

**TOLERANCES, METRIC
Aluminum Alloy Drawn Tubing**

1. **SCOPE:** This specification covers established metric manufacturing tolerances applicable to aluminum alloy drawn tubing ordered to metric dimensions. These tolerances apply to all conditions, unless otherwise noted. The term "excl" applies only to the higher figure of the specified range.

2. **DIAMETER, WIDTH, OR DEPTH:**

2.1 **Round:**

TABLE I

Tolerance, Millimetres, Plus and Minus (See Note 2)
Diameter at Any Point (Ovality)
(See Note 3)

Specified OD or ID Millimetres (See Note 1)	Mean Diameter (See Note 4)	Diameter at Any Point (Ovality) (See Note 3)		
		Non-Annealed and Non-Heat Treated Tube	Heat Treated Tube (See Note 5)	Annealed Tube
Up to 12.50, incl	0.08	0.08	0.16	0.48
Over 12.50 to 25.00, incl	0.10	0.10	0.20	0.60
Over 25.00 to 50.00, incl	0.13	0.13	0.25	0.75
Over 50.00 to 80.00, incl	0.15	0.15	0.30	0.90
Over 80.00 to 130.00, incl	0.20	0.20	0.41	1.20
Over 130.00 to 150.00, incl	0.25	0.25	0.50	1.50
Over 150.00 to 200.00, incl	0.38	0.38	0.76	2.25
Over 200.00 to 250.00, incl	0.50	0.50	1.00	3.00
Over 250.00 to 300.00, incl	0.64	0.64	1.25	3.75

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2.2 Square, Rectangular, Hexagonal, and Octagonal:

TABLE II

Specified Width or Depth Millimetres (See Note 1)	Tolerance, Millimetres, Plus and Minus (See Note 2)		
	At Corners Square and Rectangular	Not at Corners (See Notes 3 and 9)	
		Square, Hexagonal, and Octagonal	Rectangular
Up to 12.50, incl	0.08	0.16	The tolerance for the width is the value in the preceding column for a dimension equal to the depth, and conversely, but in no case less than that for its own dimension at the corners (See Note 6).
Over 12.50 to 25.00, incl	0.10	0.20	
Over 25.00 to 50.00, incl	0.13	0.25	
Over 50.00 to 80.00, incl	0.15	0.30	
Over 80.00 to 130.00, incl	0.20	0.40	
Over 130.00 to 150.00, incl	0.25	0.50	
Over 150.00 to 200.00, incl	0.38	0.75	
Over 200.00 to 250.00, incl	0.50	1.00	
Over 250.00 to 300.00, incl	0.64	1.25	

2.3 Streamline, Oval, and Elliptical: The equivalent round diameter is the diameter of a circle having a circumference equal to the perimeter of the tube.

TABLE III

Equivalent Round Diameter Millimetres (See Note 1)	Tolerance, Millimetres			
	Major Axis		Minor Axis	
	Plus	Minus	Plus	Minus
Up to 70.00, incl	1.00	0.64	0.64	0.38
Over 70.00 to 110.00, incl	1.25	0.90	0.90	0.64
Over 110.00 to 150.00, incl	1.80	1.25	1.40	1.00
Over 150.00 to 200.00, incl	2.55	2.15	2.05	1.60
Over 200.00 to 250.00, incl	4.05	3.55	2.90	2.15

3. **WALL THICKNESS:** When the dimensions specified are outside and inside, rather than wall thickness itself, the allowable deviation at any point is $\pm 10\%$ of the mean wall thickness but not less than ± 0.08 millimetre.

TABLE IV

Tolerance, Millimetres, Plus and Minus (See Note 2)			
Wall Thickness at any Point From Specified Wall Thickness (Eccentricity)			
Specified Wall Thickness Millimetres (See Note 1)	Mean Wall Thickness from Specified Wall Thickness (See Note 7)	Round, Non-Heat Treatable (See Note 8)	Round, Heat Treatable; All Tubing Other Than Round; and All Coiled Tubing
Over 0.23 to 0.80, incl	0.05	0.05	
Over 0.80 to 1.20, incl	0.08	0.08	
Over 1.20 to 2.00, incl	0.10	0.10	
Over 2.00 to 3.20, incl	0.13	0.15	10% of
Over 3.20 to 5.00, incl	0.15	0.20	specified wall
Over 5.00 to 8.00, incl	0.20	0.30	thickness;
Over 8.00 to 10.00, incl	0.38	0.50	0.08 mm, min
Over 10.00 to 12.50, incl	0.50	0.75	

4. **LENGTH:**

4.1 **Straight Tubing:**

TABLE V

Specified OD, Width, or Major Axis Millimetres	Tolerance, Millimetres, Plus Only Length Ranges, Millimetres			
	Up to 5000, incl	Over 5,000 to 10,000, incl	Over 10,000 to 15,000, incl	Over 15,000
Up to 6.30, incl	7	10	13	--
Over 6.30 to 70.00, incl	4	7	10	25
Over 70.00 to 200.00, incl	6	9	11	25
Over 200.00	7	10	13	25