

Hot Rolled Carbon Steel Bars

STANDARD MANUFACTURING TOLERANCES

Hot Rolled Carbon Steel Bars ROUNDS, SQUARES and ROUND CORNERED SQUARES

Specified Size In Inches	Size Tolerances, Inches		Out of Rd. or Sq., Inches
	Over	Under	
To 5/16, incl.	0.005	0.005	0.008
Over 5/16 to 7/16, incl.	0.006	0.006	0.009
Over 7/16 to 3/8, incl.	0.007	0.007	0.010
Over 3/8 to 7/8, incl.	0.008	0.008	0.012
Over 7/8 to 1, incl.	0.009	0.009	0.013
Over 1 to 1 1/8, incl.	0.010	0.010	0.015
Over 1 1/8 to 1 1/4, incl.	0.011	0.011	0.016
Over 1 1/4 to 1 3/8, incl.	0.012	0.012	0.018
Over 1 3/8 to 1 1/2, incl.	0.014	0.014	0.021
Over 1 1/2 to 2, incl.	1/64	1/64	0.023
2 to 2 1/2, incl.	1/32	0	0.023
2 1/2 to 3 1/2, incl.	3/64	0	0.035
3 1/2 to 4 1/2, incl.	1/16	0	0.046
4 1/2 to 5 1/2, incl.	3/64	0	0.058
Over 5 1/2 to 6 1/2, incl.	1/8	0	0.070
Over 6 1/2 to 8 1/2, incl.	5/32	0	0.085
Over 8 1/2 to 9 1/2, incl.	3/4	0	0.120

NOTE: Out-of-round is the difference between the maximum and minimum diameters of the bar, measured at the same cross section of a square bar between opposite faces.

HEXAGONS

Specified Sizes between Opposite Sides in Inches	Size Tolerances, Inches		Out of Hexagon, Inches
	Over	Under	
To 1/2 Incl.	0.007	0.007	0.011
Over 1/2 to 1, incl.	0.010	0.010	0.015
Over 1 to 1 1/2, incl.	0.021	0.013	0.025
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

Note: Out of hexagon section is the greatest difference between any two dimensions at the same cross section between opposite faces.

SQUARE EDGE AND ROUND EDGE FLATS
Thickness Tolerances
Thickness tolerances are over and under in inches

Specified Thickness in Inches							
Specified Width in Inches	.203 to .230 excl.	.230 to ¼ excl.	¼ to ½ incl.	Over ½ to 1, incl.	Over 1 to 2, incl.	Over 2 to 3, incl.	Over 3
To 1 incl.	0.007	0.007	0.008	0.010
Over 1 to 2 incl.	0.007	0.007	0.012	0.015	1/32
Over 2 to 4 incl.	0.008	0.008	0.015	0.020	1/32	3/64	3/64
Over 4 to 6 incl.	0.009	0.009	0.015	0.020	1/32	3/64	3/64
Over 6 to 8 incl.	...	0.015	0.016	0.025	1/32	3/64	...
Width Tolerances							
Specified Width in Inches	Tolerances, Inches						
	Over	Under					
To 1, incl.	1/64	1/64					
Over 1 to 2, incl.	1/32	1/32					
Over 2 to 4, incl.	1/16	1/16					
Over 4 to 6, incl.	3/32	1/16					
Over 6 to 8, incl.	1/8*	3/32*					

*For flats over 6" to 8" in width and to 3" incl. in thickness

ALL HOT ROLLED CARBON STEEL BARS

Straightness Tolerances

¼" in any 5 ft. Or ¼" x number of ft. of length divided by 5.
 Because of warpage, Straightness tolerances do not apply to bars if any subsequent heating operation or controlled cooling has been preformed.