



Standard Terminology Relating to Aluminum- and Magnesium-Alloy Products¹

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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 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:²

- 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

¹ 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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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at 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.



- 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 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 zeeks. **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 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 807**

Forging Press Solution Heat Treatment—heating an alloy to a suitable temperature and then forging, while holding 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.

Furnace Solution Heat Treatment—heating an alloy to a suitable temperature in a furnace and holding for a sufficient time to allow one or more soluble constituents to enter into solid solution, where they are retained in a supersaturated state after quenching.

Rolling Mill Solution Heat Treatment—heating an alloy to a suitable temperature, rolling the material to final thickness, while holding 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.

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

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 107M, 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 491M, 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 107M, 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 241M, B 345/ B 345M, B 404/B 404M**

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

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 107M, 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 107M, 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
extrudate



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
 plate
 producer
 profile
 rivet rod
 rivet wire
 rolled bar
 rolled ring forging
 sand casting
 saw-plate bar
 seamless pipe
 semi-permanent mold casting
 sheet
 sized tube
 solution heat treatment
 standard one-side bright finish sheet
 standard two-side bright finish sheet
 stick
 structural pipe
 structural tube
 supplier
 tread plate
 tube
 welded tube

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 80
heat treat lot	B 80
dry annealed, A	B 373, B 479
dry annealed, B	B 373, B 479
dry annealed, C	B 373, B 479
slick annealed	B 373, B 479
K_{IVm}	B 646
K_{R25}	B 646
K_{Rmax}	B 646
P_{max}	B 646
corner protector	B 660
deckboard	B 660
filler	B 660
framing member	B 660
gross weight	B 660
header	B 660
interleaving	B 660
net weight	B 660
nominal	B 660
splice	B 660
tension tied	B 660
continuous marking	B 666/B 666M
perimeter marking	B 666/B 666M
spot marking	B 666/B 666M
tagging	B 666/B 666M
cladding ratio	B 736
cable shielding stock	B 736
fabricator	B 744/B 744M, B745/B 745M
manufacturer	B 744/B 744M, B745/B 745M
purchaser	B 744/B 744M, B745/B 745M
arch	B 746/B 746M
box culvert	B 746/B 746M
fabricator	B 746/B 746M
flat plate	B 746/B 746M
manufacturer	B 746/B 746M
pipe	B 746/B 746M
pipe-arch	B 746/B 746M
pipe, horizontal ellipse	B 746/B 746M
pipe, vertical elongated	B 746/B 746M
purchaser	B 746/B 746M
special shape	B 746/B 746M
structural plate	B 746/B 746M
vehicular underpass	B 746/B 746M
potentiometer measuring system	B 807
remote temperature sensing system	B 807
solution heat treatment	B 807
statistical significance of material property data	B 807

3.3 Definition of Term—The descriptive phrase “capable of” is used in Committee B07 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



SUMMARY OF CHANGES

Committee B07 has identified the location of selected changes to this standard since the last issue (B 881 – 98a (2004)) that may impact its use.

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| <p>(1) Added B 686, B 917/B 917M, B 918, and B 928/B 928M to Section 2 as well as sources to various terms.</p> <p>(2) Added the definition for extrudate.</p> | <p>(3) Added the definition for plate.</p> <p>(4) Added the definition for Solution Heat Treatment, as well as various sub-terms regarding the definition.</p> |
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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 International 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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