Steel Technical Data
Hot Rolled Carbon and Alloy Bars

Rounds and Squares - Size Tolerances

Specified Size in.	Size Tolerances, in.		Out of Round or Square, in.
	Over	Under	
Up to .3125	0.005	0.005	0.008
.3126-.4375	0.006	0.006	0.009
.4376-.6250	0.007	0.007	0.010
.6251-.8750	0.008	0.008	0.012
.8751-1.000	0.009	0.009	0.013
1.001-1.125	0.010	0.010	0.015
1.126-1.250	0.011	0.011	0.016
1.250-1.375	0.012	0.012	0.018
1.376-1.500	0.014	0.014	0.021
1.501-2.000	1/64	1/64	0.023
2.001-2.500	1/32	0	0.023
2.501-3.500	3/64	0	0.035
3.501-4.500	1/16	0	0.046
4.501-5.500	5/64	0	0.058
5.501-6.500	1/8	0	0.070
6.501-8.250	5/32	0	0.085
8.251-9.500	3/16	0	0.100
9.501-10.00	1/4	0	0.120

Out of round is the difference between the maximum and minimum diameters of the 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 sides.

Hexagons - Size Tolerances

Specified Sizes Between Opposite Sides, in.	Size Tolerances, in.		Out of Hexagon, in.
	Over	Under	
Up to .5000	0.007	0.007	0.011
.5001-1.000	0.010	0.010	0.015
1.001-1.500	0.021	0.013	0.025
1.501-2.000	1/32	1/64	1/32
2.001-2.500	3/64	1/64	3/64
2.501-3.500	1/16	1/64	1/16

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

Flats - Size Tolerances

Specified Widths in.	Thickness Tolerance, for Thickness Given, Over and Under, in.							Width Tolerance in.	
	.203-.230	.231-.250	.251-.500	.501-1.00	1.01-2.00	2.01-3.00	Over 3.01	Over	Under
Up to 1.000	0.007	0.007	0.008	0.010	...	...	...	1/64	1/64
1.001-2.000	0.007	0.007	0.012	0.015	1/32	...	...	1/32	1/32
2.001-4.000	0.008	0.008	0.015	0.020	1/32	3/64	3/64	1/16	1/32
4.001-6.000	0.009	0.009	0.015	0.020	1/32	1/16	1/16	3/32	1/16
6.001-8.000	(1)	0.015	0.016	0.025	1/32	1/16	...	...	...

(1) Flats over 6" in width are not available as hot rolled carbon steel bars in thickness under .230