

# AEROSPACE MATERIAL SPECIFICATION

AMS 2243H

Issued	MAY 1945
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Superseding AMS 2243G	

## Tolerances Corrosion and Heat-Resistant Steel Tubing

### RATIONALE

AMS 2243H is a Five Year Review and update of this specification.

#### 1. SCOPE

This specification covers manufacturing tolerances applicable to seamless and welded tubing of corrosion and heat-resistant steel ordered to inch dimensions. These tolerances apply to all conditions and are based on individual measurements, unless otherwise noted. Tubing may be specified by two dimensions only (OD and wall thickness, ID and wall thickness, or OD and ID).

#### 2. DIAMETER

##### 2.1 Tubing Other than Pressure Tubing; Welded (See 2.1.1) or Seamless (See 2.1.2)

Shall be as shown in Table 1.

TABLE 1

Specified OD or ID Inches	Tolerance, Inch Including Ovality (See 2.3) Plus and Minus
Up to 0.5, excl	0.005
0.5 to 1.5, excl	0.005
1.5 to 3.5, excl	0.010
3.5 to 5.5, excl	0.015
5.5 and over	0.031

##### 2.1.1 Welded Tubing

Shall be bead-reduced or shall be cold finished by tube-reducing, cold-drawing, machining, or grinding.

##### 2.1.2 Seamless Tubing

Shall be cold-finished by tube-reducing, cold-drawing, machining, or grinding.

##### 2.2 Pressure Tubing (See 6.1.5); Cold Drawn or Cold Reduced (Seamless or Welded)

Shall be as shown in Table 2.

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TABLE 2

Specified OD or ID Inches	OD or ID Tolerance, Inch Including Ovality (See 2.3) Plus and Minus
Up to 0.5, incl	0.003
Over 0.5 to 1.0, excl	0.004
1.0 to 1.5, excl	0.005
1.5 to 2.0, excl	0.006
2.0 to 2.5, excl	0.007
2.5 to 3.5, excl	0.010
3.5 to 5.5, excl	0.015
5.5 to 8.0, excl	0.030
8.0 to 8.625, incl	0.045

### 2.2.1 Half Tolerances

When half tolerances are specified, the tolerances of Table 2 shall be plus only; the minus side of the tolerance range shall not be applicable.

### 2.3 Ovality, All Tubing

All of the tolerances shown in Tables 1 and 2 include ovality except on light-walled tubing where the specified wall thickness is 3% or less of the specified OD. On such light-walled tubing, there is an additional ovality tolerance (in addition to the tabular tolerances) equal to  $\pm 0.5\%$  of the specified OD (or ID); however, the average diameter shall be within the tabular tolerances.

## 3. WALL THICKNESS

### 3.1 Tubing Other than Pressure Tubing; Welded or Seamless

Shall be as shown in Table 3.

TABLE 3

Specified OD or ID Inches	Wall Thickness Tolerance, % Plus or Minus	
	For Wall Thickness, Inch, Shown Under 0.250	0.250 and Over
Up to 0.5, excl	15	15
0.5 to 1.5, excl	12.5	10
1.5 to 3.5, excl	12.5	10
3.5 to 5.5, excl	12.5	10
5.5 and Over	12.5	10

### 3.2 Pressure Tubing (See 6.1.5); Seamless or Welded

Shall be  $\pm 10\%$  for all specified diameters.

### 3.2.1 Half Tolerances

When half tolerances are specified, tolerance shall be  $\pm 10\%$ , only. The minus side of the tolerance range shall not be applicable

## 4. LENGTH

When cut lengths are specified, the following tolerances apply to straight tubing in lengths up to 24 feet, inclusive. For each 10 feet or fraction thereof beyond 24 feet, an additional  $\pm 1/8$  inch tolerance is permitted up to a maximum of 1/2 inch.