



AEROSPACE MATERIAL

Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

SPECIFICATION

AMS 2232E

Superseding AMS 2232D

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TOLERANCES

Carbon Steel Sheet, Strip, and Plate

- SCOPE:** This specification covers established manufacturing tolerances for carbon steel sheet, strip, and plate. Tolerances shown herein shall apply unless otherwise specified. These tolerances apply to all conditions and are based on individual measurements, unless otherwise noted. The term "excl" is used to apply only to the higher figure of the specified range. Tolerances for product sizes not listed herein shall be as agreed upon by purchaser and vendor.
- THICKNESS:** Tolerances apply to measurements made at any point on widths less than 1 in. (25 mm), at any point not less than 3/8 in. (9.5 mm) from a cut edge, or not less than 3/4 in. (19 mm) from a mill edge on widths 1 in. (25 mm) and over, and at a point 3/8 - 3/4 in. (9.5 - 19 mm) from the longitudinal edge of rectangular sheared plates. Regardless of whether thickness tolerances for sheet and strip are specified equally or unequally, plus and minus, the total tolerance shall be equal to the arithmetic sum of the tabular plus and minus tolerances (twice the tabular tolerances when specified equally plus and minus).

2.1 Cold Rolled Sheet, Coils and Cut Lengths (See 2.1.1):

TABLE I

Specified Thickness Inch	Tolerance, Inch, Plus and Minus For Width Ranges, Inches		
	2	Over 15	
	to 15, incl	to 72, incl	Over 72
0.0142 to 0.0194, incl	0.002	0.002	---
Over 0.0194 to 0.0388, incl	0.003	0.003	0.003
Over 0.0388 to 0.0567, incl	0.004	0.004	0.004
Over 0.0567 to 0.0709, incl	0.005	0.005	0.005
Over 0.0709 to 0.0971, incl	0.005	0.005	0.006
Over 0.0971 to 0.1419, incl	0.005	0.006	0.007

TABLE I (SI)

Specified Thickness Millimetres	Tolerance, Millimetre, Plus and Minus For Width Ranges, Millimetres		
	51	Over 381	Over
	to 381, incl	to 1829, incl	1829
0.361 to 0.493, incl	0.05	0.05	---
Over 0.493 to 0.986, incl	0.08	0.08	0.08
Over 0.986 to 1.440, incl	0.10	0.10	0.10
Over 1.440 to 1.801, incl	0.13	0.13	0.13
Over 1.801 to 2.466, incl	0.13	0.13	0.15
Over 2.466 to 3.604, incl	0.13	0.15	0.18

- 2.1.1 Tolerances in Table I for nominal widths of 2 - 12 in. (51 - 305 mm), incl, in nominal thicknesses of 0.0142 to 0.0821 in. (0.361 to 2.085 mm), incl, apply to product slit from wider sheet.

2.2 Hot Rolled Sheet:

2.2.1 Coils and Cut Lengths, Specified Thicknesses 0.0449 to 0.2299 In. (1.140 to 5.839 mm), Incl:

TABLE II

Thickness Inch	Tolerance, Inch, Plus and Minus For Width Ranges, Inches					
	Over 12 to 20, incl	Over 20 to 40, incl	Over 40 to 48, incl	Over 48 to 60, incl	Over 60 to 72, incl	Over 72
	0.005 0.005 0.006 0.006 0.007 0.007	0.005 0.005 0.006 0.007 0.007 0.008	0.005 0.006 0.006 0.007 0.008 0.009	-- 0.006 0.007 0.007 0.008 --	-- 0.007 0.007 0.008 0.008 --	-- -- -- 0.008 0.008 --
0.0449 to 0.0508, incl						
Over 0.0508 to 0.0567, incl						
Over 0.0567 to 0.0709, incl						
Over 0.0709 to 0.0971, incl						
Over 0.0971 to 0.1799, incl						
Over 0.1799 to 0.2299, incl						

TABLE II (SI)

Specified Thickness Millimetres	Tolerance, Millimetre, Plus and Minus For Width Ranges, Millimetres					
	Over 305 to 508, incl	Over 508 to 1016, incl	Over 1016 to 1219, incl	Over 1219 to 1524, incl	Over 1524 to 1829, incl	Over 1829
	0.13 0.13 0.15 0.15 0.18 0.18	0.13 0.13 0.15 0.18 0.18 0.20	0.13 0.15 0.15 0.18 0.20 0.23	-- 0.15 0.18 0.18 0.20 --	-- 0.18 0.18 0.20 0.20 --	-- -- -- 0.20 0.20 --
1.140 to 1.290, incl						
Over 1.290 to 1.440, incl						
Over 1.440 to 1.801, incl						
Over 1.801 to 2.466, incl						
Over 2.466 to 4.569, incl						
Over 4.569 to 5.839, incl						

2.2.2 Coils Only, Specified Thicknesses Over 0.1800 to 0.5000 In. (4.752 to 12.700 mm), Incl:

TABLE III

Specified Thickness Inch	Tolerance, Inch, Plus and Minus For Width Ranges, Inches					
	Over 12 to 20, incl	Over 20 to 40, incl	Over 40 to 48, incl	Over 48 to 60, incl	Over 60 to 72, incl	Over 72
	--	--	--	0.010	0.011	0.012
Over 0.1800 to 0.2299, incl	0.010	0.011	0.012	0.012	0.013	0.015
Over 0.2299 to 0.3130, incl	0.012	0.012	0.013	0.014	0.015	0.016
Over 0.3130 to 0.3750, incl	0.014	0.014	0.014	0.015	0.016	0.018
Over 0.3750 to 0.5000, incl						

TABLE III (SI)

Specified Thickness Millimetres	Tolerance, Millimetre, Plus and Minus For Width Ranges, Millimetres					
	Over 305 to 508, incl	Over 508 to 1016, incl	Over 1016 to 1219, incl	Over 1219 to 1524, incl	Over 1524 to 1829, incl	Over 1829
	--	--	--	0.25	0.28	0.30
Over 4.572 to 5.839, incl	0.25	0.28	0.30	0.30	0.33	0.38
Over 5.842 to 7.950, incl	0.30	0.30	0.33	0.36	0.38	0.41
Over 7.950 to 9.525, incl	0.36	0.36	0.36	0.38	0.41	0.46
Over 9.525 to 12.700, incl						

2.2.3 Tolerances in Table II and Table III do not apply to the uncropped ends of mill edge coils.

2.3 Cold Rolled Strip, Coils and Cut Lengths:

TABLE IV

Specified Thickness Inch	Tolerance, Inch, Plus and Minus For Width Ranges, Inches							
	0.500 to 1, excl	1 to 3, excl	3 to 6, incl	Over 6 to 9, incl	Over 9 to 12, incl	Over 12 to 16, incl	Over 16 to 20, incl	Over 20 to 23-15/16, incl
Up to 0.007, excl	0.0005	0.0005	0.0005	--	--	--	--	--
0.007 to 0.009, excl	0.00075	0.00075	0.00075	--	--	--	--	--
0.009 to 0.013, excl	0.00075	0.00075	0.00075	0.001	0.001	0.001	0.001	0.001
0.013 to 0.020, excl	0.00075	0.00075	0.00075	0.001	0.001	0.0015	0.0015	0.0015
0.020 to 0.023, excl	0.001	0.001	0.001	0.0015	0.0015	0.0015	0.0015	0.0015
0.023 to 0.026, excl	0.001	0.001	0.001	0.0015	0.0015	0.002	0.002	0.002
0.026 to 0.029, excl	0.001	0.0015	0.0015	0.002	0.002	0.002	0.002	0.002
0.029 to 0.032, excl	0.0015	0.0015	0.0015	0.002	0.002	0.002	0.002	0.002
0.032 to 0.035, excl	0.0015	0.0015	0.002	0.002	0.002	0.002	0.002	0.002
0.035 to 0.040, excl	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.040 to 0.050, excl	0.002	0.002	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
0.050 to 0.069, excl	0.002	0.002	0.0025	0.0025	0.0025	0.003	0.003	0.003
0.069 to 0.100, excl	0.002	0.002	0.0025	0.003	0.003	0.0035	0.0035	0.0035
0.100 to 0.161, excl	0.002	0.002	0.003	0.003	0.003	0.0035	0.0045	0.005
0.161 to 0.200, excl	0.0025	0.0035	0.004	0.004	0.0045	0.0045	0.005	0.005
0.200 to 0.250, excl	0.003	0.004	0.0045	0.0045	0.005	0.0055	0.0055	0.0055

TABLE IV (SI)

Specified Thickness Millimetres		Tolerance, Millimetre, Plus and Minus For Width Ranges, Millimetres									
		12.70 to 25, excl	25 to 76, excl	76 to 152, incl	152 to 229, incl	229 to 305, incl	305 to 405, incl	405 to 508, incl	508 to 608, incl	Over	Over
Up to 0.18, excl	0.013	0.013	0.013	0.013	--	--	--	--	--	--	--
0.18 to 0.23, excl	0.0190	0.0190	0.0190	0.0190	--	--	--	--	--	--	--
0.23 to 0.33, excl	0.0190	0.0190	0.0190	0.0190	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0.33 to 0.51, excl	0.0190	0.0190	0.0190	0.0190	0.03	0.03	0.038	0.038	0.038	0.038	0.038
0.51 to 0.58, excl	0.03	0.03	0.03	0.03	0.038	0.038	0.038	0.038	0.038	0.038	0.038
0.58 to 0.66, excl	0.03	0.03	0.03	0.03	0.038	0.038	0.038	0.05	0.05	0.05	0.05
0.66 to 0.74, excl	0.03	0.038	0.038	0.038	0.05	0.05	0.05	0.05	0.05	0.05	0.05
0.74 to 0.81, excl	0.038	0.038	0.038	0.038	0.05	0.05	0.05	0.05	0.05	0.05	0.05
0.81 to 0.89, excl	0.038	0.038	0.038	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
0.89 to 1.02, excl	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
1.02 to 1.27, excl	0.05	0.05	0.05	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
1.27 to 1.75, excl	0.05	0.05	0.05	0.064	0.064	0.064	0.08	0.08	0.08	0.08	0.08
1.75 to 2.54, excl	0.05	0.05	0.05	0.064	0.08	0.08	0.089	0.089	0.089	0.089	0.089
2.54 to 4.09, excl	0.05	0.05	0.05	0.08	0.08	0.08	0.089	0.089	0.114	0.114	0.13
4.09 to 5.08, excl	0.064	0.064	0.089	0.10	0.10	0.114	0.114	0.114	0.13	0.13	0.13
5.08 to 6.35, excl	0.08	0.10	0.10	0.114	0.114	0.13	0.140	0.140	0.140	0.140	0.140

2.4 Hot Rolled Strip, Coils and Cut Lengths (See 2.4.1 and 2.4.2):

TABLE V

Specified Thickness Inch	Tolerance, Inch, Plus and Minus			
	For Width Ranges, Inches			
	Up to 3 1/2, incl	Over 3-1/2 to 6, incl	Over 6 to 8, incl	Over 8 to 12, incl
0.0255 to 0.0343, incl	0.003	--	--	--
Over 0.0343 to 0.0448, incl	0.003	0.003	--	--
Over 0.0448 to 0.0567, incl	0.003	0.003	0.004	0.004
Over 0.0567 to 0.1179, incl	0.004	0.005	0.005	0.005
Over 0.1179 to 0.1874, incl	0.005	0.005	0.005	0.005
Over 0.1874 to 0.2030, incl	0.006	0.006	0.006	0.006
Over 0.2030 to 0.2299, incl	--	--	0.006	0.006
Over 0.2299 to 0.3124, incl	--	--	--	0.008
Over 0.3124 to 0.3750, incl	--	--	--	0.009
Over 0.3750 to 0.5000, incl	--	--	--	0.010

TABLE V (SI)

Specified Thickness Millimetres	Tolerance, Millimetre, Plus and Minus			
	For Width Ranges, Millimetres			
	Up to 89, incl	Over 89 to 152, incl	Over 152 to 203, incl	Over 203 to 305, incl
0.648 to 0.871, incl	0.08	--	--	--
Over 0.871 to 1.138, incl	0.08	0.08	--	--
Over 1.138 to 1.440, incl	0.08	0.08	0.10	0.10
Over 1.440 to 2.995, incl	0.10	0.13	0.13	0.13
Over 2.995 to 4.760, incl	0.13	0.13	0.13	0.13
Over 4.760 to 5.156, incl	0.15	0.15	0.15	0.15
Over 5.156 to 5.839, incl	--	--	0.15	0.15
Over 5.839 to 7.935, incl	--	--	--	0.20
Over 7.935 to 9.525, incl	--	--	--	0.23
Over 9.525 to 12.700, incl	--	--	--	0.25

2.4.1 Tolerances in Table V do not include crown; the tolerances shown in Table VI are in addition to those shown in Table V.

2.4.2 Tolerances for thicknesses over 0.2299 to 0.5000 in. (5.839 to 12.700 mm), incl, apply only to coils.

- 2.5 Crown(See 2.5.1): Strip may be thicker at the center than at a point 3/8 in. (9.5 mm) from the edge by the amounts shown in Table VI.

TABLE VI

Specified Thickness Inch	Crown, Inch			
	For Width Ranges, Inches			
	Over 1 to 3 1/2, incl	Over 3-1/2 to 6, incl	Over 6 to 8, incl	Over 8 to 12, incl
0.0255 to 0.0343, incl	0.002	--	--	--
Over 0.0343 to 0.0448, incl	0.002	0.003	--	--
Over 0.0448 to 0.1179, incl	0.002	0.003	0.004	0.004
Over 0.1179 to 0.1874, incl	0.002	0.002	0.003	0.003
Over 0.1874 to 0.2030, incl	0.001	0.002	0.003	0.003
Over 0.2030 to 0.2299, incl	--	--	0.002	0.002
Over 0.2299 to 0.5000, incl	--	--	--	0.002

TABLE VI (SI)

Specified Thickness Millimetres	Crown, Millimetre			
	For Width Ranges, Millimetres			
	Over 25 to 89, incl	Over 89 to 152, incl	Over 152 to 203, incl	Over 203 to 305, incl
0.648 to 0.871, incl	0.05	--	--	--
Over 0.871 to 1.138, incl	0.05	0.08	--	--
Over 1.138 to 2.995, incl	0.05	0.08	0.10	0.10
Over 2.995 to 4.760, incl	0.05	0.05	0.08	0.08
Over 4.760 to 5.156, incl	0.02	0.05	0.08	0.08
Over 5.156 to 5.839, incl	--	--	0.05	0.05
Over 5.839 to 12.700, incl	--	--	--	0.05

- 2.5.1 Crown for thicknesses over 0.2299 to 0.5000 in. (5.839 to 12.700 mm), incl, applies only to coils.

2.6 Rectangular Sheared Plates: Minus tolerance for all sizes shall be 0.010 in. (0.25 mm); plus tolerances shall be as specified in Table VII.

TABLE VII

Specified Thickness Inches	Tolerance, Inch, Plus For Width Ranges, Inches						
	Up to 48, incl	Over 48 to 60, excl	60 to 72, excl	72 to 84, excl	84 to 96, excl	96 to 108, excl	108 to 120, incl
Up to 0.250, excl	0.016	0.016	0.020	0.020	0.024	0.028	0.032
0.250 to 0.312, excl	0.016	0.020	0.020	0.024	0.028	0.032	0.036
0.312 to 0.375, excl	0.020	0.020	0.024	0.024	0.028	0.032	0.036
0.375 to 0.437, excl	0.020	0.024	0.024	0.028	0.032	0.036	0.040
0.437 to 0.500, excl	0.024	0.024	0.028	0.028	0.032	0.036	0.040
0.500 to 0.625, excl	0.024	0.028	0.028	0.032	0.036	0.040	0.040
0.625 to 0.750, excl	0.028	0.028	0.032	0.032	0.036	0.040	0.044
0.750 to 1.000, excl	0.032	0.032	0.036	0.036	0.040	0.044	0.048
1.000 to 1.250, excl	0.040	0.044	0.048	0.048	0.048	0.052	0.056
1.250 to 1.500, excl	0.052	0.052	0.056	0.056	0.056	0.064	0.068
1.500 to 1.750, excl	0.060	0.060	0.064	0.064	0.064	0.072	0.080
1.750 to 2.000, incl	0.068	0.068	0.072	0.076	0.076	0.086	0.094

TABLE VII (SI)

	Tolerances, Millimetres, Plus							
	For Width Ranges, Millimetres							
Specified Thickness Millimetres	Over		1219 to 1524, excl	1524 to 1828, excl	1828 to 2134, excl	2134 to 2438, excl	2438 to 2743, excl	2743 to 3048, incl
	Up to 1219, incl	0.41	0.41	0.51	0.51	0.61	0.61	0.81
	Up to 6.35, excl	0.41	0.51	0.51	0.61	0.61	0.71	0.81
	6.35 to 7.92, excl	0.41	0.51	0.51	0.61	0.61	0.71	0.81
	7.92 to 9.52, excl	0.51	0.51	0.61	0.61	0.71	0.81	0.91
	9.52 to 11.10, excl	0.51	0.61	0.61	0.71	0.71	0.81	1.02
	11.10 to 12.70, excl	0.61	0.61	0.71	0.71	0.81	0.91	1.02
	12.70 to 15.88, excl	0.61	0.71	0.71	0.81	0.81	1.02	1.02
	15.88 to 19.05, excl	0.71	0.71	0.81	0.81	0.91	1.02	1.12
	19.05 to 25.40, excl	0.81	0.81	0.91	0.91	1.02	1.12	1.22
	25.40 to 31.75, excl	1.02	1.12	1.22	1.22	1.22	1.32	1.42
	31.75 to 38.10, excl	1.32	1.32	1.42	1.42	1.42	1.63	1.73
	38.10 to 44.45, excl	1.52	1.52	1.63	1.63	1.63	1.83	2.03
	44.45 to 50.80, excl	1.73	1.73	1.83	1.83	1.93	2.18	2.39

2.6.1 For thickness measured at any location other than that specified in Section 2, the permissible maximum plus tolerance shall be increased by 75%.

3. WIDTH:

- 3.1 Cold Rolled Sheet Over 12 In. (305 mm) in Width and Hot Rolled, Cut Edge Sheet, Not Resquared, Coils and Cut Lengths:

TABLE VIII

Nominal Width Inches	Tolerance, Inch, Plus Only
Over 12 to 30, incl	1/8
Over 30 to 48, incl	3/16
Over 48 to 60, incl	1/4
Over 60 to 80, incl	5/16
Over 80	3/8

TABLE VIII (SI)

Nominal Width Millimetres	Tolerance, Millimetres, Plus Only
Over 305 to 762, incl	3.2
Over 762 to 1219, incl	4.8
Over 1219 to 1524, incl	6.4
Over 1524 to 2032, incl	7.9
Over 2032	9.5

- 3.1.1 For hot rolled sheet, tolerances apply only to thicknesses 0.2299 in. (5.839 mm) and under.

- 3.2 Cold Rolled Sheet 2 to 12 In. (51 to 305 mm) in Width, Produced by Slitting Wider Sheet, Not Resquared, Coils and Cut Lengths:

TABLE IX

Specified Width Inches	<u>Tolerance, Inch, Plus and Minus For Thickness Ranges, Inch</u>	
	0.0142 to 0.0680, incl	Over 0.0680 to 0.0821, incl
2 to 6, incl	0.008	0.012
Over 6 to 9, incl	0.016	0.016
Over 9 to 12, incl	0.032	0.032

TABLE IX (SI)

Specified Width Millimetres	<u>Tolerance, Millimetre, Plus and Minus For Thickness Ranges, Millimetre</u>	
	0.361 to 1.727, incl	Over 1.727 to 2.085, incl
51 to 152, incl	0.20	0.30
Over 152 to 229, incl	0.41	0.41
Over 229 to 305, incl	0.81	0.81

3.3 Cold Rolled Strip, Coils and Cut Lengths:

3.3.1 Mill Edge:

TABLE X

Specified Width Inches	Tolerance, Inch, Plus and Minus
Over 1/2 to 2 , incl	1/32
Over 2 to 5 , incl	3/64
Over 5 to 10 , incl	5/64
Over 10 to 15 , incl	3/32
Over 15 to 20 , incl	1/8
Over 20 to 23-15/16, incl	5/32

TABLE X (SI)

Specified Width Millimetres	Tolerance, Millimetres, Plus and Minus
Over 12.7 to 51, incl	0.8
Over 51 to 127, incl	1.2
Over 127 to 254, incl	2.0
Over 254 to 381, incl	2.4
Over 381 to 508, incl	3.2
Over 508 to 608, incl	4.0

3.3.2 Slit Edge:

TABLE XI

Specified Width Inches	Tolerance, Inch, Plus and Minus For Thickness Ranges, Inch			
	Up to 0.068, incl	Over 0.068 to 0.099, incl	Over 0.099 to 0.160, incl	Over 0.160 to 0.2490, incl
Over 1/2 to 6 , incl	0.005	0.008	0.010	0.016
Over 6 to 9 , incl	0.005	0.010	0.016	0.020
Over 9 to 12 , incl	0.010	0.010	0.016	0.020
Over 12 to 20 , incl	0.016	0.016	0.020	0.031
Over 20 to 23-15/16 , incl	0.020	0.020	0.020	0.031

TABLE XI (SI)

Specified Width Millimetres	Tolerance, Millimetre, Plus and Minus For Thickness Ranges, Millimetres			
	Up to 1.73, incl	Over 1.73 to 2.51, incl	Over 2.51 to 4.06, incl	Over 4.06 to 6.325, incl
Over 12.7 to 152, incl	0.13	0.20	0.25	0.41
Over 152 to 229, incl	0.13	0.25	0.41	0.51
Over 229 to 305, incl	0.25	0.25	0.41	0.51
Over 305 to 508, incl	0.41	0.41	0.51	0.51
Over 508 to 608, incl	0.51	0.51	0.51	0.79

3.4 Hot Rolled Strip, Coils and Cut Lengths: (See 3.4.1):

TABLE XII

Specified Width Inches	Tolerance, Inch, Plus and Minus For Thickness Ranges, Inch				
	Mill Edge or Square Edge		Slit or Cut Edge		
	Up to 0.2299, incl	Over 0.2299 to 0.5000, incl	Up to 0.109, incl	Over 0.109 to 0.2299, incl	Over 0.2299 to 0.5000, incl
Up to 2, incl	1/32	--	0.008	0.016	--
Over 2 to 5, incl	3/64	--	0.008	0.016	--
Over 5 to 10, incl	1/16	--	0.010	0.016	--
Over 10 to 12, incl	3/32	--	0.016	0.016	--
Over 8 to 12, incl	--	3/16	--	--	(See 3.4.2)

TABLE XII (SI)

Specified Width Millimetres	Tolerance, Millimetres, Plus and Minus For Thickness Ranges, Millimetres				
	Mill Edge or Square Edge		Slit or Cut Edge		
	Up to 5.839, incl	Over 5.839 to 12.700, incl	Up to 2.77, incl	Over 2.77 to 5.839, incl	Over 5.839 to 12.700, incl
Up to 51, incl	0.8	--	0.20	0.41	--
Over 51 to 127, incl	1.2	--	0.20	0.41	--
Over 127 to 254, incl	1.6	--	0.25	0.41	--
Over 254 to 305, incl	2.4	--	0.41	0.41	--
Over 203 to 305, incl	--	4.8	--	--	(See 3.4.2)

3.4.1 Tolerances for strip over 0.2299 to 0.5000 in. (5.839 to 12.700 mm) in nominal thickness with mill edge or square edge apply only to coiled strip.

3.4.2 Tolerances for strip over 0.2299 to 0.5000 in. (5.839 to 12.700 mm) in nominal thickness with slit or cut edges shall be as agreed upon by purchaser and vendor.

3.5 Hot Rolled Plate:

3.5.1 Sheared Plate: Minus tolerance shall be 1/4 in. (6.4 mm) for all sizes; plus tolerance shall be as specified in Table XIII.

TABLE XIII

Specified Width Inches	Specified Length Inches	Tolerance, Inches, Plus and Minus For Thickness Ranges Inches			
		Up to 3/8, excl	3/8 to 5/8, excl	5/8 to 1, excl	1 to 1-1/2, incl
Up to 60, excl	Up	3/8	7/16	1/2	5/8
60 to 84, excl	to	7/16	1/2	5/8	3/4
84 to 108, excl	120,	1/2	5/8	3/4	1
108 and over	excl	5/8	3/4	7/8	1-1/8
Up to 60, excl	120	3/8	1/2	5/8	3/4
60 to 84, excl	to	1/2	5/8	3/4	7/8
84 to 108, excl	240,	9/16	11/16	13/16	1
108 and over	excl	5/8	3/4	7/8	1-1/8
Up to 60, excl	240	3/8	1/2	5/8	3/4
60 to 84, excl	to	1/2	5/8	3/4	7/8
84 to 108, excl	360,	9/16	11/16	7/8	1
108 and over	excl	11/16	7/8	1	1-1/4
Up to 60, excl	360	7/16	1/2	5/8	3/4
60 to 84, excl	to	1/2	5/8	3/4	7/8
84 to 108, excl	480,	9/16	3/4	7/8	1
108 and over	excl	3/4	7/8	1	1-1/4
Up to 60, excl	480	7/16	1/2	5/8	3/4
60 to 84, excl	to	1/2	5/8	3/4	7/8
84 to 108, excl	600,	5/8	3/4	7/8	1
108 and over	excl	3/4	7/8	1	1-1/4
Up to 60, excl	600	1/2	5/8	3/4	7/8
60 to 84, excl	to	5/8	3/4	7/8	1
84 to 108, excl	720,	5/8	3/4	7/8	1-1/8
108 and over	excl	7/8	1	1-1/8	1-1/4
Up to 60, excl	720	9/16	3/4	7/8	1
60 to 84, excl	and	3/4	7/8	1	1-1/8
84 to 108, excl	over	3/4	7/8	1	1-1/4
108 and over		1	1-1/8	1-1/4	1-3/8

TABLE XIII (SI)

Specified Width Millimetres	Specified Length Millimetres	Tolerance, Millimetres, Plus and Minus For Thickness Ranges, Millimetres			
		Up to 9.5, excl	9.5 to 15.9, excl	15.9 to 25.4, excl	25.4 to 38.1, incl
Up to 1524, excl	Up	9.5	11.1	12.7	15.9
1524 to 2134, excl	to	11.1	12.7	15.9	19.0
2134 to 2743, excl	3048,	12.7	15.9	19.0	25.4
2743 and over	excl	15.9	19.0	22.2	28.6
Up to 1524, excl	3048	9.5	12.7	15.9	19.0
1524 to 2134, excl	to	12.7	15.9	19.0	22.2
2134 to 2743, excl	6096,	14.3	17.5	20.6	25.4
2743 and over	excl	15.9	19.0	22.2	28.6
Up to 1524, excl	6096	9.5	12.7	15.9	19.0
1524 to 2134, excl	to	12.7	15.9	19.0	22.2
2134 to 2743, excl	9144,	14.3	17.5	22.0	25.4
2743 and over	excl	17.5	22.2	25.4	28.6
Up to 1524, excl	9144	11.1	12.7	15.9	19.0
1524 to 2134, excl	to	12.7	15.9	19.0	22.2
2134 to 2743, excl	12192	14.3	19.0	22.2	25.4
2743 and over	excl	19.0	22.2	25.4	31.8
Up to 1524, excl	12192	11.1	12.7	15.6	19.0
1524 to 3123, excl	to	12.7	15.9	19.0	22.2
2134 to 2743, excl	15240	15.9	19.0	22.2	25.4
2743 and over	excl	19.0	22.2	25.4	31.8
Up to 1524, excl	15240	12.7	15.9	19.0	22.2
1524 to 2134, excl	to	15.9	19.0	22.2	25.4
2134 to 2743, excl	18288,	15.9	19.0	22.2	28.6
2743 and over	excl	22.2	25.4	28.6	31.8
Up to 1524, excl	18288	14.3	19.0	22.2	25.4
1524 to 2134, excl	and	19.0	22.2	25.4	28.6
2134 to 2743, excl	over	19.0	22.2	25.4	31.8
2743 and over		25.4	28.6	31.8	34.9

3.5.2 Gas Cut Rectangular Plate:

TABLE XIV

Specified Width Inches	Tolerance, Inch, Plus and Minus For Thicknesses up to 2 in., excl
All	1/2

TABLE XIV (SI)

Millimetres	Tolerance, Millimetres, Plus and Minus For Thicknesses up to 51 mm, excl
All	12.7

3.5.2.1 Tolerance may be taken all minus or divided unequally plus and minus, if so specified.

3.5.2.2 Plates with universal rolled edges are commonly cut to length only.

3.5.3 Universal Mill Plate: Minus tolerance shall be 1/8 in. (3.2 mm). Plus tolerances shall be as specified in Table XV.

TABLE XV

Specified Width Inches	Tolerance, Inch, Plus For Thickness Ranges, Inches			
	Up to 3/8, excl	3/8 to 5/8, excl	5/8 to 1, excl	1 to 2, excl
Up to 20, excl	1/8	1/8	3/16	1/4
20 to 36, excl	3/16	1/4	5/16	3/8
36 and over	5/16	3/8	7/16	1/2

TABLE XV (SI)

Specified Width Millimetres	Tolerance, Millimetres, Plus For Thickness Ranges, Millimetres			
	Up to 9.5, excl	9.5 to 15.9, excl	15.9 to 25.4, excl	25.4 to 50.8, excl
Up to 508, excl	3.2	3.2	4.8	6.4
508 to 914, excl	4.8	6.4	7.9	9.2
914 and over	7.9	9.5	11.1	12.7

3.5.4 Mill Edge Plates in Coils and Cut Lengths for Plates Produced on Strip Mills:TABLE XVI

Specified Width Inches	Tolerance, Inches, Plus and Minus
Up to 14, excl	7/16
14 to 17, excl	1/2
17 to 19, excl	9/16
19 to 21, excl	5/8
21 to 24, excl	11/16
24 to 26, excl	13/16
26 to 28, excl	15/16
28 to 35, excl	1-1/8
35 to 50, excl	1-1/4
50 to 60, excl	1-1/2
60 to 65, excl	1-5/8
65 to 70, excl	1-3/4
70 to 80, excl	1-7/8
80 and over	2

TABLE XVI (SI)

Specified Width Millimetres	Tolerance, Millimetres, Plus and Minus
Up to 356, excl	11.1
356 to 432, excl	12.7
432 to 483, excl	14.3
483 to 533, excl	15.9
533 to 610, excl	17.5
610 to 660, excl	20.6
660 to 711, excl	23.8
711 to 889, excl	28.6
889 to 1270, excl	31.8
1270 to 1524, excl	38.1
1524 to 1651, excl	41.3
1651 to 1778, excl	44.4
1778 to 2032, excl	47.6
2032 and over	50.8

3.5.4.1 Tolerances in Table XVI do not apply to the uncropped ends of mill edge plate in coils.

4. LENGTH:

4.1 Cold Rolled Sheet, Cut Lengths, Not Resquared:

TABLE XVII

Specified Length Inches	Tolerance, Inches, Plus Only For Width Ranges, Inches	
	2 to 12, incl	Over 12
Over 12 to 24, incl	--	1/8
Over 24 to 30, incl	1/2	1/8
Over 30 to 60, incl	1/2	1/4
Over 60 to 96, incl	3/4	1/2
Over 96 to 120, incl	3/4	3/4
Over 120 to 156, incl	1	1
Over 156 to 192, incl	1	1-1/4
Over 192 to 240, incl	1	1-1/2
Over 240	--	1-3/4

TABLE XVII (SI)

Specified Length Millimetres	Tolerance, Millimetres, Plus Only For Width Ranges, Millimetres	
	51 to 305, incl	Over 305
305 to 610, incl	--	3.2
Over 610 to 762, incl	12.7	3.2
Over 762 to 1524, incl	12.7	6.4
Over 1524 to 2438, incl	19.0	12.7
Over 2438 to 3048, incl	19.0	19.0
Over 3048 to 3962, incl	25.4	25.4
Over 3962 to 4877, incl	25.4	31.8
Over 4877 to 6096, incl	25.4	38.1
Over 6096	--	44.4

4.1.1 Tolerances in Table XVII for widths 2 - 12 in. (51 - 305 mm), incl, apply to product produced by slitting from wider sheet.

4.4.2 Hot Rolled Sheet, Cut Lengths, Not Resquared:TABLE XVIII

Specified Length Inches	Tolerance, Inch, Plus Only
Up to 15, incl	1/8
Over 15 to 30, incl	1/4
Over 30 to 60, incl	1/2
Over 60 to 120, incl	3/4
Over 120 to 156, incl	1
Over 156 to 192, incl	1-1/4
Over 192 to 240, incl	1-1/2
Over 240	1-3/4

TABLE XVIII (SI)

Specified Length Millimetres	Tolerance, Millimetres, Plus Only
Up to 381, incl	3.2
Over 381 to 762, incl	6.4
Over 762 to 1524, incl	12.7
Over 1524 to 3048, incl	19.0
Over 3048 to 3962, incl	25.4
Over 3962 to 4877, incl	31.8
Over 4877 to 6096, incl	38.1
Over 6096	44.4

4.3 Cold Rolled Strip:TABLE XIX

Specified Length Inches	<u>Tolerance, Inch, Plus Only</u> <u>For Width Ranges, Inch</u>	
	Over 1/2 to 12, incl	Over 12 to 23-15/16, incl
24 to 60, incl	1/4	1/2
Over 60 to 120, incl	1/2	3/4
Over 120 to 240, incl	3/4	1

TABLE XIX (SI)

Specified Length Millimetres	<u>Tolerance, Millimetres, Plus Only</u> <u>For Width Ranges, Millimetres</u>	
	Over 12.7 to 305, incl	Over 305 to 608, incl
610 to 1524, incl	6.4	12.7
Over 1524 to 3048, incl	12.7	19.0
Over 3048 to 6096, incl	19.0	25.4

4.4 Hot Rolled Strip:

TABLE XX

Specified Length Feet	Tolerance, Inch, Plus Only For Width Ranges, Inch		
	Up to 3, incl	Over 3 to 6, incl	Over 6 to 12, incl
Up to 5, incl	1/4	3/8	1/2
Over 5 to 10, incl	3/8	1/2	3/4
Over 10 to 20, incl	1/2	5/8	1
Over 20 to 30, incl	3/4	3/4	1-1/4
Over 30 to 40, incl	1	1	1-1/2
Over 40	1-1/2	1-1/2	1-3/4

TABLE XX (SI)

Specified Length Metres	Tolerance, Millimetres, Plus Only For Width Ranges, Millimetres		
	Up to 76, incl	Over 76 to 152, incl	Over 152 to 305, incl
Up to 1.5, incl	6.4	9.5	12.7
Over 1.5 to 3.0, incl	9.5	12.7	19.0
Over 3.0 to 6.1, incl	12.7	15.9	25.4
Over 6.1 to 9.2, incl	19.0	19.0	31.8
Over 9.2 to 12.2, incl	25.4	25.4	38.1
Over 12.2	38.1	38.1	44.4

4.5 Hot Rolled Plate:

- 4.5.1 Sheared Plate, Universal Mill Plate, and Mill Edge Plate: Minus tolerance shall be 1/4 in. (6.4 mm) for all sizes. Plus tolerances shall be as specified in Table XXI except as specified in 4.5.1.1.

TABLE XXI

Specified Length Inches	Specified Width Inches	Tolerance, Inch, Plus Only			
		For Thickness Ranges, Inches			
		Up to 3/8, excl	3/8 to 5/8, excl	5/8 to 1, excl	1 to 2, incl
Up to 120, excl	Up to 60, excl 60 to 84, excl 84 to 108, excl 108 and over	1/2 5/8 3/4 7/8	5/8 11/16 7/8 1	3/4 7/8 1 1-1/8	1 1 1-1/8 1-1/4
120 to 240, excl	Up to 60, excl 60 to 84, excl 84 to 108, excl 108 and over	3/4 3/4 7/8 1	7/8 7/8 15/16 1-1/8	1 1 1-1/8 1-1/4	1-1/8 1-1/4 1-3/8 1-3/8
240 to 360, excl	Up to 60, excl 60 to 84, excl 84 to 108, excl 108 and over	1 1 1 1-1/8	1-1/8 1-1/8 1-1/8 1-1/4	1-1/4 1-1/4 1-3/8 1-3/8	1-1/2 1-1/2 1-1/2 1-3/4
360 to 480, excl	Up to 60, excl 60 to 84, excl 84 to 108, excl 108 and over	1-1/8 1-1/4 1-1/4 1-3/8	1-1/4 1-3/8 1-3/8 1-1/2	1-3/8 1-1/2 1-1/2 1-5/8	1-5/8 1-5/8 1-7/8 1-7/8
480 to 600, excl	Up to 60, excl 60 to 84, excl 84 to 108, excl 108 and over	1-1/4 1-3/8 1-3/8 1-1/2	1-1/2 1-1/2 1-1/2 1-5/8	1-5/8 1-5/8 1-5/8 1-3/4	1-7/8 1-7/8 1-7/8 1-7/8
600 to 720, excl	Up to 60, excl 60 to 84, excl 84 to 108, excl 108 and over	1-3/4 1-3/4 1-3/4 1-3/4	1-7/8 1-7/8 1-7/8 2	1-7/8 1-7/8 1-7/8 2-1/4	2-1/4 2-1/4 2-1/4 2-1/2
720 and over	Up to 60, excl 60 to 84, excl 84 to 108, excl 108 and over	2 2 2 2	2-1/8 2-1/8 2-1/8 2-3/8	2-1/4 2-1/4 2-1/4 2-1/2	2-3/4 2-3/4 2-3/4 3

TABLE XXI (SI)

Specified Length Metres	Specified Width Metres	Tolerance, Millimetres, Plus Only			
		For Thickness Ranges, Millimetres			
		Up to 9.5, excl	9.5, to 15.9, excl	15.9, to 25.4, excl	25.4 to 50.8, incl
Up to 3.05, excl	Up to 1.52, excl 1.52 to 2.14, excl 2.14 to 2.74, excl 2.74 and over	12.7 15.9 19.0 22.2	15.9 17.5 22.2 25.4	19.0 22.2 25.4 28.6	25.4 25.4 28.6 31.8
3.05 to 6.10, excl	Up to 1.52, excl 1.52 to 2.14, excl 2.14 to 2.74, excl 2.74 and over	19.0 19.0 22.2 25.4	22.2 22.2 23.8 28.6	25.4 25.4 28.6 31.8	28.6 31.8 34.9 34.9
6.10 to 9.15, excl	Up to 1.52, excl 1.52 to 2.14, excl 2.14 to 2.74, excl 2.74 and over	25.4 25.4 25.4 28.6	28.6 28.6 28.6 31.8	31.8 31.8 34.9 34.9	38.1 38.1 38.1 44.4
9.15 to 12.19, excl	Up to 1.52, excl 1.52 to 2.14, excl 2.14 to 2.74, excl 2.74 and over	28.6 31.8 31.8 34.9	31.8 34.9 34.9 38.1	34.9 38.1 38.1 41.3	41.3 41.3 47.6 47.6
12.19 to 15.24, excl	Up to 1.52, excl 1.52 to 2.14, excl 2.14 to 2.74, excl 2.74 and over	31.8 34.9 34.9 38.1	38.1 38.1 38.1 41.3	41.3 41.3 41.3 44.4	47.6 47.6 47.6 47.6
15.24 to 18.29, excl	Up to 1.52, excl 1.52 to 2.14, excl 2.14 to 2.74, excl 2.74 and over	44.4 44.4 44.4 44.4	47.6 47.6 47.6 50.8	47.6 47.6 47.6 57.2	57.2 57.2 57.2 63.5
18.29 and over	Up to 1.52, excl 1.52 to 2.14, excl 2.14 to 2.74, excl 2.74 and over	50.8 50.8 50.8 50.8	54.0 54.0 54.0 60.3	57.2 57.2 57.2 63.5	69.8 69.8 69.8 76.2

4.5.1.1 For sheared plate, the tolerances in Table XXI apply only to specified thicknesses 1-1/2 in. (38.1 mm) and under.