



Designation: B 881 – 98a

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

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### 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 B-7 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:

B 26/B 26M Specification for Aluminum-Alloy Sand Castings<sup>2</sup>

B 80 Specification for Magnesium-Alloy Sand Castings<sup>2</sup>

B 85 Specification for Aluminum-Alloy Die Castings<sup>2</sup>

B 90/B 90M Specification for Magnesium-Alloy Sheet and Plate<sup>2</sup>

B 91 Specification for Magnesium-Alloy Forgings<sup>2</sup>

B 92/B 92M Specification for Magnesium Ingot and Stick for Remelting<sup>2</sup>

B 93/B 93M Specification for Magnesium Alloys in Ingot Form for Sand Castings, Permanent Mold Castings, and Die Castings<sup>2</sup>

B 94 Specification for Magnesium-Alloy Die Castings<sup>2</sup>

B 107/B 107M Specification for Magnesium-Alloy Extruded Bars, Rods, Shapes, Tubes, and Wire<sup>2</sup>

B 108 Specification for Aluminum-Alloy Permanent Mold Castings<sup>2</sup>

B 179 Specification for Aluminum Alloys in Ingot and Molten Forms for Castings from all Casting Processes<sup>2</sup>

B 199 Specification for Magnesium-Alloy Permanent Mold Castings<sup>2</sup>

B 209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate<sup>2</sup>

B 210 Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes<sup>2</sup>

B 211 Specification for Aluminum and Aluminum-Alloy

Bar, Rod, and Wire<sup>2</sup>

B 221 Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes<sup>2</sup>

B 234 Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes for Condensers and Heat Exchangers<sup>2</sup>

B 236 Specification for Aluminum Bars for Electrical Purposes (Bus Bars)<sup>2</sup>

B 241/B 241M Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube<sup>2</sup>

B 247 Specification for Aluminum and Aluminum-Alloy Die Forgings, Hand Forgings, and Rolled Ring Forgings<sup>2</sup>

B 308/B 308M Specification for Aluminum Alloy 6061-T6 Standard Structural Profiles<sup>2</sup>

B 313/B 313M Specification for Aluminum and Aluminum-Alloy Round Welded Tubes<sup>2</sup>

B 316/B 316M Specification for Aluminum and Aluminum-Alloy Rivet and Cold Heading-Wire and Rods<sup>2</sup>

B 317 Specification for Aluminum Alloy Extruded Bar, Rod, Tube, Pipe, and Structural Profiles for Electrical Purposes (Bus Conductor)<sup>2</sup>

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<sup>2</sup>

B 361 Specification for Factory-Made Wrought Aluminum and Aluminum-Alloy Welding Fittings<sup>2</sup>

B 373 Specification for Aluminum Foil for Capacitors<sup>2</sup>

B 403 Specification for Magnesium-Alloy Investment Castings<sup>2</sup>

B 404/B 404M Specification for Aluminum and Aluminum-Alloy Seamless Condenser and Heat-Exchanger Tubes with Integral Fins<sup>2</sup>

B 429 Specification for Aluminum-Alloy Extruded Structural Pipe and Tube<sup>2</sup>

B 479 Specification for Annealed Aluminum and Aluminum-Alloy Foil for Flexible Barrier, Food Contact, and Other Applications<sup>2</sup>

B 483/B 483M Specification for Aluminum and Aluminum-Alloy Drawn Tubes for General Purpose Applications<sup>2</sup>

<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> *Annual Book of ASTM Standards*, Vol 02.02.

- B 491/B 491M Specification for Aluminum and Aluminum-Alloy Extruded Round Tubes for General-Purpose Applications<sup>2</sup>
- B 547/B 547M Specification for Aluminum and Aluminum-Alloy Formed and Arc-Welded Round Tube<sup>2</sup>
- B 594 Practice for Ultrasonic Inspection of Aluminum-Alloy Wrought Products for Aerospace Applications<sup>2</sup>
- B 618 Specification for Aluminum-Alloy Investment Castings<sup>2</sup>
- B 632/B 632M Specification for Aluminum-Alloy Rolled Thread Plate<sup>2</sup>
- B 666/B 666M Practice for Identification Marking of Aluminum and Magnesium Products<sup>2</sup>
- B 736 Specification for Aluminum, Aluminum Alloy, and Aluminum-Clad Steel Cable Shielding Stock<sup>2</sup>
- B 807 Practice for Extrusion Press Solution Heat Treatment of Aluminum Alloys<sup>2</sup>

### 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*, etc.). **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 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**
- 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 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**
- 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, etc. **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, etc.) 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**

**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 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:**

*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**

*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**

*tread plate*, *n*—plate or sheet having a raised, figured pattern on one surface to provide improved traction. **B 632, B 666/B 666M**

**producer**, *n*—primary manufacturer of the material. **B 107, B 209, B 210, B 211, B 221, B 234, B 241/B 241M, B 308/B 308M, B 313, 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 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 221, B 308, B 317, B 594, B 666/B 666M**

*extruded profile*, *n*—profile produced by hot extruding. **B 107, 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 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 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**

*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 547/B 547M, B 666/B 666M**

*flat sheet*, *n*—sheet with sheared, slit, or sawed edges, which has been flattened or leveled. **B 209, B 313, 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**

*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**

**stick**, *n*—extruded form substantially uniform in cross section cut to desired length or weight. **B 92**

**supplier**, *n*—person, company, or organization that furnishes products as a jobber or distributor, as distinct from a producer. **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**

**tube**, *n*—hollow wrought product that is long in relation to its cross section, which is symmetrical and is round, elliptical, a regular hexagon or octagon, or square or rectangular with sharp or rounded corners, and has uniform wall thickness except as affected by corner radii. **B 107, B 210, B 221, B 234, B 241/B 241M, B 313/B 313M, B 317, B 345/B 345M, B 404/B 404M, B 429, B 483/B 483M, B 491, B 547/B 547M, B 666/B 666M**

*Alclad tube*, *n*—a composite tube product comprised of an aluminum-alloy core having on either the inside surface (only) or outside surface (only) a metallurgically bonded aluminum or aluminum-alloy coating that is anodic to the core, thus electrolytically protecting the core against corrosion. **B 210, B 221, B 234, B 241/B 241M, B 345/B 345M, B 404/B 404M**

*arc-welded tube*, *n*—tube made from sheet or plate formed by positioning two opposite edges of the metal together and

butt welded by either the gas-tungsten or gas-metal arc-welding method, with or without the use of filler metal; individually fabricated tube may be welded together to produce the ordered length. **B 547/B 547M**

*drawn tube, n*—tube brought to final dimensions by drawing through a die. **B 210, B 234, B 404/B 404M, B 483/B 483M**

*extruded tube, n*—tube formed by hot extruding. **B 107, B 221, B 241/B 241M, B 317, B 345/B 345M, B 429, B 491/B 491M**

*finned tube, n*—tube which has integral fins or projections protruding from its outside surface. **B 404/B 404M**

*heat exchanger tube, n*—tube used in apparatus in which fluid inside the tube will be heated or cooled by fluid outside the tube, but the term is usually not applied to coiled tube or to tube for use in refrigerators or radiators. **B 234, B 404/B 404M**

*seamless tube, n*—a tube that does not contain any junctures (metallurgical welds) resulting from the method of manufacture and may be produced by die and manrel, or by hot piercer processes. **B 210, B 234, B 241, B 345, B 404**

*sized tube, n*—tube that, after extrusion, has been cold drawn a slight amount to minimize ovality. **B 491**

*structural tube, n*—tube commonly used for structural purposes. **B 429**

*welded tube, n*—tube produced by forming and seam-welding sheet longitudinally. **B 313/B 313M**

**wire, n**—solid wrought product that is long in relation to its cross section, which is square or rectangular with sharp or rounded corners or edges, or is round, hexagonal, or octagonal, and whose diameter or greatest perpendicular distance between parallel faces is less than 0.375 in. [up through 10.00 mm]. **B 107, B 211, B 221, B 316/B 316M, B 666/B 666M**

*Alclad wire, n*—composite wire product comprised of an aluminum-alloy wire having on its surface a metallurgically bonded aluminum or aluminum-alloy coating that is anodic to the alloy to which it is bonded, thus electrolytically protecting the core against corrosion. **B 211**

*cold-heading wire, n*—wire of a quality suitable for use in the manufacture of cold-headed products such as bolts and rivets. **B 316/B 316M**

*drawn wire, n*—wire brought to final dimension by drawing through a die. **B 211**

*extruded wire, n*—wire produced by hot extruding. **B 107, B 221**

*flattened wire, n*—wire having two parallel flat surfaces and rounded edges produced by roll-flattening round wire. **B 211**

*rivet wire, n*— See *cold-heading wire*. **B 316/B 316M**

**3.2 Index of Terminology**—The following is an alphabetical listing by defined term:

Alclad  
Alclad one-side sheet  
Alclad plate  
Alclad sheet  
arc-welded tube  
bright two-side foil  
bus bar  
bus conductor

casting  
circle  
coiled sheet  
cold-finished rod  
die casting  
drawn pipe  
drawn tube  
drawn wire  
extruded bar  
extruded pipe  
extruded profile  
extruded tube  
extruded wire  
extrusion billet  
extrusion ingot  
extrusion log  
finned tube  
flat sheet  
flattened wire  
forging stock  
heat exchanger tube  
hammer forging  
hand forging  
ingot  
investment casting  
matte one-side foil  
mill finish  
mill finish plate  
mill finish sheet  
one-side bright mill finish sheet  
permanent mold casting  
pipe  
producer  
profile  
rivet rod  
rivet wire  
rolled bar  
rolled ring forging  
sand casting  
saw-plate bar  
seamless pipe  
semi-permanent mold casting  
sized tube  
standard one-side bright finish sheet  
standard two-side bright finish sheet  
stick  
structural pipe  
structural tube  
supplier  
tread plate  
tube  
welded tube

**3.3 Definition of Term**—The descriptive phrase “capable of” is used in Committee B-7 specifications to mean that the test need not be performed by the producer of the material, however, if testing by the purchaser establishes that the material does not meet the requirements, the material shall be subject to rejection.

**3.4 Index of Definitions of Terms Specific to a Standard**—The following definitions of terms specific to a standard are arranged numerically by standard and then alphabetically under those standards. These definitions have been found to be either too narrow for use in any other standards or in conflict with those shown in 3.2, and therefore they will remain in their specific standards.

casting lot	<b>B 80</b>
heat treat lot	<b>B 80</b>
dry annealed, A	<b>B 373, B479</b>
dry annealed, B	<b>B 373, B479</b>
dry annealed, C	<b>B 373, B479</b>
slick annealed	<b>B 373, B479</b>
$K_{IVM}$	<b>B 646</b>

$K_{R25}$	<b>B 646</b>	manufacturer	<b>B 744/B 744M, B745/B 745M</b>
$K_{Rmax}$	<b>B 646</b>	purchaser	<b>B 744/B 744M, B745/B 745M</b>
$P_{max}$	<b>B 646</b>	arch	<b>B 746/B 746M</b>
corner protector	<b>B 660</b>	box culvert	<b>B 746/B 746M</b>
deckboard	<b>B 660</b>	fabricator	<b>B 746/B 746M</b>
filler	<b>B 660</b>	flat plate	<b>B 746/B 746M</b>
framing member	<b>B 660</b>	manufacturer	<b>B 746/B 746M</b>
gross weight	<b>B 660</b>	pipe	<b>B 746/B 746M</b>
header	<b>B 660</b>	pipe-arch	<b>B 746/B 746M</b>
interleaving	<b>B 660</b>	pipe, horizontal ellipse	<b>B 746/B 746M</b>
net weight	<b>B 660</b>	pipe, vertical elongated	<b>B 746/B 746M</b>
nominal	<b>B 660</b>	purchaser	<b>B 746/B 746M</b>
splice	<b>B 660</b>	special shape	<b>B 746/B 746M</b>
tension tied	<b>B 660</b>	structural plate	<b>B 746/B 746M</b>
continuous marking	<b>B 666/B 666M</b>	vehicular underpass	<b>B 746/B 746M</b>
perimeter marking	<b>B 666/B 666M</b>	potentiometer measuring system	<b>B 807</b>
spot marking	<b>B 666/B 666M</b>	remote temperature sensing system	<b>B 807</b>
tagging	<b>B 666/B 666M</b>	solution heat treatment	<b>B 807</b>
cladding ratio	<b>B 736</b>	statistical significance of material property	<b>B 807</b>
cable shielding stock	<b>B 736</b>	data	
fabricator	<b>B 744/B 744M, B745/B 745M</b>		

*This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.*

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