



AEROSPACE MATERIAL SPECIFICATION

AMS2242™**REV. H**

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Superseding AMS2242G

(R) Tolerances,
Corrosion- and Heat-Resistant Steel, Iron Alloy,
Titanium, and Titanium Alloy Sheet, Strip, and Plate

RATIONALE

AMS2242H is the result of a Five-Year Review and update of the specification. SI converted values have been added throughout.

1. SCOPE

This specification covers established manufacturing tolerances applicable to sheet, strip, and plate of corrosion- and heat-resistant steels, iron alloys, titanium, and titanium alloys. These tolerances apply to all conditions, unless otherwise noted. The term “excl” is used to apply only to the higher figure of the specified range.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications

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AS7766 Terms Used in Aerospace Metals Specifications

2.2 Definitions

Terms used in AMS are defined in AS7766.

3. THICKNESS

Thickness for sheet and strip is measured at any place on widths less than 1 inch (25.4 mm), at any place 0.375 inch (9.52 mm) and over from an edge on widths 1 inch (25.4 mm) and over, and for plate at least 0.375 inch (9.52 mm) but not over 3 inches (76.2 mm) from an edge.

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3.1 Sheet

Thickness and crown tolerances for sheet shall be in accordance with Table 1.

Table 1A - Thickness and crown tolerances - sheet (inch/pound units)

Specified Thickness Inch	Thickness Tolerance	Thickness Tolerance
	Inch	Inch
	Plus and Minus For Width Ranges Shown Inches 24 to 48, incl	Plus and Minus For Width Ranges Shown Inches Over 48
Up to 0.005, incl	0.001	--
Over 0.005 to 0.007, incl	0.0015	--
Over 0.007 to 0.016, incl	0.002	--
Over 0.016 to 0.026, incl	0.003	0.003
Over 0.026 to 0.040, incl	0.004	0.004
Over 0.040 to 0.058, incl	0.004	0.005
Over 0.058 to 0.072, incl	0.005	0.006
Over 0.072 to 0.083, incl	0.005	0.007
Over 0.083 to 0.098, incl	0.006	0.008
Over 0.098 to 0.114, incl	0.007	0.009
Over 0.114 to 0.130, incl	0.008	0.010
Over 0.130 to 0.145, incl	0.010	0.012
Over 0.145 to 0.1875, excl	0.012	0.014

**Table 1B - Thickness and crown tolerances - sheet (SI units);
reference only (see 8.2.1)**

Specified Thickness Millimeters	Thickness Tolerance	Thickness Tolerance
	Millimeters	Millimeters
	Plus and Minus For Width Ranges Shown Millimeters 610 to 1219, incl	Plus and Minus For Width Ranges Shown Millimeters Over 1219
Up to 0.13, incl	0.02	--
Over 0.13 to 0.18, incl	0.038	--
Over 0.18 to 0.41, incl	0.05	--
Over 0.41 to 0.66, incl	0.08	0.08
Over 0.66 to 1.02, incl	0.10	0.10
Over 1.02 to 1.47, incl	0.10	0.13
Over 1.47 to 1.83, incl	0.13	0.15
Over 1.83 to 2.11, incl	0.13	0.18
Over 2.11 to 2.49, incl	0.15	0.20
Over 2.49 to 2.90, incl	0.18	0.23
Over 2.90 to 3.30, incl	0.20	0.25
Over 3.30 to 3.68, incl	0.25	0.30
Over 3.68 to 4.762, excl	0.30	0.36

3.2 Strip

Thickness and crown tolerance requirements for strip are defined in Table 2.

Table 2A - Crown tolerances - strip (inch/pound units)

Specified Thickness Inch	Thickness Tolerance	Thickness Tolerance	Thickness Tolerance
	Inch	Inch	Inch
	Plus and Minus	Plus and Minus	Plus and Minus
	For Width Ranges Shown Inches	For Width Ranges Shown Inches	For Width Ranges Shown Inches
	3/16 to 6, incl	Over 6 to 12, incl	Over 12 to 24, excl
0.005 to 0.010, incl	0.10T	0.10T	0.10T
Over 0.010 to 0.011, incl	0.0015	0.0015	0.0015
Over 0.011 to 0.013, incl	0.0015	0.0015	0.002
Over 0.013 to 0.017, incl	0.0015	0.002	0.002
Over 0.017 to 0.020, incl	0.0015	0.002	0.0025
Over 0.020 to 0.029, incl	0.002	0.0025	0.0025
Over 0.029 to 0.035, incl	0.002	0.003	0.003
Over 0.035 to 0.050, incl	0.0025	0.0035	0.0035
Over 0.050 to 0.069, incl	0.003	0.0035	0.0035
Over 0.069 to 0.100, incl	0.003	0.004	0.005
Over 0.100 to 0.125, incl	0.004	0.0045	0.005
Over 0.125 to 0.161, incl	0.0045	0.0045	0.005
Over 0.161 to 0.1875, excl	0.005	0.005	0.006

**Table 2B - Crown tolerances - strip (SI units);
reference only (see 8.2.1)**

Specified Thickness Millimeters	Thickness Tolerance	Thickness Tolerance	Thickness Tolerance
	Millimeters	Millimeters	Millimeters
	Plus and Minus	Plus and Minus	Plus and Minus
	For Width Ranges Shown Millimeters	For Width Ranges Shown Millimeters	For Width Ranges Shown Millimeters
	4.762 to 152, incl	Over 152 to 305, incl	Over 305 to 610, excl
0.13 to 0.25, incl	0.10T	0.10T	0.10T
Over 0.25 to 0.28, incl	0.038	0.038	0.038
Over 0.28 to 0.33, incl	0.038	0.038	0.05
Over 0.33 to 0.43, incl	0.038	0.05	0.05
Over 0.43 to 0.51, incl	0.038	0.05	0.063
Over 0.51 to 0.74, incl	0.05	0.063	0.063
Over 0.74 to 0.89, incl	0.05	0.08	0.08
Over 0.89 to 1.27, incl	0.063	0.089	0.089
Over 1.27 to 1.75, incl	0.08	0.089	0.089
Over 1.75 to 2.54, incl	0.089	0.10	0.13
Over 2.54 to 3.18, incl	0.10	0.114	0.13
Over 3.18 to 4.09, incl	0.114	0.114	0.13
Over 4.09 to 4.762, excl	0.13	0.13	0.15

3.3 Plate

Minus thickness tolerances for plate shall be 0.010 inch (0.25 mm) for all widths for all thicknesses up to 10.000 inches (254 mm), inclusive, in all alloys; plus tolerances shall be as in Table 3. For circles, the plus thickness tolerances in Table 3 apply to the diameter of the circle corresponding to the width ranges shown. For plates of irregular shape, the plus thickness tolerances apply to the greatest width corresponding to the width ranges shown.

Table 3A - Thickness tolerances - plate (inch/pound units)

Specified Thickness Inches	Thickness Tolerance Inch, Plus For Width Ranges Shown Inches		Thickness Tolerance Inch, Plus For Width Ranges Shown Inches		Thickness Tolerance Inch, Plus For Width Ranges Shown Inches		Thickness Tolerance Inch, Plus For Width Ranges Shown Inches	
	Over 10 to 84, incl		Over 84 to 120, incl		Over 120 to 144, incl		Over 144	
0.1875 to 0.375, excl	0.045		0.050		--		--	
0.375 to 0.750, excl	0.055		0.060		0.075		0.090	
0.750 to 1.000, excl	0.060		0.065		0.085		0.100	
1.000 to 2.000, excl	0.070		0.075		0.095		0.115	
2.000 to 3.000, excl	0.125		0.150		0.175		0.200	
3.000 to 4.000, excl	0.175		0.210		0.245		0.280	
4.000 to 6.000, excl	0.250		0.300		0.350		0.400	
6.000 to 8.000, excl	0.350		0.420		0.490		0.560	
8.000 to 10.000, incl	0.450		0.540		0.630		--	

**Table 3B - Thickness tolerances - plate (SI units);
reference only (see 8.2.1)**

Specified Thickness Millimeters	Thickness Tolerance Millimeters, Plus For Width Ranges Shown Millimeters		Thickness Tolerance Millimeters, Plus For Width Ranges Shown Millimeters		Thickness Tolerance Millimeters, Plus For Width Ranges Shown Millimeters		Thickness Tolerance Millimeters, Plus For Width Ranges Shown Millimeters	
	Over 254 to 2134, incl		Over 2134 to 3048, incl		Over 3048 to 3658, incl		Over 3658	
4.762 to 9.52, excl	1.14		1.27		--		--	
9.52 to 19.00, excl	1.40		1.52		1.90		2.29	
19.00 to 25.40, excl	1.52		1.65		2.16		2.54	
25.40 to 50.80, excl	1.78		1.90		2.41		2.92	
50.80 to 76.20, excl	3.18		3.81		4.44		5.08	
76.20 to 101.60, excl	4.44		5.33		6.22		7.11	
101.60 to 152.40, excl	6.35		7.62		8.89		10.16	
152.40 to 203.20, excl	8.89		10.67		12.45		14.22	
203.20 to 254.00, incl	11.43		13.72		16.00		--	

4. WIDTH

4.1 Sheet

4.1.1 Stretcher Leveled, Resquared

Width tolerances for stretcher leveled, resquared sheet shall be as shown in Table 4.

Table 4A - Width tolerances - stretcher leveled sheet - resquared (inch/pound units)

Specified Thickness Inch	Width Tolerance Inch, Plus Only For Width Ranges Shown Inches	Width Tolerance Inch, Plus Only For Width Ranges Shown Inches
	24 to 48, excl	48 and Over
Up to 0.131, excl	1/16	1/8
0.131 to 0.150, incl	1/8	1/8
Over 0.150 to 0.170, incl	3/16	3/16
Over 0.170 to 0.1875, excl	1/4	1/4

**Table 4B - Width tolerances - stretcher leveled sheet - resquared (SI units);
reference only (see 8.2.1)**

Specified Thickness Millimeters	Width Tolerance Millimeters, Plus Only For Width Ranges Shown Millimeters	Width Tolerance Millimeters, Plus Only For Width Ranges Shown Millimeters
	610 to 1219, excl	1219 and Over
Up to 3.33, excl	1.6	3.2
3.33 to 3.81, incl	3.2	3.2
Over 3.81 to 4.32, incl	4.8	4.8
Over 4.32 to 4.762, excl	6.4	6.4

4.1.2 Non-Resquared, Flat, or in Coils

Width tolerances for non-resquared sheet, flat sheet, or sheet in coils are shown in Table 5.

Table 5A - Width tolerances - non-resquared (inch/pound units)

Specified Width Inches	Width Tolerance Inch Plus Only
24 to 48, excl	1/16
48 and over	1/8

**Table 5B - Width tolerances - non-resquared (SI units);
reference only (see 8.2.1)**

Specified Width Millimeters	Width Tolerance Millimeters Plus Only
610 to 1219, excl	1.6
1219 and over	3.2