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Revision of H35.2(M)-2001

American National Standard Dimensional Tolerances for Aluminum Mill Products

Secretariat
The Aluminum Association
Incorporated

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Secretariat

The Aluminum Association, Inc.
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American National Standards Institute

American National Standard

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Foreword

This Standard is a revision of ANSI H35.2(M)-2001, which consists of logical values for long-term metric use rather than a restatement of ANSI H35.2 in metric terms. This revision consists of an expanded range of specified diameters for round wire, rod and drawing stock, clarification of the 5xxx alloys with special extrusion tolerances and editorial corrections.

American National Standard Dimensional Tolerances for Aluminum Mill Products

1. Definitions

Bar—A 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, and in which at least one perpendicular distance between parallel faces is over 10 mm.

Fin Stock—Coiled sheet or foil in specific alloys, tempers, and thickness ranges suitable for manufacture of fins for heat-exchanger applications.

Foil—A rolled product rectangular in cross section up through 0.15 millimetres in thickness. (In Europe, foil is 0.20 millimetres or less in thickness.)

Forging Stock—A wrought or cast rod, bar or other section suitable for forging.

Pipe—Tube in standardized combinations of outside diameter and wall thickness, commonly designated by "Nominal Pipe Sizes" and "ANSI Schedule Numbers." (Note: Larger sizes usually greater than 25 millimetres are typically extruded while smaller sizes are typically drawn.)

Plate—A rolled product that is rectangular in cross section and with thickness over 6.3 millimetres and with sheared or sawed edges.

Tread Plate—Sheet or plate having a raised figured pattern on one surface to provide improved traction.

Profile—A wrought product that is long in relation to its cross-sectional dimensions which is of a form other than that of sheet, plate, rod, bar, tube, wire or foil.

Structural Profile—A profile in certain standard alloys, tempers, sizes, and sections, such as angles, channels, tees, zees, I-beams, and H-sections, commonly used for structural purposes. For channels and I-beams there are two standards, namely Aluminum Association Standard and American Standard.

Rod—A solid wrought product over 10 mm in diameter that is long in relation to cross section and over 10 millimetres in diameter.

Shape—This term is no longer recommended. The term "Profile" is preferred. See "Profile."

Sheet—A rolled product that is rectangular in cross section over 0.15 through 6.3 millimetres in thickness and with slit, sheared or sawed edges.

Alclad Sheet—Composite sheet comprised of an aluminum alloy core having on both surfaces (if one side only, Alclad One Side Sheet) a metallurgically bonded aluminum or aluminum alloy coating that is anodic to the core, thus electrolytically protecting the core against corrosion.

Brazing Sheet—Sheet of a brazing alloy, or sheet clad with a brazing alloy on one or both sides.

Duct Sheet—Coiled or flat sheet in specific tempers, widths and thicknesses, suitable for duct applications.

Tube—A hollow wrought product that is long in relation to its cross section, which is symmetrical and is round, a regular hexagon or octagon, elliptical, or square or rectangular with sharp or rounded corners, and that has uniform wall thickness except as affected by corner radii.

Heat-Exchanger Tube— Tube for use in apparatus in which fluid inside the tube will be heated or cooled by fluid outside the tube. The term usually is not applied to coil tube or tubes for use in refrigerators or radiators. (Note: This product is typically seamless drawn tube.)

Welded Tube—A tube produced by forming and seam-welding sheet longitudinally.

Wire—A 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 up through 10 millimetres.

2. Standard Limits for Expressing Tolerances

2.1 Standard limits for expressing the tolerances depend on the type of instrument ordinarily used in measuring the particular dimension. Where instruments permitting the required degree of accuracy generally are used, the tolerances are expressed in decimals as follows (except for foil):

Tolerance less than 0.050 mm	multiple of 0.005 mm
Tolerance over 0.050 mm thru 0.50 mm	multiple of 0.01 mm
Tolerance over 0.50 thru 1.00 mm	multiple of 0.02 mm
Tolerance over 1.00 mm	multiple of 0.05 mm

For measurements commonly made with instruments not permitting such accuracy, standard dimensional tolerances are expressed as follows:

Tolerance up thru 5 mm	multiple of 0.5 mm
Tolerance over 5 mm thru 50 mm	multiple of 1 mm
Tolerance over 50 mm	multiple of 5 mm

2.2 Rounding For purposes of determining conformance to the dimensional tolerances, a measured value is not rounded off. To determine applicable limits when a dimension is specified to more decimal places than are used in these standards, it shall be rounded off to the same number of places in conformance with ASTM E29, Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications.