may subsequently be cut into two or more smaller coils or into individual sheets or smaller plates to provide the required width and length. **B 209**
- pipe**, *n*—tube in standardized combination of outside diameter and wall thickness, commonly designated by “Nominal Pipe Sizes” and “ANSI Schedule Numbers.” **B 241/B 241M, B 317, B 345/B 345M, B 429, B 666/B 666M**
- drawn pipe*, *n*—pipe brought to final dimensions by drawing through a die. **B 241/B 241M, B 345/B 345M**
- extruded pipe*, *n*—pipe formed by hot extruding. **B 241/B 241M, B 317, B 345/B 345M, B 429**
- seamless pipe*, *n*—extruded or drawn pipe which does not contain any line junctures resulting from the method of manufacture. **B 241/B 241M, B 345/B 345M**
- structural pipe*, *n*—pipe commonly used for structural purposes. **B 429**
- plate**, *n*—rolled product that is rectangular in cross section, with thickness not less than 0.250 in. (6.30 mm) and sheared or sawed edges. **B 90/B 90M, B 209, B 632/B 632M, B 660, B 666/B 666M, B 928/B 928M**
- Alclad plate*, *n*—composite plate product comprised of an aluminum-alloy core having on both surfaces a metallurgically bonded aluminum or aluminum-alloy cladding that is anodic to the core, thus electrolytically protecting the core against corrosion. **B 209, B 547/B 547M**
- mill finish plate*, *n*—plate having a non-uniform finish which may vary from piece to piece and within a piece, and which may not be entirely free of stains or oil. **B 209, B 632/B 632M, B 928/B 928M**
- tread plate*, *n*—plate or sheet having a raised, figured pattern on one surface to provide improved traction. **B 632/B 632M, B 666/B 666M**
- producer**, *n*—primary manufacturer of the material. **B 107/B 107M, B 209, B 210, B 211, B 221, B 234, B 241/B 241M, B 308/B 308M, B 313/B 313M, B 316/B 316M, B 317, B 345/B 345M, B 361, B 373, B 404/B 404M, B 483/B 483M, B 491/B 491M, B 632/B 632M, B 736**
- profile**, *n*—wrought product that is long in relation to its cross sectional dimensions which is of a form other than that of sheet, plate, foil, rod, bar, tube, or wire. **B 107/B 107M, B 221, B 308/B 308M, B 317, B 594, B 666/B 666M**
- extruded profile*, *n*—profile produced by hot extruding. **B 107/B 107M, B 221**
- structural profile*, *n*—profile, rolled or extruded, commonly used for structural purposes such as angles, channels, H-beams, I-beams, tees, and zees. **B 308/B 308M, B 317**
- rod**, *n*—solid wrought product that is long in relation to its circular cross section, which is 0.375 in. or greater [over 10.00 mm] in diameter. **B 107/B 107M, B 211, B 316/B 316M, B 666/B 666M**
- cold-finished rod*, *n*—rod brought to final dimensions by cold working to obtain improved surface finish and dimensional tolerances. **B 211**
- cold-heading rod*, *n*—rod of a quality suitable for use in the manufacture of cold-headed products such as bolts and rivets. **B 316/B 316M**
- extruded rod*, *n*—rod produced by hot extruding. **B 107/B 107M, B 221, B 317**
- rivet rod*, *n*—See *cold-heading rod*. **B 316/B 316M**
- shape**, *n*—this term is no longer recommended; the term **profile** is preferred.
- sheet**, *n*—rolled wrought product that is rectangular in cross section, with thickness 0.006 in. and greater [over 0.15 mm] but less than 0.250 in. [up through 6.30 mm], and with sheared, slit, or sawed edges. **B 90/B 90M, B 209, B 313/B 313M, B 547/B 547M, B 666/B 666M, B 928/B 928M**
- Alclad sheet*, *n*—composite sheet product comprised of an aluminum-alloy core having on both surfaces (if on one side only, it is *Alclad one-side sheet*) a metallurgically bonded aluminum or aluminum-alloy coating that is anodic to the core, thus electrolytically protecting the core alloy against corrosion. **B 209, B 313/B 313M, B 547/B 547M**
- Alclad one-side sheet*, *n*—alclad sheet with only one side coated. **B 209, B 547/B 547M**
- coiled sheet*, *n*—sheet in coils with slit edges. **B 209, B 313/B 313M, B 547/B 547M, B 666/B 666M, B 928/B 928M**
- flat sheet*, *n*—sheet with sheared, slit, or sawed edges, which has been flattened or leveled. **B 209, B 313/B 313M, B 547/B 547M, B 666/B 666M**
- mill finish sheet*, *n*—sheet having a nonuniform finish which may vary from sheet to sheet and within a piece, and which may not be entirely free of stains or oil. **B 209, B 632/B 632M, B 928/B 928M**
- one-side bright mill finish sheet*, *n*—sheet having a moderate degree of brightness on one side, and a mill finish on the other. **B 209**
- standard one-side bright finish sheet*, *n*—sheet having a uniform bright finish on one side, and a mill finish on the other. **B 209**
- standard two-side bright finish sheet*, *n*—sheet having a uniform bright finish on both sides. **B 209**
- Solution Heat Treatment**—heating an alloy to a suitable temperature for sufficient time to allow one or more soluble constituents to enter into solid solution, where they are retained in a supersaturated state after quenching. **B 917/B 917M, B 918**
- Extrusion Press Solution Heat Treatment*—heating an alloy to a suitable temperature then extruding, while holding for