

# ASTM A500

## Cold-Formed ERW Round, Square and Rectangular Structural Steel Tubing in Grades B And C.

All Independence Tube structural tubing is produced in accordance with the mechanical and chemical property requirements of ASTM A500, Grades B & C.

Chemical Composition	Grade B	Grade C
Carbon, max %	0.26	0.23
Manganese, max %	----	1.35
Phosphorus, max %	0.04	0.04
Sulphur, max %	0.05	0.05
Copper, when copper steel is specified, min %	0.20	0.20

Mechanical Properties - Shapes	Grade B	Grade C
Tensile Strength, min psi	58,000	62,000
Yield Strength, min psi	46,000	50,000
Elongation in 2" min	23%*	21%**
*.180" wall and over		
**.120" wall and over		

Mechanical Properties -Rounds	Grade B	Grade C
Tensile Strength, min psi	58,000	62,000
Yield Strength, min psi	42,000	46,000
Elongation in 2" min	23%*	21%**
*.180" wall and over		
**.120" wall and over		

### Outside Dimension Tolerances for Square and Rectangle Structural Tubing

Largest Outside Dimension (in)	Plus/minus*
2-1/2" and under	0.020
2-1/2" to 3-1/2"	0.025
3-1/2" to 5-1/2"	0.030
5-1/2" and over	1%

\* Tolerance includes allowance for convexity or concavity. For rectangular tubing having a ratio of outside large to small flat dimension less than 1.5, and for square tubing, the tolerance on small flat dimension shall be identical to the large flat dimension tolerance. For rectangular tubing having a ratio of outside large to small flat dimension in the range of 1.5 to 3.9 inclusive, the tolerance on small flat dimension shall be 1.5 times the large flat dimension tolerance. For rectangular tubing having a ratio of outside large to small flat dimension greater than 3.0, the tolerance on small flat dimension shall be 2.0 times the permissible variations in large flat dimension.

### NOTES:

**Straightness:** .025" times the number of ft of total length.

**Squareness of Sides:** For square and rectangular structural tubing, adjacent sides shall be square (90°), with a permissible variation of 62° max.

**Radius of Corners:** The radius of any outside corner shall not exceed 3.0 times the specified wall thickness.

**Wall Thickness:** ±10% of nominal wall thickness, as measured at the center of the flat.

### Permissible Variations in Twist for Square and Rectangular Structural Tubing

Specified Outside Large Flat Dimension	Maximum twist in 3 feet
Over 1-1/2" to 2-1/2"	0.062"
Over 2-1/2" to 4"	0.075"
Over 4" to 6"	0.087"
Over 6" to 8"	0.100"
Over 8"	0.112"



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