HOT ROLLED ALLOY BARS
ROUNDS AND SQUARES

TOLERANCES

Specified Size In Inches	Variation from Size in Inches Over	Under	Out of Round* or Square In Inches
Up to 5/16, incl.	.005	.005	.008
Over 5/16 to 7/16, incl.	.006	.006	.009
Over 7/16 to 5/8, incl.	.007	.007	.010
Over 5/8 to 7/8, incl.	.008	.008	.012
Over 7/8 to 1, incl.	.009	.009	.013
Over 1 to 1-1/8, incl.	.010	.010	.015
Over 1-1/8 to 1-1/4, incl.	.011	.011	.016
Over 1-1/4 to 1-3/8, incl.	.012	.012	.018
Over 1-3/8 to 1-1/2, incl.	.014	.014	.021
Over 1-1/2 to 2, incl.	1/64	1/64	.023
Over 2 to 2-1/2, incl.	1/32		.023
Over 2-1/2 to 3-1/2, incl.	3/64		.035
Over 3-1/2 to 4-1/2, incl.	1/16		.046
Over 4-1/2 to 5-1/2, incl.	5/64		.058
Over 5-1/2 to 6-1/2, incl.	1/8		.070
Over 6-1/2 to 8-1/4, incl.	5/32		.085
Over 8-1/4 to 9-1/2, incl.	3/16		.100
Over 9-1/2 to 10, incl.	1/4		.120

* Out-of-round is the difference between the maximum and minimum diameters of a round bar measured at the same cross section. Out-of-square is the difference in the two dimensions at the same cross section of a square bar - each dimension being the distance between opposite faces.

Hot Rolled Alloy Flats

TOLERANCES

Tolerances apply to thickness in inches

Specified width in Inches	0.23-.230 excl.	Variations from Thickness in Inches (Tolerances are over or under)						Variations from Width in Inches	
		Under 1/4	1\4 - 1\2	Over 1\2 - 1	Over 1 – 2	Over 2 – 3	Over 3	Over	Under
Up to 1	0.007	.007	.008	.010	—	—	—	1/64	1/64
Over 1 – 2	0.007	.007	.012	.015	1/32	—	—	1/32	1/32
Over 2 – 4	0.008	.008	.015	.020	1/32	3/64	3/64	1/16	1/32
Over 4 – 6	0.009	.009	.015	.020	1/32	3/64	3/64	3/32	1/16

HOT ROLLED ALLOY STRAIGHTNESS
Rounds and Squares

Standard Straightness – 1/4" in any feet, or 1/4 x $\frac{\text{number of feet in length}}{5}$ inches

Standard Straightness – 1/8” in any 5 feet, of 1/8 x $\frac{\text{number of feet in length}}{5}$ inches

SIZE TOLERANCES

Cold Finished Bars, Rounds
Stainless and Heat Resisting Steels
(ASTM A484)

Specified Size in (mm)	Size Tolerance, in (mm)[a, b]	
	Over	Under
Over 0.050 to 5/16 (1.27 to 7.94), excl.	0.001 (0.03)	0.001 (0.03)
5/16 to 1/2 (7.94 to 12.7), excl.	0.0015 (0.04)	0.0015 (0.04)
1/2 to 1 (12.7 to 25.4), excl.	0.002 (0.05)	0.002 (0.05)
1 to 1-1/2 (25.4 to 38.1), excl.	0.0025 (0.06)	0.0025 (0.06)
1-1/2 to 4 (38.1 to 101.6) incl. c	0.003 (0.08)	0.003 (0.08)

a. Size tolerances are over and under as shown in the above table. Also, rounds can be produced to tolerances all over and nothing under, all under and nothing over or any combination of over and under, if the total spread in size tolerance for specified size is not less than the total spread shown in the table.

b. When it is necessary to heat-treat or heat-treat and pickle after cold finishing, size tolerances are double those shown in the table.

c. Cold finished bars over 4 in (101.6) in diameter are produced; size tolerances for such bars are not included herin.

SIZE TOLERANCES

Cold Finished Bars, Hexagons, Octagons and Squares Stainless and Heat Resisting Steels (ASTM A484)

Specified Size in (mm)	Size Tolerance, in (mm)[a]	
	Over	Under
Over[b] 1/8 to 5/16 (1.59 to 7.94) excl.	0	0.002 (0.05)
Over[b] 5/16 to Ω (7.94 to 12.7), excl.	0	0.00. (0.08)
Over 1/2 to 1 (12.7 to 25), incl.	0	0.004 (0.10)
Over 1 to 2 (25 to 51), incl.	0	0.006 (0.15)
Over 2 to 3 (51 to 76), incl.	0	0.008 (0.20)
Over 3 (76)	0	0.010 (0.25)

a. When it is necessary to heat-treat or heat-treat and pickle after cold finishing, size tolerances are double those shown in the table.

b. Not shown in ASTM A484.

STRAIGHTNESS TOLERANCES

Hot Finished or Cold Finished Bars
Machine Straightened
Stainless and Heat Resisting Steels
(ASTM A484)

Measurement is taken on the concave side of the bar with a straight edge. Hot finished or cold finished bars for machining purposes are furnished machine straightened to the following tolerances:

Hot finished:

1/8 in. in any 5 ft.; but may not exceed

$$1/8 \times \frac{\text{No. of feet in length}}{5}$$

$$\text{Tolerance in mm} - 3.18 \times \frac{\text{length (in meters)}}{1.52}$$

Cold finished:

1/16 in. in any 5 ft.; but may not exceed

$$1/8 \times \frac{\text{No. of feet in length}}{5}$$

$$\text{Tolerance in mm} - 1.59 \times \frac{\text{length (in meters)}}{1.52}$$