The Engineering Society For Advancing Mobility Land Sea Air and Space®

400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

AMS 2262E

Issued 5-1-48
Revised 1-1-89

Superseding AMS 2262D

TOLERANCES
Nickel, Nickel Alloy, and Cobalt Alloy Sheet, Strip, and Plate

1. SCOPE: This specification covers established inch/pound manufacturing tolerances applicable to sheet, strip, and plate of nickel, nickel alloys, and cobalt alloys ordered to inch/pound dimensions. These tolerances apply to all conditions, unless otherwise noted. The term "excl" is used to apply only to the higher figure of a specified range.

1.1 Where the terms "nickel", "nickel-copper", "nickel-chromium", "nickel-molybdenum", "nickel-molybdenum-chromium", and "cobalt" are used without qualification, they refer to both non-heat-treatable and heat treatable alloys as applicable, unless otherwise noted.

1.2 MAM 2262, specified in Metric units, is the equivalent of this AMS.

2. THICKNESS: Thickness for sheet and strip is measured at any place on widths under 1 inch, at any place 3/8 inch and over from an edge on widths 1 inch and over, and for plate at least 3/8 inch but not more than 3 inches from an edge.

2.1 Sheet:

2.1.1 Nickel, Nickel-Chromium, and Nickel-Copper Alloys: For thickness 0.018 Ø inch and under, tolerances apply only to widths of 36 inches and under in lengths 96 inches and under. Cold rolled tolerances do not apply to precipitation-hardenable nickel-chromium alloys over 44 inches wide.

TABLE I

Specified Thickness Inch	Thickness Tolerance, Inch, Plus and Minus			
	Cold Rolled Width Ranges, Inches		Hot Rolled Width Ranges, Inches	
	48 and Under	Over 48 to 60, incl	48 and Under	Over 48 to 60, incl
0.010 to 0.018, incl	0.002	--	--	--
Over 0.018 to 0.025, incl	0.002	0.003	0.003	0.004
Over 0.025 to 0.034, incl	0.003	0.004	0.004	0.005
Over 0.034 to 0.056, incl	0.004	0.005	0.005	0.006
Over 0.056 to 0.070, incl	0.005	0.006	0.006	0.007
Over 0.070 to 0.078, incl	0.006	0.007	0.007	0.008
Over 0.078 to 0.093, incl	0.007	0.008	0.008	0.009
Over 0.093 to 0.109, incl	0.007	0.009	0.009	0.010
Over 0.109 to 0.125, incl	0.008	0.010	0.010	0.012
Over 0.125 to 0.140, incl	0.008	0.010	0.012	0.014
Over 0.140 to 0.171, incl	0.009	0.012	0.014	0.016
Over 0.171 to 0.187, incl	0.010	0.013	0.015	0.017

2.1.2 Nickel-Molybdenum, Nickel-Molybdenum-Chromium, and Cobalt Alloys (Widths 48 inches and Under): For specified thicknesses over 0.187 inch, plate tolerances of Table V apply.

TABLE II

Specified Thickness Inch	Thickness Tolerances, Inch	
	Plus	Minus
0.010 to 0.018, incl	0.002	0.002
Over 0.018 to 0.025, incl	0.003	0.003
Over 0.025 to 0.034, incl	0.004	0.004
Over 0.034 to 0.056, incl	0.005	0.005
Over 0.056 to 0.070, incl	0.006	0.006
Over 0.070 to 0.078, incl	0.007	0.007
Over 0.078 to 0.093, incl	0.008	0.008
Over 0.093 to 0.109, incl	0.009	0.009
Over 0.109 to 0.125, incl	0.010	0.010
Over 0.125 to 0.140, incl	0.013	0.010
Over 0.140 to 0.171, incl	0.016	0.010
Over 0.171 to 0.187, incl	0.018	0.010

2.2 Cold-Rolled Strip:

2.2.1 All Alloys: Table III does not apply to precipitation-hardenable nickel-chromium and nickel-molybdenum-chromium alloys for specified thicknesses over 0.025 inch or to any alloy in widths over 12 inches.

TABLE III

Specified Thickness (T) Inch	Thickness Tolerance, Inch, Plus and Minus All Widths
Up to 0.006, excl	0.10T
0.006 to 0.015, incl	0.001
Over 0.015 to 0.050, incl	0.0015
Over 0.050 to 0.093, incl	0.0025
Over 0.093 to 0.125, incl	0.004

2.3 Hot-Rolled Plate: Minus tolerance shall be 0.010 inch for all widths and all thicknesses in all alloys; plus tolerances shall be as shown in 2.3.1 and 2.3.2.

2.3.1 Nickel, Nickel-Chromium, and Nickel-Copper Alloys: Tolerances shown in Table IV are only approximate for precipitation-hardenable nickel-chromium alloys; failure to meet these tolerances shall not be cause for rejection of such alloy product.

TABLE IV

Specified Thickness (T) Inches	Thickness Tolerance, Inch, Plus Only For Width Ranges Shown, Inches				
	Up to 48, excl	48 to 60, excl	60 to 72, excl	72 to 84, excl	84 to 96, excl
0.1875 to 0.3125, excl	0.113T	0.132T	0.150T	0.169T	0.184T
0.3125 to 0.375, excl	0.094T	0.113T	0.132T	0.150T	0.169T
0.375 to 0.4375, excl	0.088T	0.094T	0.113T	0.132T	0.150T
0.4375 to 0.500, excl	0.075T	0.088T	0.094T	0.113T	0.132T
0.500 to 0.625, excl	0.063T	0.075T	0.088T	0.094T	0.113T
0.625 to 0.750, excl	0.057T	0.069T	0.075T	0.088T	0.094T
0.750 to 1.000, excl	0.050T	0.057T	0.069T	0.075T	0.088T
1.000 and over	0.050T	0.050T	0.057T	0.069T	0.075T

2.3.2 Nickel-Molybdenum, Nickel-Molybdenum-Chromium, and Cobalt Alloys (Widths Ø 48 Inches and Under): Tolerances shown in Table V are only approximate for precipitation-hardenable alloys; failure to meet these tolerances shall not be cause for rejection of such product.

TABLE V

Specified Thickness (T) Inches	Thickness Tolerance, Inch, Plus Only For Width Ranges Shown, Inches				
	Up to 48, excl	48 to 60, excl	60 to 72, excl	72 to 84, excl	84 to 96, excl
0.1875 to 0.3125, excl	0.132T	0.150T	0.169T	0.184T	0.199T
0.3125 to 0.375, excl	0.113T	0.132T	0.150T	0.169T	0.184T
0.375 to 0.4375, excl	0.094T	0.113T	0.132T	0.150T	0.169T
0.4375 to 0.500, excl	0.088T	0.094T	0.113T	0.132T	0.150T
0.500 to 0.625, excl	0.075T	0.088T	0.094T	0.113T	0.132T
0.625 to 0.750, excl	0.069T	0.075T	0.088T	0.094T	0.113T
0.750 to 1.000, excl	0.057T	0.069T	0.075T	0.088T	0.094T
1.000 and over	0.050T	0.057T	0.069T	0.075T	0.088T

3. WIDTH:

3.1 Sheet (All Alloys, Widths 60 Inches and Under): Shall not vary in width more than +1/8 inch, -0.

3.2 Cold-Rolled Strip:

3.2.1 All Alloys:
Ø

TABLE VI

Specified Thickness Inch	Specified Width Inches	Width Tolerance, Inch Plus and Minus
Up to 0.009, incl	12 and under	0.005
Over 0.009 to 0.024, incl	12 and under	0.007
Over 0.024 to 0.075, incl	14 and under	0.007
Over 0.075 to 0.100, incl	14 and under	0.009
Over 0.100 to 0.125, incl	14 and under	0.012

3.3 Hot-Rolled Plate:

3.3.1 Nickel, Nickel-Chromium, Nickel-Copper, Nickel-Molybdenum, Nickel-Molybdenum-Chromium, and Cobalt Alloys:

3.3.1.1 Sheared Plate 240 Inches and Under in Length: Minus tolerance shall be Ø 0.125 inch for all widths and all thicknesses; plus tolerance shall be as shown in Table VII. The minimum available width of sheared plate is 24 inches.

TABLE VII

Specified Thickness Inches	Width Tolerance, Inch, Plus Only, Width Ranges, Inches		
	Up to 30, incl	Over 30 to 72, incl	Over 72 to 6, incl
0.1875 to 0.3125, excl	0.1875	0.250	0.375
0.3125 to 0.500, excl	0.250	0.375	0.375
0.500 to 0.750, excl	0.375	0.375	0.500
0.750 to 1.000, excl	0.500	0.500	0.625
1.000 to 1.250, excl	0.625	0.625	0.750

3.3.1.2 Sheared Plate Over 240 Inches in Length: Minus tolerance shall be 0.1875 inch for all widths and all thicknesses; plus tolerance shall be 0.0625 inch greater than those of Table VII.

3.3.1.3 Abrasive-Cut Plate: Standard width tolerances for abrasive-cut plate Ø shall be ±0.125 inch for specified thicknesses 1.250 inches and under and +0.1875 inch, -0.125 inch for specified thicknesses over 1.250 to 2.750 inches, inclusive.

3.3.1.3.1 Minimum available width of abrasive-cut plate is 2 inches and increases to 4 inches for thick plate.

3.3.2 Tolerances for width of powder or inert-arc cut plate and for diameter of machined, powder, or inert-arc cut circular plate shall be as agreed upon by purchaser and vendor.

4. LENGTH:

4.1 Sheet and Strip: Definite lengths shall vary not more than +1/8 inch, -0 from the length ordered.

4.2 Hot-Rolled Plate:

4.2.1 Nickel, Nickel-Chromium, Nickel-Copper, Nickel-Molybdenum, Nickel-Molybdenum-Chromium, and Cobalt Alloys: