

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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TOLERANCES Aluminum and Aluminum Alloy Tubing

1. PURPOSE: To publish established manufacturing tolerances.
2. APPLICATION: Tolerances shown herein apply, unless otherwise agreed between purchaser and vendor. These tolerances apply to all conditions, unless otherwise noted.
3. OUTSIDE DIAMETER:

TABLE I
ROUND TUBING

Nominal Outside Diameter, Inches	Tolerance, Inch, Plus and Minus		
	Mean Diameter ^(a) Or Pi-Tape Measurement	Individual Measurement of Diameter (Out of roundness) Except Soft (O), or Thin Wall Tubes ^(b)	
	All Alloys	Non-Heat Treated Alloys	Heat Treated Alloys
3/8 to 1/2, incl.	0.003	0.003	0.006
Over 1/2 to 1, incl.	0.004	0.004	0.008
Over 1 to 2, incl.	0.005	0.005	0.010
Over 2 to 3, incl.	0.006	0.006	0.012
Over 3 to 5, incl.	0.008	0.008	0.016
Over 5 to 6, incl.	0.010	0.010	0.020
Over 6 to 8, incl.	0.015	0.015	0.030
Over 8 to 10, incl.	0.020	0.020	0.040
Over 10 to 12, incl.	0.025	0.025	0.050

If so specified in the purchase order, the tolerances for outside diameter shall apply to the inside diameter instead, but not to both inside and outside diameter of the same lot of tubing.

- (a) Mean diameter is the average of any two measurements of diameter taken at right angles to each other at any point along the length of the tube.
- (b) The tolerance of individual measurements shall not apply to tubes in which the wall thickness is less than 2.5% of the diameter or less than 0.020 inch, nor to tubes in the soft (O) temper. Such tubes shall be commercially round.