

AERONAUTICAL MATERIAL SPECIFICATION

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Revised

TOLERANCES Alloy Steel Bars

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1. PURPOSE: To publish established manufacturing tolerances.
2. APPLICATION: Tolerances shown herein apply, unless otherwise agreed between purchaser and vendor. These tolerances apply to all conditions, unless otherwise noted.
3. DIAMETER OR THICKNESS:

TABLE I
COLD FINISHED

Diameter or Thickness Inches	Tolerance, Inch, Minus only	
	Mean of Carbon .45% and less	Mean of Carbon Over .45% or All Carbons Heat Treated or Strain Relieved

ROUNDS AND HEXAGONS

2 and under	.004	.006
Over 2 to 3, incl.	.006	.008
Over 3 to 6, incl.	.008	.010

SQUARES AND FLATS

Thickness or Width Inches		
2 and under	.006	.008
Over 2 to 3, incl.	.010	.012
Over 3 to 6, incl.	.012	.014

TABLE II
HOT FINISHED

ROUNDS AND SQUARES

Diameter or Thickness Inches	Tolerance, Inch		Out of Round or Square Inch
	Plus	Minus	
.313 and under	.005	.005	.008
Over .313 to .438, incl.	.006	.006	.009
Over .438 to .625, incl.	.007	.007	.010
Over .625 to .875, incl.	.008	.008	.012
Over .875 to 1.000, incl.	.009	.009	.013
Over 1.000 to 1.125, incl.	.010	.010	.015

3. DIAMETER OR THICKNESS: (continued)

TABLE II (continued)
HOT FINISHED

ROUNDS AND SQUARES

Diameter or Thickness Inches	Tolerance, Inch		Out of Round or Square Inch
	Plus	Minus	
Over 1.125 to 1.250, incl.	.011	.011	.016
Over 1.250 to 1.375, incl.	.012	.012	.018
Over 1.375 to 1.500, incl.	.014	.014	.021
Over 1.500 to 2.000, incl.	.016	.016	.023
Over 2.000 to 2.500, incl.	.031	0	.023
Over 2.500 to 3.500, incl.	.047	0	.035
Over 3.500 to 4.500, incl.	.063	0	.046
Over 4.500 to 5.500, incl.	.078	0	.058
Over 5.500 to 6.500, incl.	.125	0	.070
Over 6.500 to 8.000, incl.	.156	0	.085

4. WIDTH: None.

5. LENGTH:

TABLE III

Diameter or Thickness Inches	Tolerance, Inch, Plus only Length Ranges, feet				
	5	Over 5	Over 10	Over 20	Over 30
	and under 10 incl.	to 10 incl.	to 20 incl.	to 30 incl.	to 40 incl.

ROUNDS, SQUARES, HEXAGONS AND OCTAGONS

1 and under	3/8	1/2	5/8	3/4	1-1/4
Over 1 to 2, incl.	1/2	5/8	3/4	1	1-1/2
Over 2	3/4	1	1-1/4	1-1/2	1-3/4

FLATS

Thickness Inches	Width Inches	3/8	1/2	5/8	3/4	1-1/4
.25 to 1, incl.	3 and under	3/8	1/2	5/8	3/4	1-1/4
Over 1	3 and under	1/2	5/8	3/4	1	1-1/2
.25 to 1, incl.	Over 3 to 6, incl.	1/2	5/8	3/4	1	1-1/2
Over 1	Over 3 to 6, incl.	3/4	1	1-1/4	1-1/2	1-3/4
Over 1	Over 6 to 9, incl.	1	1-1/4	1-1/2	1-3/4	2
Over 1	Over 9 to 12, incl.	1-1/4	1-1/2	1-3/4	2	2