

STANDARD TUBING CAPILLARY AND ROD

BOROSIL[®] brand standard glass tubing Capillary and rod is very widely used for scientific and industrial applications. Made from low thermal expansion borosilicate glass its intrinsic qualities of resistance to physical and chemical attack and ability to stand thermal shock make it an ideal material of construction for scientific and laboratory apparatus, for industrial applications like syringe manufacture, gauge glasses, photo printing cylinders, petromax lantern chimneys, explosion-proof lighting covers and for fabrication of chemical process plant and piping.

BOROSIL[®] brand standard tubing is drawn on fully automatic machines which permit close tolerances on dimensions. These also undergo careful and strict quality control. A large and comprehensive range of standard tubing in diameters from 4 mm to 163 mm and in light, medium and heavy wall is available ex-stock standard Capillary bore tubing and rod are also available.

Gauging / Dimension Control :

Outside Diameter - When specified all outer diameters at any point on a piece of tubing or rod will be within the tolerances specified. These tolerances include out of round (ovality).
Inside Diameter - When specified, all inner diameters at each end of a piece will be within the tolerances specified. These tolerances include out of round.

Wall - All points at end each of a piece will be within the wall tolerances specified. Siding is included.

Lengths - For all standard lengths tolerance is specified below.

Tubing / Rod Lengths :

Standard Lengths for all tubing and rod are :

sizes upto 35 mm O. D. : 1500 +50 mm
As machine cut trim and cut : 1226 ± 6 mm
Sizes of 36 mm O. D. and above

Packing Quantities :

The weight per case is indicated against sizes upto 34 mm O. D. For larger O. D. Tubing 36 mm and above packing is based on number of tubes of specified length.

Special Sizes :

BOROSIL[®] brand standard tubing capillary and rod can be manufactured in sizes and tolerances not listed. Please ask for our offer indicating the specifications and quantity required. Any order for special size will be subject to the following.

- Minimum order for Rs. 1 lakh.
- The specifications should include diameter, wall thickness, length, and their tolerances in mm. and the same should be confirmed by us.

These supersede all previous prices : All prices stated herein are the recommended maximum price per kg./piece in Rupees. The dealers are at liberty to charge prices lower than that stipulated here. The prices are inclusive of Excise Duty but are exclusive of any delivery charges, octroi and other non-statutory levies.

TECHNICAL DATA

BOROSIL[®] LOW EXPANSION BOROSILICATE GLASS

From the 16th Century to today, chemical research teams have used glass containers for a very basic reason; the glass container is transparent, almost invisible. And so the contents and the reaction are clearly visible. But because chemists must heat, cool and mix chemical substances, ordinary glass is not always adequate for laboratory work.

Laboratory work requires apparatus made in a glass - which can readily be moulded into any desired shape or form, which offers maximum inertness when in contact with the widest range of chemical substances, which can withstand thermal shock without fracture and high-temperature work without deforming, and which will be resilient enough to survive the everyday knocks to which it will be subjected in normal laboratory handling, washing and sterilizing processes.

BOROSIL[®] is the trade name of such a glass.

Items made by Borosil Glass Works under the trade name BOROSIL[®] represent optimum mechanical, thermal and chemical behaviour. This glass is used in laboratories as well as for industrial applications where maximum thermal resistance, thermal shock resistance, mechanical resistance as well as unusual chemical resistance are required.

Chemical Composition

BOROSIL[®] glass is a low alkali borosilicate composition made to Code No. 7740. Its typical chemical composition is given alongside. It is virtually free of magnesia-lime-zinc group and contains only traces of heavy metals.

	% by weight
SiO ₂	81
B ₂ O ₃	13
Na ₂ O	4
Al ₂ O ₃	2

Thermal Properties

As the Coefficient of thermal expansion of Borosil glass is low, the thermal stresses under a given temperature gradient are consequently low and the glass can withstand higher temperature gradients and also sudden temperature changes/ thermal shocks. Minute scratching of glass surface can however reduce its thermal resistance.

Coefficient of Linear Expansion	32.5 x 10 ⁻⁷ /°C
Strain Point	515°C
Annealing Point	565°C
Softening Point	820°C
Specific Heat	0.2
Thermal Conductivity (Cal/cm ² /°C/sec)	0.0027