



**CARBON HOT ROLLED STEEL BARS - ASTM A576**  
**A29, Table A1.1 Permissible Variations in Cross Section for Hot Wrought Round, Square, and Round Cornered Square Bars of Steel**

Specified Size, in.	Permissible Variation from Specified Size, in. (a)		Permitted Out-of-Round or Out-of-Square, in. (b)
	Over	Under	
To 5/16	0.005	0.005	0.008
Over 5/16 to 7/16, incl.	0.006	0.006	0.009
Over 7/16 to 5/8, incl.	0.007	0.007	0.010
Over 5/8 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
Over 2 to 2-1/2, incl.	1/32	0	0.023
Over 2-1/2 to 3-1/2, incl.	3/64	0	0.035
Over 3-1/2 to 4-1/2, incl.	1/16	0	0.046
Over 4-1/2 to 5-1/2, incl.	5/64	0	0.058
Over 5-1/2 to 6-1/2, incl.	1/8	0	0.070
Over 6-1/2 to 8-1/4, incl.	5/32	0	0.085
Over 8-1/4 to 9-1/2, incl.	3/16	0	0.100
Over 9-1/2 to 10, incl.	1/4	0	0.120

(a) Steel bars are regularly cut to length by shearing or hot sawing, which can cause end distortion resulting in those portions of the bar being outside the applicable size tolerance. When this end condition is objectionable, a machine cut end should be considered.

(b) 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 between opposite faces.

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**CARBON HOT ROLLED STEEL BARS - ASTM A36**

**A6, Table 27 Permitted Variations in Sectional Dimensions for Round and Square Bars and Round-Cornered Squares**

Specified Size, in.	Permissible Variation from Specified Size, in. (a)		Permitted Out-of-Round or Out-of-Square, in. (a)
	Over	Under	
To 5/16	0.005	0.005	0.008
Over 5/16 to 7/16, incl.	0.006	0.006	0.009
Over 7/16 to 5/8, incl.	0.007	0.007	0.010
Over 5/8 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
Over 2 to 2-1/2, incl.	1/32	0	0.023
Over 2-1/2 to 3-1/2, incl.	3/64	0	0.035
Over 3-1/2 to 4-1/2, incl.	1/16	0	0.046
Over 4-1/2 to 5-1/2, incl.	5/64	0	0.058
Over 5-1/2 to 6-1/2, incl.	1/8	0	0.070
Over 6-1/2 to 8-1/4, incl.	5/32	0	0.085
Over 8-1/4 to 9-1/2, incl.	3/16	0	0.100
Over 9-1/2 to 10, incl.	1/4	0	0.120

(a) Out-of-round is the difference between the maximum and minimum diameters of the bar, measured at the same transverse cross section. Out-of-square section is the difference in perpendicular distance between opposite faces, measured at the same transverse cross section.

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