

FED-STD-245E
October 26, 1985
SUPERSEDING
FED-STD-245D
July 31, 1972

FEDERAL STANDARD

TOLERANCES FOR ALUMINUM ALLOY AND
MAGNESIUM ALLOY WROUGHT PRODUCTS

This specification was approved by the Assistant Administrator,
Office of Federal Supply and Services, General Services
Administration, for the use of all Federal agencies.

1. Scope. This standard establishes the tolerance requirements for aluminum alloy and magnesium alloy wrought mill products for the U.S. Customary dimension system and the International System of units (SI).

1.1 Application. This standard applies to the aluminum alloy and magnesium alloy wrought products acquired by a Federal agency, provided it is referenced in the contract or order, or in the governing specification. Wherever a more stringent tolerance requirement is also incorporated by reference in the contractual document, the more stringent requirement shall apply.

2. Referenced documents. The following documents form a part of this standard to the extent specified herein.

2.1 Other documents.

ANSI-H35.2

Dimensional Tolerances for Aluminum
Mill Products

ANSI-H35.2(M)

Dimensional Tolerances for Aluminum
Mill Products

(Single copies of the ANSI documents are available from the American National Standards Institute, 1430 Broadway, New York, NY 10018.)

(Federal Government activities may obtain copies from established distribution points in their agencies.)

3. Definitions. The terms used in this standard are commonly understood by the technical community to which they apply, and are not used here in such a way as to introduce new or limited meanings.

FSC 95GP

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4. Tolerance requirements. The tolerances given herein are in conformance with the available commercial standard tolerances. Tolerances for sizes and shapes not covered by this standard should be as agreed upon between the procuring agency and the contractor.

5. Tolerance details.

5.1 Aluminum alloys.

5.1.1 U.S. Customary dimension tolerances. The U.S. Customary dimension tolerances for aluminum alloy products shall conform to ANSI H35.2 for the applicable products and dimensions.

5.1.2 International System of units (SI) tolerances. The metric dimension tolerances for aluminum alloy products shall conform to ANSI H35.2(M) for the applicable products and dimensions.

5.2 Magnesium alloys.

5.2.1 U.S. Customary dimension tolerances. The U.S. Customary applicable dimension tolerances for magnesium alloy products shall be the same as those specified for aluminum alloy products in ANSI H35.2 for the applicable products and dimensions. Flatness tolerances for magnesium sheet and plate shall conform to Table I of this document.

5.2.2 International System of units (SI) tolerances. The metric applicable dimension tolerances for magnesium alloy products shall be the same as those specified for aluminum alloy products in ANSI H35.2(M) for the applicable products and dimensions. Flatness tolerances for magnesium sheet and plate shall conform to Table II.

Military Custodians:

Army - MR
Navy - AS
Air Force - 11

Preparing Activity:

Navy - AS

Civil Agency Coordinating Activity:

GSA-FSS

Project No. 95GP-0160

Review Activities:

Army - MI, AR, AL, AV
Navy - SH
Air Force - 99

TABLE I U.S. Customary tolerance on the flatness of magnesium alloy sheet and plate

Alloy and temper	Specified thickness Inches	Tolerance (1), Inch		
		Any 12 inches or less	Any 36 inches or less	Any 72 inches or less
AZ31B-0 and -H24 ZE10A-0 and -H24	0.126 thru 0.250 0.251 thru 0.500 0.501 thru 1.000 1.001 thru 2.000	0.020 .024 .030 .040	0.030 .036 .045 .060	- - - -
AZ31B-H26	0.126 thru 0.250 0.251 thru 0.500 0.501 thru 2.000	.020 .025 .050	.030 .038 .075	- - -
HK31A-0, HK31A-H24, and HM21A-T8, HM21A-T81	0.250 thru 3.000	-	-	0.250

(1) AS measured with the plate or sheet resting on a flat surface, concave side upward, using a straight edge and a feeler gauge, dial gauge, or a scale.

TABLE II International System of units tolerance on the flatness of magnesium alloy sheet and plate.

Alloy and temper	Specified thickness mm	Tolerance (1), mm		
		Any 305 mm or less	Any 914.4 mm or less	Any 1829 mm or less
AZ31B-0 and -H24 ZE10A-0 and -H24	3.20 thru 6.35	0.50 mm	0.76 mm	-
	6.38 thru 12.70	0.61 mm	0.91 mm	-
	12.73 thru 25.40	0.76 mm	1.14 mm	-
	25.43 thru 50.80	1.00 mm	1.52 mm	-
AZ31B-H26	3.20 thru 6.35	0.50 mm	0.76 mm	-
	6.38 thru 12.70	0.64 mm	0.91 mm	-
	12.73 thru 50.80	1.27 mm	1.91 mm	-
HK31A-0, HK31A-H24, and	6.35 thru 76.20	-	-	6.35 mm
HM21A-T8, HM21A-T81				

(1) As measured with the plate or sheet resting on a flat surface, concave side upward, using a straight edge and a feeler gauge, dial gauge, or a scale.