

# AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.  
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Revised

### T O L E R A N C E S Nickel and Nickel-Base Alloy Tubing

1. PURPOSE: To publish established manufacturing tolerances.
2. APPLICATION: Tolerances shown herein apply, unless otherwise agreed upon by purchaser and vendor.
3. DIAMETER:

TABLE I  
ANNEALED

(Ni and Ni-Cu Alloys)

Nominal OD Inches	Nominal Wall Thickness Inch	OD Tolerance, Inch			
		Individual Measurement		Mean Measurement	
		Plus	Minus	Plus	Minus
Under 0.094	All	0.002	0.000	---	---
0.094 to 0.188, excl	All	0.003	0.000	---	---
0.188 to 0.500, excl	All	0.004	0.000	---	---
0.500 to 0.625, incl	0.083 and under	0.005	0.000	---	---
0.500 to 0.625, incl	Over 0.083	0.010	0.010	0.005	0.005
Over 0.625 to 1.500, incl	All	0.010	0.010	0.005	0.005
Over 1.500 to 4.500, incl	All	0.020	0.020	0.010	0.010

TABLE III  
ANNEALED

(Non-Heat Treatable Ni-Cr Alloys)

Nominal OD Inches	Nominal Wall Thickness Inch	OD Tolerance, Inch			
		Individual Measurement		Mean Measurement	
		Plus	Minus	Plus	Minus
Under 0.094	All	0.002	0.000	---	---
0.094 to 0.188, excl	All	0.003	0.000	---	---
0.188 to 0.500, excl	All	0.004	0.000	---	---
0.500 to 0.625, incl	0.083 and under	0.005	0.000	---	---
0.500 to 0.625, incl	Over 0.083	0.010	0.010	0.005	0.005
Over 0.625 to 1.500, incl	All	0.015	0.015	0.0075	0.0075
Over 1.500 to 3.500, incl	All	0.020	0.020	0.010	0.010
Over 3.500 to 4.500, incl	All	0.030	0.030	0.015	0.015

**Note:** If nominal wall thickness is less than 3% of the nominal OD, an ovality tolerance, both plus and minus, equal to 0.5% of the nominal OD will be allowed in addition to the individual measurement tolerances specified in the table, but the mean OD shall be within the individual measurement tolerances specified in the table.

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