

Tolerances  
Corrosion and Heat-Resistant Steel Tubing

RATIONALE

AMS2243K revises diametral and wall thickness tolerances (Tables 1, 2 and 3) by including provisions for both standard and special tolerances (2.1, 2.2, 3.1).

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. Standard tolerances shall apply unless special tolerances are specified by the purchaser.

TABLE 1

Specified OD or ID Inches	Standard Tolerance, Inch Including Ovality (See 2.3) Plus and Minus	Special Tolerance, Inch Including Ovality (See 2.3) Plus and Minus
Up to 0.5, excl	0.005	0.003
0.5 to 1.5, excl	0.005	0.003
1.5 to 3.5, excl	0.010	0.004
3.5 to 5.5, excl	0.015	0.005
5.5 and over	0.031	0.010

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.

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

Shall be as shown in Table 2. Standard tolerances shall apply unless special tolerances are specified by the purchaser.

TABLE 2

Specified OD or ID Inches	Standard OD or ID Tolerance, Inch Including Ovality (See 2.3)		Special OD or ID Tolerance, Inch Including Ovality (See 2.3)	
	Plus and Minus		Plus and Minus	
Up to 0.5, incl	0.003		0.003	
Over 0.5 to 1.0, excl	0.004		0.003	
1.0 to 1.5, excl	0.005		0.003	
1.5 to 2.0, excl	0.006		0.004	
2.0 to 2.5, excl	0.007		0.004	
2.5 to 3.5, excl	0.010		0.004	
3.5 to 5.5, excl	0.015		0.005	
5.5 to 8.0, excl	0.030		0.010	
8.0 to 8.625, incl	0.045		0.020	

### 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. Standard tolerances shall apply unless special tolerances specified by the purchaser.

TABLE 3

Specified OD or ID Inches	Standard Wall Thickness Tolerance, % Plus or Minus		Special Wall Thickness Tolerance, % Plus or Minus	
	For Wall Thickness, Inch, Shown		For Wall Thickness, Inch, Shown	
	Under 0.250	0.250 and Over	Under 0.250	0.250 and Over
Up to 0.5, excl	15	15	10	10
0.5 to 1.5, excl	12.5	10	10	10
1.5 to 3.5, excl	12.5	10	12.5	10
3.5 to 5.5, excl	12.5	10	12.5	10
5.5 and Over	12.5	10	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 +10%, only. The minus side of the tolerance range shall not be applicable.