



InternationalTube

Commercial Standards for Small Diameter Tubing

1. Ovality (out of roundness)

Out of roundness or difference between maximum and minimum dimensions of OD, obtained by a micrometer measurement for high and low points. The ovality tolerance is considered to be a total spread inside which both the maximum OD dimension and minimum OD dimension must fall.

Standards:

Heavy Wall Tubes – Cold Worked –
Annealed 1 %

Standard tolerance for nominal OD.

Normal Wall Tubes – Cold Worked

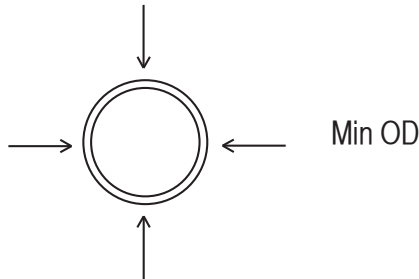
Standard total tolerance for nominal OD
Annealed 1 %

Thin Wall Tubes

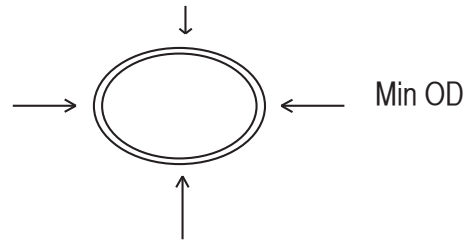
Cold Worked
Annealed

1 %
2 %

Round Tube



Out of Round – Oval Tube



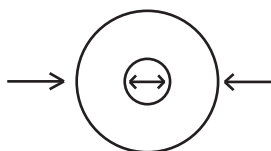
2. Eccentricity (opposite of concentricity)

Refers to the variation in wall thickness from the maximum to minimum.

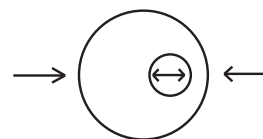
Standard:

Shall be limited to 10 % of the specified or calculated average wall.

Concentric Tube



Eccentric Tube



RMS: Is a means of describing the average height of the random peaks and valleys of the surface finish. (Root Mean Square). A surface roughness of 20rms would be the equivalent of .5 Microns (A micron being one millionth of a meter or .000001).