

Hot Rolled Alloy Steel Bars

STANDARD MANUFACTURING TOLERANCES

Hot Rolled Alloy Steel Bars ROUNDS AND SQUARES

Specified Size in Inches	Variation from Size in Inches Over	Variation from Size in Inches Under	Out of Round * or Square 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 1/18 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.	5/64	...	.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.	3/14	...	.100

* Out-of-round is the difference between the maximum and minimum diameter 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 .
-each dimension being the distance between opposite faces.

HEXAGONS AND OCTAGONS

Specified Sizes measured between opposite sides in inches	Variation from Size in Inches Over	<u>Variation from Size in Inches Under</u>	Max. Difference in Inches (Three Measurements) Hexagons Only
Up to 1/2, incl.	.007	.007	.011
Over 1/2 to 1, incl.	.010	.010	.015
Over 1 to 1 1/2, incl.	.021	.013	.025
Over 1 1/2 to 2, incl.	1/32	1/64	1/32
Over 2 to 2 1/2, incl.	3/64	1/64	3/64
Over 2 1/2 to 3 1/2, incl.	1/16	1/64	1/16

SQUARE EDGE AND ROUND EDGE FLATS
Tolerances apply to thickness in inches

Variations from Thickness in Inches (Tolerances are over or under)							
Specified Width in inches	Under ¼" thick	¼ to ½" thick	Over ½" to 1" thick	Over 1" to 2" thick	Over 2" to 4" thick	Variations from width in Inches	
						Over	Under
Up to 1, incl.	.007	.008	.010	...	...	1/64	1/64
Over 1 to 2, incl.	.007	.012	.015	1/32	...	1/32	1/32
Over 2 to 4, incl.	.008	.015	.020	1/32	3/64	1/14	1/22
Over 4 to 6, incl.	.009	.015	.020	1/32	1/14	3/32	1/16
Over 6 to 8, incl.	.015	.016	.025	1/32	1/14	1/8	3/32

Standard Straightness – ¼" in any 5 feet, or ¼" x number of feet of length divided by 5
Special Straightness – 1/2 " in any 5 feet, or ½" x number of feet of length divided by 5

NOTE: Straightness tolerances do not apply to hot rolled alloy steel bars if any subsequent heating operation has been preformed.
Allowance for machining- refer to dates section