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.

Borosil Items 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 Type 3.3 glass. Its typical chemical composition is given below. It is virtually free of magnesia-lime-Zinc group and is completely free of arsenic and other heavy material.

	Approx % by weight
SiO_2	81
B_2O_3	13
Na_2O / K_2O	4
Al_2O_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.

In general “Strain Point” should be regarded as the maximum safe operating temperature of **Borosil** glassware. When heated above 500°C the glass may acquire permanent stresses on cooling.

All **Borosil** labware is annealed in modern Lehr ovens under strictly controlled conditions to ensure minimal residual stress in the products.

The typical thermal properties of **Borosil** glassware are given below :

Coefficient of Linear Expansion	32.5 x10^{-7}/°C
Strain Point	515°C
Annealing Point	565°C
Softening Point	820°C
Specific Heat	0.2
Thermal Conductivity (Cal / cm^3 / °C / sec)	0.0027

Chemical Durability

Borosil is highly resistant to water, neutral and acid solutions, concentrated acids and their mixtures as well as to chlorine, bromine, iodine and organic matters. Even during extended period of reaction and at temperatures above 100°C, its chemical resistance exceeds that of most metals and other materials. It can withstand repeated dry and wet sterilization without surface deterioration and subsequent contamination. Resistance to attack of various chemicals is shown below. Only hydrofluoric acid, very hot phosphoric acid and alkaline solutions increasingly attack the glass surface with rising concentration and temperature.

Contact chemical	Duration In Hr	Loss in Wt mg / m^2
Water distilled at 100°C	6	10
Water Vapour Steam at 121°C	1	75
Acid HCl	6	100
80% H_2SO_4 at 130°C	12	140
Alkali-1N soln. of Na_2CO_3 boiling	6	4000
Infusion Fluids Isotonic		
NaCl (0.85%) 121°C	2½	70
Glucose (5%) 121°C	2½	50

Fabricating With Borosil Glass

Due to low expansion of glass and easy workability, this glass can be shaped, formed, joined into complicated apparatus. It can be done even by an analyst in his own laboratory and keep on changing till he gets what he needs. In case where annealing in a controlled oven is difficult he can do so by flame annealing which is also a great advantage.

Optical Properties

Laboratory glassware made from **Borosil** glass show no noticeable absorption in the visible region of the spectrum. It appears consequently clear and colourless.

Care And Maintenance

Safe Use Of Glassware

When treated with proper care **Borosil** laboratory apparatus will give long and satisfactory service. The following notes have been prepared to assist users in obtaining the maximum life and performance from their apparatus. Our Sales Department will be happy to advice on any aspect concerning the safe use of our products.

Heating And Cooling

Glass may suffer damage in three ways.

- It may break under thermal stress in the 'steady state', that is when a constant thermal gradient is established through the glass.
- It may break under the transient stress of a thermal shock, that is sudden heating or cooling.
- It may, if heated beyond certain temperature, acquire a permanent stress which on cooling could cause subsequent failure.

The following precautions will assist in avoiding failures during heating and cooling procedures.

- Never leave vessel unattended when evaporation work is being carried out. The vessel may crack or explode as 'dryness' condition approaches and if the heat source is not adjusted correctly. Lower the temperature gradually as the liquid level drops.
- Always use caution when removing glassware from a heat source and avoid placing on a cold or damp surface.
- Although the ware can withstand extreme temperatures, sudden temperature changes may cause the vessel to break.
- Always cool vessels slowly to prevent thermal breakage.
- Never apply heat to badly scratched or etched vessel as the thermal strength would have been greatly reduced.
- Never apply point source heating to a vessel as this will greatly increase the chance of breakage.
- Always diffuse the heat source by using a metal gauze or air/water bath. Alternatively ensure even heating of the vessel by slow movement of the vessel in relation to the heat source.
- Adjust bunsen burner to get a large soft flame. It will heat slowly but also more uniformly. Uniform heat is critical factor for some chemical reactions.
- Ensure that the flame contacts the vessel below the liquid level. Heating above that level will invite breakage of the vessels.
- Always use anti-bumping devices in the vessel, such as powdered pumice or glass wool when rapid heating of the vessel and contents is required.
- Never use material with sharp edges such as broken porcelain as an antibumping device. This will cause internal abrasions and reduce the mechanical and thermal strength of the vessel.
- Thick walled glassware should not be subjected to direct flame or other localised heat source. Vessels of this type are best heated with the use of an electric immersion heater.
- Avoid heating glassware over electric heaters with open elements. Uneven heat of this type can induce localised stress and increase the chances of breakage.
- Remember that a hot plate will retain heat long after the appliance has been switched off.
- Always ensure that the surface of the hot plate is larger in area than the base of the vessel being heated. An under-sized plate for the job in hand will invite uneven heating and promote breakage of glassware.
- Always ensure that manufacturer's instructions are followed when using electrical heat sources.

Mixing And Stirring

- Always use a 'policeman' or similar device on stirring rods to prevent scratching of the inside of a vessel.
- When using a glass vessel with a magnetic stirrer always use a covered follower to prevent abrasion of the inside of the vessel.
- When using glass or metal mechanical stirrer in a glass vessel always predetermine the height of the stirrer before use to ensure there is no contact between the stirrer blade and the bottom or sides of the vessel.
- Never mix sulphuric acid and water inside a glass measuring cylinder. The heat of reaction can break the base of the cylinder.

Vacuum And Presure

- Never use a glassware beyond the recommended safe limit.
- Always use a safety screen when working with glassware subjected to pressure or vacuum.
- Never subject glassware to sudden pressure changes. Always apply and release positive and negative pressures gradually.

Joining And Separating Glass Apparatus

- When storing glass stopcocks and joints, insert a thin strip of paper between joint surfaces to prevent sticking.
- Never store stopcocks for long periods with lubricants still on the ground surfaces.
- Glass stopcocks on Burettes and Separating Funnels should be lubricated frequently to prevent sticking.
- If a ground joint sticks, separations can generally be achieved by carefully rocking the cone in the socket, or gentle tapping the socket flange on a wooden surface, or by heating the socket and not the cone in a localised flame. The use of penetrating oil will often prove useful in aiding separation.
- In using lubricants it is advisable to apply a light coat of grease completely around the upper part of the joint. Use only a small amount and avoid greasing that part of the joint which contacts the inner part of the apparatus.
- Three types of lubricants are commonly used on standard taper joints.
  - (a) Hydrocarbon grease is the most widely used. It can be easily removed by most laboratory solvents, including acetone.
  - (b) Because hydrocarbon grease is so easily removable, silicon grease is often preferred for higher temperature or high vacuum applications. It can be removed readily with chloroform.
  - (c) For long term reflux or extraction reactions, a water soluble, organic and insoluble grease, such as glycerin, is suitable. Water will clean glycerin.

There are other types of greases which can be used specifically when certain reagents are used in the Burettes or Separating Funnels.
Details of these can be available from our nearest Regional Sales Offices.

- The use of water, oil or glycerol is recommended on both tubing and rubber bung when inserting glass tubing into a bung. Always wear heavy protective gloves or similar protection when carrying out this operation.
- Always fire polish rough ends of glass tubing before attempting to insert into flexible tubing. The lubricants recommended above may also prove useful.
- Never attempt to pull a thermometer out of a rubber bung, always cut the bung away.

Personal Safety

- Use tongs or asbestos gloves to remove all glassware from heat. Hot glass can cause severe burns.
- Protective gloves, safety shoes, aprons, and goggles should be worn as safety against chemical accidents, spilling or splattering.
- Always flush the outside of Acid bottle with water before opening. Do not put the stopper on the counter top where someone else may come in contact with acid residue.
- Special care is needed when dealing with mercury. Even a small amount of mercury in the bottom of a drawer can poison the room atmosphere. Mercury toxicity is cumulative and the element's ability to amalgamate with a number of metals is well known. After an accident involving mercury, the area should be gone over carefully until there are no globules remaining. All mercury containers should be kept well stoppered.
- Never drink from a beaker. A beaker left specifically for drinking is a menace to the laboratory. Do not taste chemicals for identification. Smell chemicals only when necessary and only by wafting a small amount of vapour towards the nose.
- Avoid pipeting by mouth, particularly when using concentrated acids, alkalis or potentially biohazardous materials. Use mechanical means such as a rubber bulb or a automatic dispenser.
- Never fill receptacle with material other than that called for by the label. Label all containers before filling. Throw away contents of unlabelled containers.
- To avoid breakage when clamping glassware, do not permit glass-to-metal contact, and do no use excessive force to tighten the clamps.
- Do not look down into a test tube being heated or containing chemicals, and do not point its open end at another person. A reaction might cause the contents to be ejected, resulting in injury.
- Splattering from acids, caustic materials and strong oxidizing solutions on the skin or clothing should be washed off immediately with large quantities of water.
- When working with chlorine, hydrogen sulphide, carbon monoxide, hydrogen cyanide and other very toxic substances, always use a protective mask or perform these experiments under a fume hood in a well ventilated area.
- In working with volatile materials, remember that heat causes expansion and confinement of expansion results in explosion. Remember also that danger exists even though external heat is not applied.
- Perchloric acid is especially dangerous because it explodes on contact with organic materials. Do not use perchloric acid around wooden benches or tables.
- Keep perchloric acid bottles on glass or ceramic trays having enough volume to hold all the acid in case the bottle breaks. When using perchloric acid, always wear protective clothing.
- When using hot plates and other electrical equipments, ensure the wire and plugs are in good condition. Never handle electrical connection with damp hands.

Cleaning

Successful experimental results can only be achieved by using a clean apparatus. In all instances laboratory glassware must be physically clean, in nearly all cases it must be chemically clean and in specific cases it must be bacteriologically clean or sterile. There must be no trace of grease and the safest criteria of cleanliness is the uniform wetting of the glass surface by distilled water–this being of the utmost importance for glassware used for volumetric methods. Any prevention of uniform wetting of the surface will introduce errors such as distortion of the miniscus and accuracy of volume.

General Cleaning

- Cleaning of glassware which has contained hazardous materials must be solely undertaken by experienced personnel.
- Most new glassware is slightly alkaline in reaction. For precision chemical tests, new glassware should be soaked several hours in acid water (1%solution hydrochloric acid or nitric acid) before washing
- Glassware which is contaminated with blood clots, culture media, etc. must be sterilized before cleaning.
- If glassware becomes unduly clouded or dirty or contains coagulated organic matter, it must be cleaned with chromic acid cleaning solution. The dichromates, should be handled with extreme care because it is a powerful corrosive.
- Wash glassware as quickly as possible after use but if delays are unavoidable, the articles should be allowed to soak in water.
- Grease is removed by weak sodium carbonate solution or acetone or fat solvents. Never use strong alkalis.
- Hot water with recommended detergents should be used and if glass is exceptionally dirty, a cleaning powder with a mild abrasive action can be applied provided the surface is not scratched.
- During the washing, all parts of the article should be thoroughly scrubbed with a brush selected for the shape and size of the glassware. Brushes should always be in good condition to avoid any abrasion of the glassware.
- When chromic acid solution is used, the item may be rinsed with the cleaning solution or it may be filled and allowed to stand-the amount of time depending on amount of contamination on the glassware.
- Special types of precipitate material may require removal with nitric acid, aqua regia or fuming sulphuric acid. These are very corrosive substances and should be used only when required.
- It is imperative that all soap detergents and other cleaning fluids be removed from glassware before use. This is especially important with the detergents, slight traces of which will interfere with serologic and culture reactions. After cleaning, throughly rinse with tap water ensuring that containers are partly filled with water, shaken and emptied several times. Finally rinse with deionised or distilled water.
- Drying can be undertaken either in baskets or on pegs in air or at a temperature not exceeding 120^{0}C.
- Always Protect clean glassware from dust by use of temporary closures or by placing in a dustfree cabinet. For Cleaning Specific types of glassware, please refer below.

Cleaning Specific Types Of Glassware

Pipettes

- Place pipettes tips down, in a cylinder or tall jar of water immediately after use. Do not drop them into the jar, since this may break or chip the tips and render the pipettes useless for accurate measurements. A pad of cotton or glass wool at the bottom of the jar will help to prevent breaking of the tips. Be certain that the water level is high enough to immerse the greater portion or all of each pipette. At a convenient time, the pipettes may then be drained and placed in a cylinder or jar of dissolved detergent or, if exceptionally dirty, in a jar of chromic acid cleaning solution. After soaking for several hours, or overnight, drain the pipettes and run tap water over and through them until all traces of dirt are removed. Soak the pipettes in distilled water for at least one hour. Remove from the distilled water, dry the outside with a cloth, shake out the water and dry.
- In laboratories where a large number of pipettes are used daily, it is convenient to use an automatic pipette washer. Polyethylene baskets and jars may be used for soaking and rinsing pipettes in chromic acid cleaning solution. Electrically heated metallic pipette driers are also available.
- After drying, place pipettes in a dust-free drawer. Wrap serological and bacteriological pipettes in paper or place in pipette cans and sterilize in the dry air sterilizer at 160^{0}C for two hours. Pipette used for transferring infectious material should have a plug of cotton placed in the mouth end of the pipette before sterilising.

BURETTES (with glass stopcock)

- Remove stopcock key and wash the burette with detergent and water.
- Rinse with tap water until all the dirt is removed. Then rinse with distilled water and dry.
- Wash the stopcock key separately. Before the stopcock key is replaced in the burette, lubricate the joint with a small amount of lubricant. Remember that burette stopcock keys are not interchangeable.
- Always cover burettes when not in use.

Culture Tubes

- Culture tubes which have been used previously must be sterilized before cleaning. The best general method for sterilising culture tubes is by autoclaving for 30 minutes at 121°C (15 lb pressure). Media which solidify on cooling should be poured out while the tubes are hot. After the tubes are emptied, brush with detergent and water, rinse throughly with tap water, rinse with distilled water, place in a basket and dry.
- If tubes are to be filled with a medium which is sterilized by autoclaving, do not plug until the medium is added. Both medium and tubes are thus sterilized with one autoclaving.
- If the tubes are to be filled with a sterile medium or if they are to be sterilized by the fractional method sterilize the tubes in the autoclaves or dry air sterilizer before adding the medium.

Serological Tubes

- Serological Tubes should be chemically clean but need not be sterile. However, specimens of blood which are to be kept for some time at room temperature should be collected in a sterile container. It may be expedient to sterilize all tubes as routine.
- To clean and sterilize tubes containing blood, discard the clots in a waste container and place the tubes in a large basket. Put the basket with others, in a large bucket or boiler. Cover with water, add a fair quantity of soft soap or detergent and boil for 30 minutes. Rinse the tubes and clean with brush, rinse and dry with the ususal precautions.
- It is imperative when washing serological glassware that all acid, alkali and detergent be completely removed. Both acid and alkali in small amounts destroy complement and in larger amounts produce hemolysis. Detergents interfere with serologic reactions.
- Serological tubes and glassware should be kept separate from all other glassware and used for nothing except serologic procedures.

Dishes And Culture Bottles

- Sterilize and clean as detailed under Culture Tubes.
- Wrap in heavy paper or place in a petri dish can.
- Sterilize in the autoclave or dry air sterilizer.

Sintered Ware

- Please refer to Sintered ware section.

Chemical & Physical Properties Of Low Density Polyethylene

Chemical Resistance

At normal temperatures, excellent resistance to all Acids (except for strong oxidising acids), Alcohols, Alkalis. Good resistence to Aldehydes, Esters, Ketones. Fair resistance to Hydrocarbons both Aliphatic and Aromatic, strong oxidising Agents. Not recommended for use with Halogenated Hydrocarbons. Details can be submited for any specific reagent.

Chemical Resistance Classification

Excellent	:	30 days of constant exposure cause no damage. Plastic may even tolerate for years.
Good	:	Little or no damage after 30 days if constant exposure to the reagent.
Fair	:	Some effect after 7 days of constant exposure to the reagent. Depending on the plastic, the effect may be crazing, cracking, loss of strength, or discoloration. Solvents may cause softening, swelling and permeation losses which are normally reversible, the part will usually return to its normal conditions after evaporation.

Physical Properties

Maximum use temperature : 80°C; Not recommended for autoclaving / dry heat sterilization. Gas and chemical sterilization can be done.
Brittleness temperature : 100°C.
Currently this material is used on Stoppers for Volumetric Flasks, bases for measuring Cylinders and Plastic Wash Bottles.

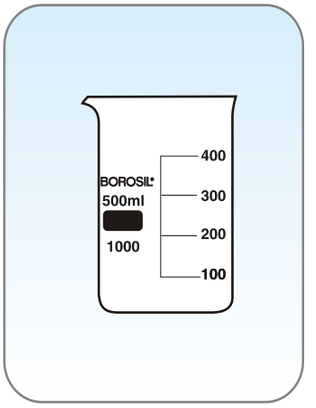
BEAKERS

Borosil brand Beakers are widely used in research, industry and education. They are ideal for heating, because of the optimum balance between thermal resistance and mechanical strength due to controlled wall thickness at sides, radius and bottom. The spouts wherever incorporated are designed to have excellent pouring characteristics.

1000-Beakers, Griffin, Low Form, With Spout, Double Graduated, Borosil

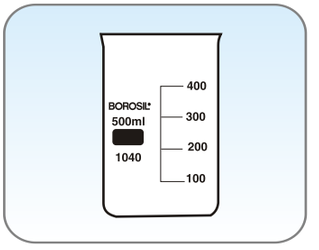
Capacity ml	Approx O.D. x Height mm	Quantity Per Case
5	20 x 25	20
10	25 x 32	20
25	34 x 45	60
50	42 x 55	120
100	50 x 73	60
150	56 x 83	90
250	68 x 95	60
400	77 x 110	50
500	83 x 115	50
600	90 x 120	40
1000	105 x 145	45
2000	131 x 190	6
3000	146 x 214	4
5000	170 x 265	4
10000	220 x 320	1

25ml to 10,000ml Graduated



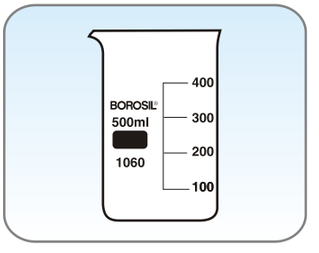
1040-Beakers, Berzelius, Tall Form, Without Spout, Graduated, Borosil

Capacity ml	Approx O.D. x Height mm	Quantity Per Case
50	36 x 70	40
100	50 x 80	50
250	62 x 116	40
500	75 x 137	20
1000	90 x 190	20



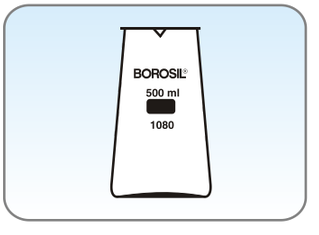
1060-Beakers, Berzelius, Tall Form, With Spout, Graduated, Borosil

Capacity ml	Approx O.D. x Height mm	Quantity Per Case
50	36 x 70	40
100	50 x 80	50
250	62 x 116	40
500	75 x137	20
1000	90 x190	20



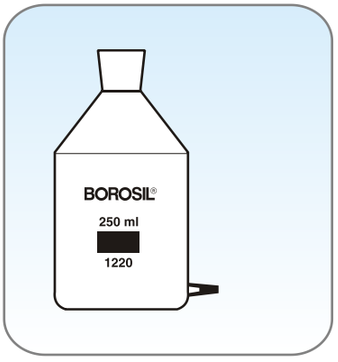
1080-Beakers, Philips, Conical, With Spout, Borosil

Capacity ml	Approx O.D. x Height mm	Quantity Per Case
250	68 x 110	50
500	88 x 145	40



BOTTLES

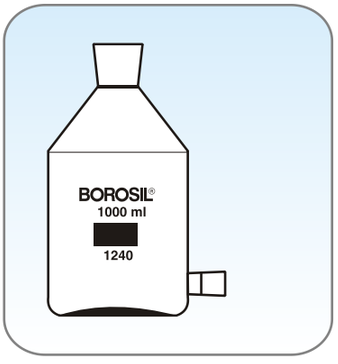
Borosil Brand Bottles are available for every use. Since the Aspirator, Reagent and Solution bottles are not used for direct heating purposes they are made mechanically stronger with heavier wall thickness and these can withstand wet or dry sterilisation. Due to excellent chemical durability of the glass, most reagents can be stored in these bottles without much effect for long durations. Plain neck Solution Bottles and Centrifuge Bottles are tooled for uniform rubber stopper fit. Roux Bottles, Milk Dilution Bottles are widely used for culture growth, and they have flat surfaces.



1220-Bottles, Aspirator, With Outlet For Tubing, Borosil

Capacity ml	Approx O.D. x Height* mm	Approx Neck I.D. mm	Quantity Per Case
250	64 x 147	18	20
500	80 x 172	23	20
1000	104 x 200	28	10
2000	129 x 265	33	5

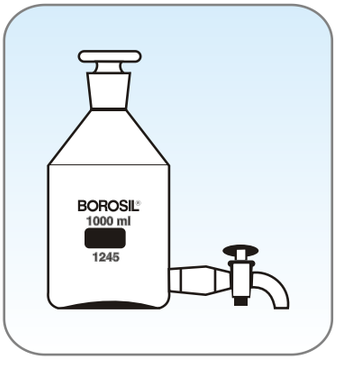
*Height indicated is of Bottle only



1240-Bottles, Aspirator, With Outlet For Stopper, Borosil

Capacity ml	Approx O.D. X Height* mm	Approx Neck I.D. mm	Approx I.D. Outlet mm	Quantity Per Case
1000	104 x 200	28	23	10
2000	129 x 265	33	28	5
5000	190 x 320	44	28	2
10000	215 x 410	54	28	1

*Height indicated is of Bottle only



1245-Bottles, Aspirator, With Interchangeable Stopper And Stopcock,

Capacity ml	Approx O.D. x Height* mm	Approx Neck I.D. mm	Approx I.D. Outlet mm	Quantity per Case
1000	104 x 200	29 / 32	24 / 29	10
2000	129 x 265	34 / 35	29 / 32	4
5000	190 x 320	45 / 40	29 / 32	2
10000	215 x 410	55 / 44	29 / 32	1
20000	300 x 485	55 / 44	29 / 32	1

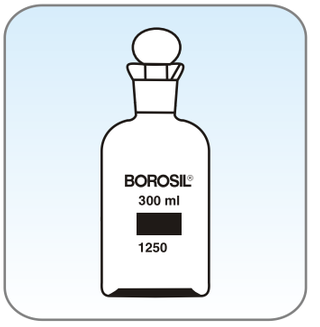
*Height indicated is of Bottle only

1250-Bottles, B.O.D. With Interchangeable Stopper, Borosil

Capacity ml	Approx O.D. x Height* mm	Quantity Per Case
125	55 x 120	50
300	70 x 150	30

*Height indicated is of Bottle only

300ml is for determination of B.O.D. in Industrial effluents, wastes and water as per method specified by the American Public Health Association and is numbered individually. 125ml is without cup top.



1260-Bottles, Centrifuge, Original Form, Borosil

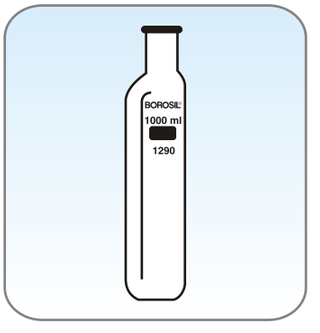
Capacity ml	Approx O.D. x Height mm	Approx Neck I.D. mm	Quantity Per Case
250	61 x 145	27	30
500	73 x 182	27	20

For use where relatively small amounts of solids are involved. These bottles have a small bottom area, which permit concentration of sediment for decanting operations. Centrifuge Bottles are properly balanced due to control on weight and hence can be conveniently used in centrifuges.

1290-Bottles, Culture, Roux, Off-Set Neck, Borosil

Capacity ml	Approx Height mm	Approx Neck I.D. mm	Quantity Per Case
1000	255	32	20

Approx. Cross Section : 120 x 55 mm

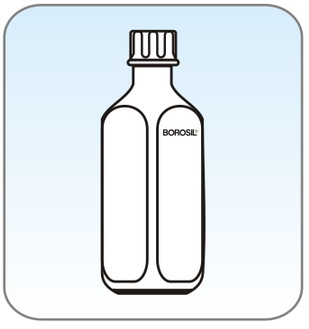


1291-Bottles, Thompson, Flat Sided, Off-Set Neck, Borosil

Capacity ml.	Approx Height mm	Approx Neck I.D. mm	Quantity Per Case
3000	340	40	4

1295-Bottles, Diphtheria Toxin, Borosil

Capacity ml.	Approx Height mm	Approx Neck I.D. mm	Quantity Per Case
5000	455	44	4



1367- Bottles, Milk Dilution, Plain, With Screw Cap And Liner, Borosil

Capacity ml.	Approx Height mm	Approx Neck I.D. mm	Quantity Per Case
160	150	19	50

This bottle meets the requirements for Milk Dilution Bottles stated in the Standard methods for the Examination of Dairy Products. The screw caps and liner withstand repeated autoclaving.
Approx Cross Section : 45 x 45mm

136N-Bottles, Mc Cartney, Flat With Aluminum Screw Cap & Rubber Liner, Neutral

Capacity Ml.	Approx (in mm) Width x Breadth x Height	Quantity Per Case
210	64 x 40 x 150	50

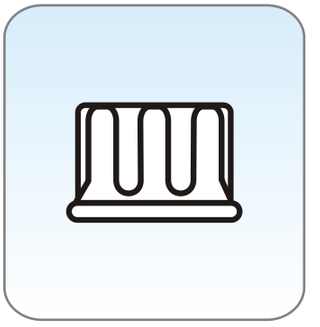
1370-Bottles, Milk Dilution, Graduated, Screw Cap And Liner, Borosil

Capacity ml.	Approx Height mm	Approx Neck I.D. mm	Quantity Per Case
160	150	19	40

Similar to No. 1367 but with a graduation mark at 99 ml capacity

1380-Screw Caps, Bakelite, With Rubber Liner, Borosil

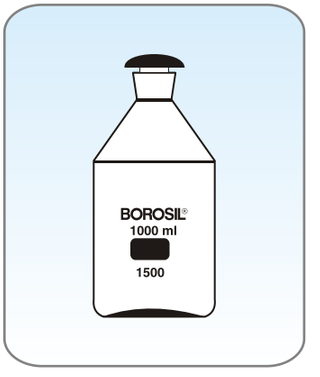
	Quantity Per Case
	100



These screw caps are suitable as spares for **Borosil** Milk Dilution Bottles No. 1367 and No. 1370. These withstand repeated autoclaving.

1500-Bottles, Reagent, Plain Narrow Mouth, With Interchangeable Flat Head Stopper, Borosil

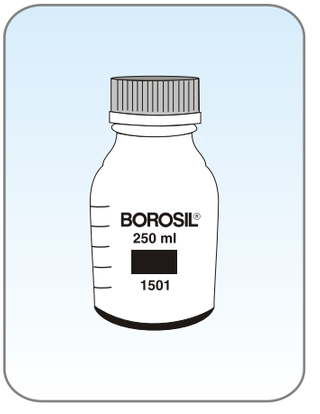
Capacity ml.	Approx O.D. x Height* mm	Size of Interchangeable Stopper	Quantity Per Case
60	45 x 93	14 / 23	40
125	55 x 93	19 / 26	50
250	64 x 147	19 / 26	60
500	80 x 172	24 / 29	40
1000	104 x 200	29 / 32	10
2000	129 x 265	34 / 35	10



*Height indicated is of Bottle only

1501-Bottles, Reagent, Wide Mouth With Screw Cap And Pouring Ring, Graduated, Borosil

Capacity ml.	Approx O.D. x Height* mm	Neck Specifications	Quantity Per Case
30**	30 x 75	-	20
60**	45 x 90	-	20
100	56 x 100	GL 45	10
250	70 X 138	GL 45	10
500	86 X 176	GL 45	10
1000	101 X 225	GL 45	10
2000	136 X 260	GL 45	10
5000	186 X 330	GL 45	6
10000	234 X 410	GL 45	1
20000	299 X 505	GL 45	1



*Height indicated is of Bottle only

**Without Pouring rings

These Bottles are mechanically strong, chemically resistant and are provided with plastic Pouring rings for drip-free operation. All bottles starting from 100 ml have only one size of Screw Thread. Screw Caps and Pouring Rings are interchangeable and are made from PP. The bottles, Screw Caps and Pouring Rings can be sterilised.

1505-Bottles, Winchester, Borosil

Capacity ml	Approx O.D. x Height mm	Approx Neck I.D. mm	Quantity Per Case
2500	122 x 310	24	4

1509-Bottles, Reagent, Amber, Narrow Mouth With Interchangeable Flat Head Stopper, Borosil

Capacity ml	Approx O.D. x Height* mm	Size of Interchangeable Stopper	Quantity Per Case
60	45 x 93	14 / 23	20
125	55 x 120	19 / 26	20
250	64 x 147	19 / 26	30
500	80 x 172	24 x 29	20
1000	104 x 200	29 / 32	5
2000	129 x 265	34 / 35	5

*Height indicated is of Bottle only
Similar in design to cat no. 1500

1519-Bottles, Reagent, Amber, Wide Mouth, With Screw Cap And Pouring Ring, Graduated, Borosil

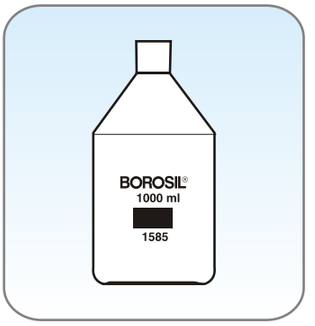
Capacity ml.	Approx O.D. x Height* mm	Neck Specification	Quantity Per Case
30**	30 x 75	-	20
60**	45 x 90	-	20
100	56 x 100	GL 45	10
250	70 x 138	GL 45	10
500	86 x 176	GL 45	10
1000	101 x 225	GL 45	10
2000	136 x 260	GL 45	10
5000	186 x 330	GL 45	6
10000	234 x 410	GL 45	1
20000	299 x 505	GL 45	1

*Height indicated is of Bottle only
**Without Pouring rings.

These Bottles are mechanically strong, chemically resistant and are provided with plastic Pouring rings for dripfree operations. All bottles starting from 100ml have only one size of Screw Thread. Screw Caps and Pouring Rings are interchangeable and are made from PP. The Bottles, Screw Caps and Pouring Rings can be sterilised.

1585-Bottles, Solution, Plain Tooled Neck, Borosil

Capacity ml	Approx O.D. x Height mm	Approx Neck I.D. mm	Quantity Per Case
250	64 x 147	18	20
500	80 x 172	23	40
1000	104 x 200	28	10
2000	129 x 265	33	10
3000	158 x 260	44	4
5000	190 x 320	44	2
10000	215 x 410	54	1
20000	300 x 485	54	1



Designed specially for handling and storing sterile culture media and sera, where stability of the glass is critical.

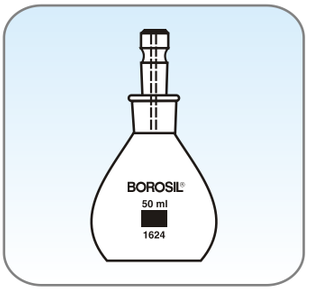
1589-Bottles, Solution, Amber, Tooled Neck, Borosil

Capacity ml	Approx O.D. x Height mm	Approx Neck I.D. mm	Quantity Per Case
250	64 x 147	18	10
500	80 x 172	23	20
1000	104 x 200	28	5
2000	129 x 265	33	5

Similar in design to Cat No. 1585

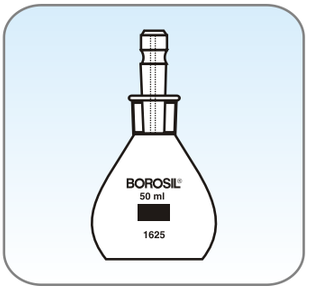
1624-Bottles, Relative Density, With Capillary Bore Interchangeable Teflon Stopper With Certified Capacity Along With Works Certificate, Borosil

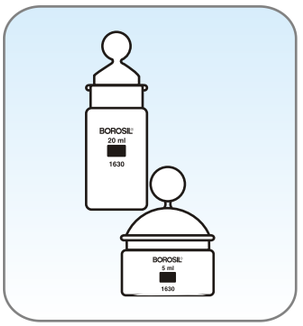
Capacity ml	Capacity Tolerance ±ml	Max. Body Dia x Height mm	Size of Inter-changeable stopper	Quantity Per Case
10	0.3	24 x 46	10 / 15	5
25	0.8	38 x 56	10 / 15	5
50	1.0	49 x 66	10 / 15	5



1625-Bottles, Relative Density, Accuracy As Per I.S. 5717 : 1970 With Capillary Bore Interchangeable Teflon stopper, Borosil

Capacity ml	Capacity Tolerance ±ml	Max. Body Dia x Height mm	Size of Inter-changeable stopper	Quantity Per Case
10	1	24 x 46	10 / 15	10
25	2	38 x 56	10 / 15	10
50	3	49 x 66	10 / 15	5

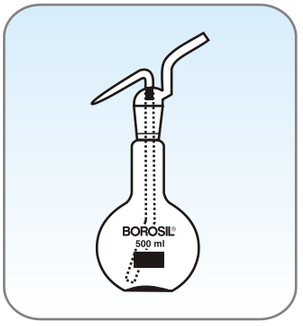




1630-Bottles, Weighing, With Interchangeable Stopper, Borosil

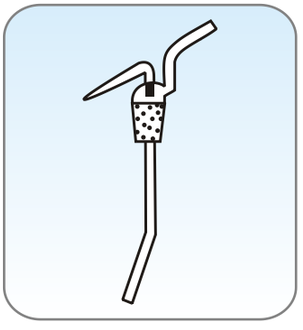
Capacity ml	Approx O.D. x Height mm	Quantity Per Case
5	20 x 40	30
15	25 x 60	10
20**	50 x 35	20
25	30 x 65	10
40**	60 x 40	20
60	40 x 90	5

*Height indicated is of Bottle only
**Squat Form



1660-Bottles, Wash, Complete With Interchangeable Stopper, Borosil

Capacity ml	Approx Total Height mm	Size of Inter-changeable Stopper	Quantity Per Case
250	225	24 / 29	10
500	280	24 / 29	10
1000	315	29 / 32	10

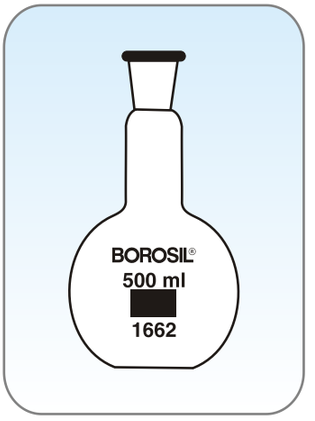


1661-Stoppers, Only For Wash Bottles Cat. No. 1660, Borosil

Capacity ml	Size of Inter-changeable Stopper	Quantity Per Case
250	24 / 29	10
500	24 / 29	10
1000	29 / 32	10

1662-Bottles, Only for Wash Bottles Cat No. 1660, Borosil

Capacity ml	Approx Total Height mm	Size of Inter-changeable Stopper	Quantity Per Case
250	135	24 / 29	10
500	175	24 / 29	10
1000	205	29 / 32	10

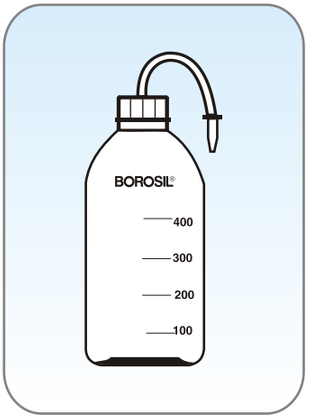


166P-Bottles, Wash, LPDE Plastic*, Squeeze type, Screw Cap, Fitted With Stoppers And Delivery Tubes, Borosil

Capacity ml	Approx Diameter mm	Bottle Height mm	Quantity Per Case
500	57	160	36

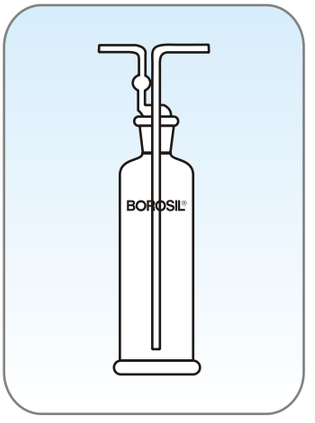
*For physical and chemical resistance please refer to page 16.

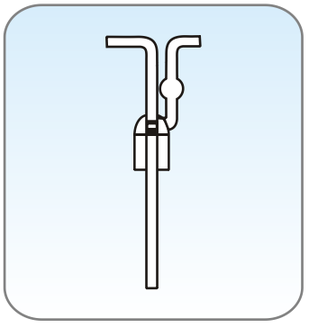
Bottles & delivery tubes made of chemically resistant, low density polyethylene, which is flexible, tough, light weight and practically unbreakable in use. Squeezing the bottle produces a steady, controllable stream or a few drops, as desired and delivery is stopped instantly when pressure is released. Delivery tubes are mounted in polypropylene screw caps. Tips on delivery tubes are removable.



1760-Bottles, Gas Washing, Complete With Interchangeable Stoppers, Borosil

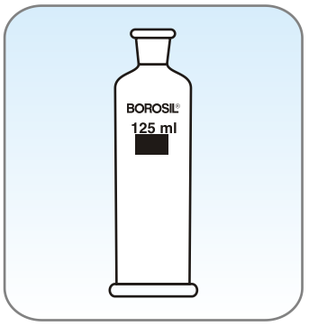
Capacity ml	Size of Inter-changeable stopper	Quantity Per Case
125	29 / 32	10
250	29 / 32	10
500	29 / 32	10





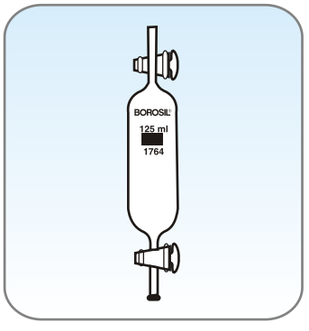
1761-Stoppers, Only For Gas Washing Bottles Cat No. 1760, Borosil

Capacity ml	Quantity Per Case
125	10
250	10
500	10



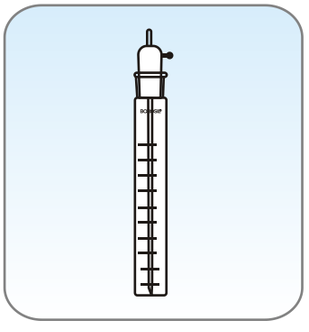
1762 - Bottles, Only For Gas Washing Bottles Cat No. 1760, Borosil

Capacity ml	Approx O.D. x Height mm	Quantity Per Case
125	50 x 155	10
250	60 x 185	10
500	70 x 245	10



1764-Tubes, Gas Sampling, With Stopcocks, Borosil

Capacity ml	Quantity Per Case
125	10
250	10
500	10



1765-Impingers, Borosil

Capacity ml	Quantity Per Case
35	10

BURETTES

When you use a burette you expect accuracy, reliability and durability. Only **Borosil** brand burettes offer all three even after repeated usage. A combination of the best material and workmanship goes into **Borosil** brand burettes. The highest quality accurate-bore tubing is selected to provide uniform and accurate graduations. Each burette is individually calibrated for precision and high accuracy. All graduations are in durable white enamel. The burette stopcocks are specially ground so that they provide a leak proof operation. It is advantageous to use different types of greases depending on the reagents used to get leak proof operations. Stop-cock plugs are solid pressed and ground. These are not interchangeable.

In addition to Burettes with glass stop-cocks we have burettes with straight bore PTFE stopcocks and a range of Boroflo Burettes fitted with Boroflo(GP) screw thread stop-cocks with PTFE Keys.

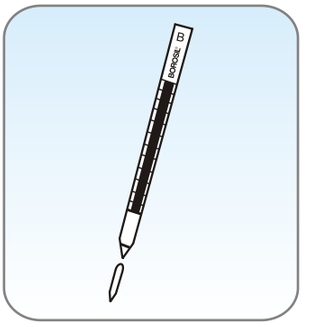
Boroflo Burettes are fitted with Boroflo GP(General Purpose) Screw thread Stopcocks with PTFE keys offering the following operational advantages -

- ❖ Lubrication never required–no seizure, no contaminating greases.
- ❖ Excellent flow control–invaluable on burettes
- ❖ All glass / PTFE pathway, highly resistant to chemical attack
- ❖ No leakage–unique Fluon / glass seal
- ❖ No springs or retaining devices–easy to dismantle and clean
- ❖ No ground surfaces–low absorption of radioactivity
- ❖ Consistent performance between 0°C and 50°C

For accurate work, Class A Burettes are available.

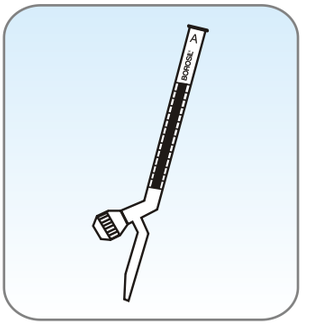
2118-Burettes, For Pinchcock, With Tip, Accuracy As per Class B of I.S. 1997: 1982, Borosil

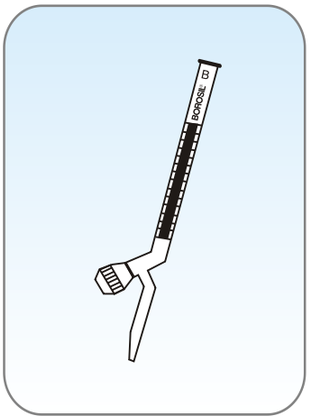
Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Total Height mm	Quantity Per Case
10	0.05	0.05	430	10
25	0.1	0.1	470	10
50	0.1	0.1	720	20



2121-Burettes, Boroflo, Fitted With Boroflo GP (General Purpose), Screw Thread Stopcocks With PTFE Keys, Accuracy As Per Class A of I.S. 1997:1982, With Works Certificate, Borosil

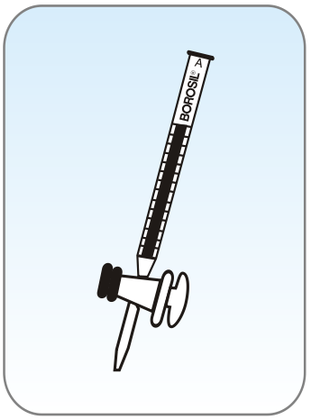
Capacity ml	Graduation Interval ml	Tolerance ± ml	Quantity Per Case
10	0.05	0.02	5
25	0.1	0.05	5
50	0.1	0.05	5
100	0.2	0.1	5





2122-Burettes, Boroflo, Fitted With Boroflo GP (General Purpose), Screw Thread Stopcocks With PTFE Keys, Accuracy As per Class B of I.S. 1997 : 1982, Borosil

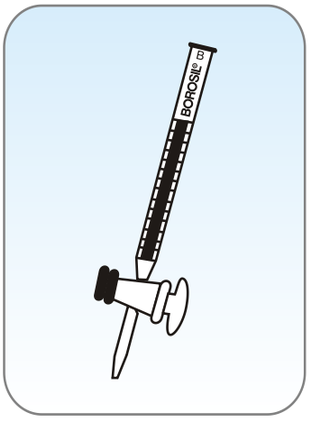
Capacity ml	Graduation Interval ml	Tolerance ±ml	Quantity Per Case
10	0.05	0.05	10
25	0.1	0.1	10
50	0.1	0.1	10
100	0.2	0.2	5



2123-Burettes, Straight Bore Stopcock, Accuracy As Per Class A of I.S. 1997:1982, With Works Certificate, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Total Height mm	Quantity Per Case
1*	0.01	0.006	440	5
+2*	0.02	0.01	440	5
5*	0.02	0.01	590	5
10	0.05	0.02	530	5
25	0.1	0.05	530	5
50	0.1	0.05	780	5
100	0.2	0.1	830	5

+ not covered in I.S.
* with cup top



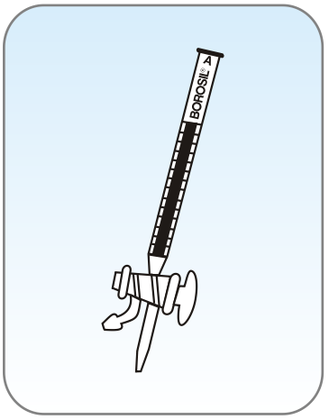
2124-Burettes, Straight Bore Stopcock, Accuracy As per Class B of I.S. 1997:1982, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Total Height mm	Quantity Per Case
1*	0.01	0.01	440	5
2*	0.02	0.02	440	5
5*	0.02	0.02	590	5
10	0.05	0.05	530	10
25	0.1	0.1	530	10
50	0.1	0.1	780	10
100	0.2	0.2	830	5

* with cup top

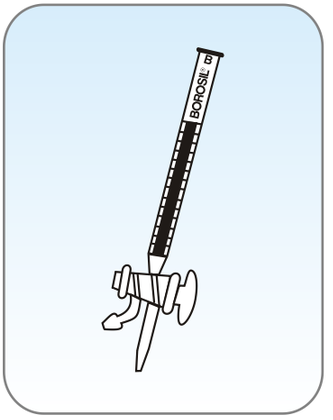
2125-Burettes, Double Oblique Bore Stopcock, 3-Way, Accuracy As Per Class A of I.S. 1997:1982, With Works Certificate, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Total Height mm	Quantity Per Case
10	0.05	0.02	530	5
25	0.1	0.05	530	5
50	0.1	0.05	780	5
100	0.2	0.1	830	5



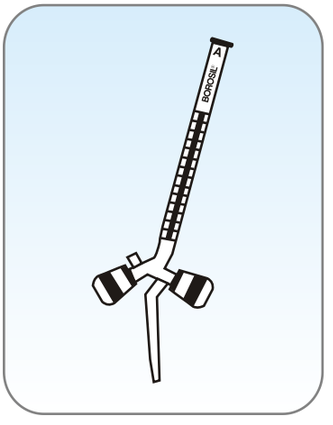
2126-Burettes, Double Oblique Bore Stopcock, 3-Way, Accuracy As Per Class B of I.S. 1997:1982, Borosil

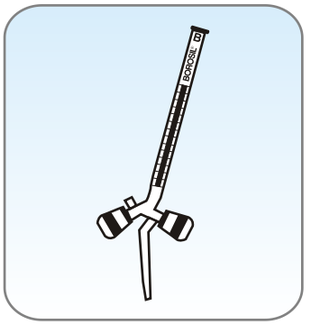
Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Total Height mm	Quantity Per Case
10	0.05	0.05	530	5
25	0.1	0.1	530	5
50	0.1	0.1	780	5
100	0.2	0.2	830	5



2127-Burettes, Double Olique Bore Boroflo Stopcock, 3-Way, Accuracy As Per Class A of I.S. 1997:1982, With Works Certificate, Borosil

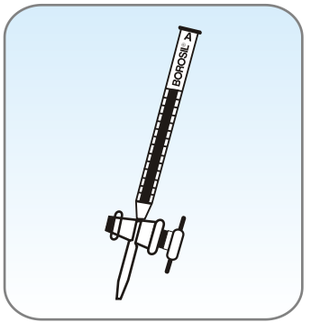
Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Total Height mm	Quantity Per Case
10	0.05	0.02	530	5
25	0.1	0.05	530	5
50	0.1	0.05	780	5
100	0.2	0.1	830	5





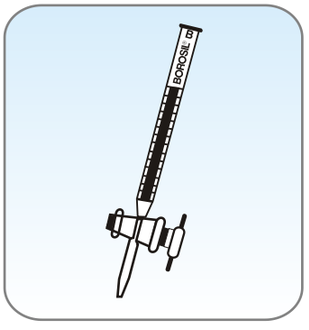
2128-Burettes, Doble Oblique Bore Boroflo Stopcock, 3-Way, Accuarcy As Per Class B of I.S. 1997:1982, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Total Height mm	Quantity Per Case
10	0.05	0.05	530	5
25	0.1	0.01	530	5
50	0.1	0.01	780	5
100	0.2	0.2	830	5



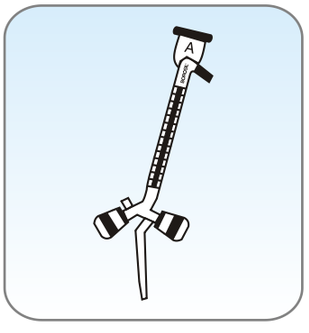
2129-Burettes, Straight Bore PTFE Key Stopcock, Accuracy As Per Class A of I.S. 1997:1982, With Works Certificate, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Total Height mm	Quantity Per Case
50	0.1	0.05	780	5



2130-Burettes, Straight Bore PTFE Key Stopcock, Accuracy As Per Class B of I.S. 1997:1982, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Total Height mm	Quantity Per Case
50	0.1	0.1	780	10

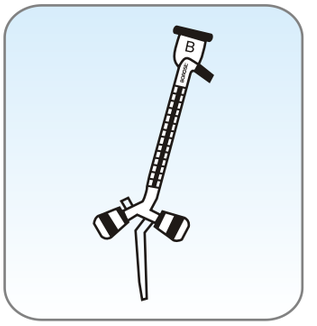


2145-Burettes, Double Oblique Bore Boroflo Stopcock, 3-Way, Automatic Zero, Accuracy As per Class A of I.S.1997:1982, With Works Certificate, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Total Height mm	Quantity Per Case
10	0.05	0.02	530	1
25	0.1	0.05	530	1
50	0.1	0.05	780	1

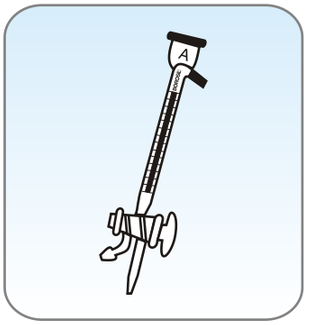
2146-Burettes, Double Oblique Bore Boroflo Stopcock, 3-Way, Automatic Zero, Accuracy As Per Class B of I.S.1997:1982, Borosil

Capacity ml	Graduation Interval ml	Tolerance ±ml	Approx Total Height mm	Quantity Per Case
10	0.05	0.05	530	1
25	0.1	0.1	530	1
50	0.1	0.1	780	1



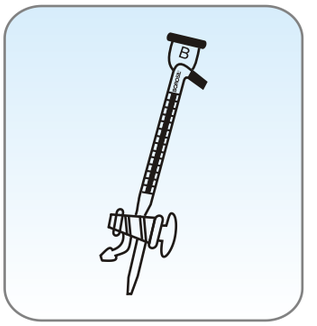
2147-Burettes, Double Oblique Bore Glass Stopcock, 3-Way, Automatic Zero, Accuracy As Per Class A of I.S. 1997:1982, With Works Certificate, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Total Height mm	Quantity Per Case
10	0.05	0.02	530	1
25	0.1	0.05	530	1
50	0.1	0.05	780	1



2148-Burettes, Double Oblique Bore Glass Stopcock, 3-Way, Automatic Zero, Accuracy As Per Class B of I.S.1997:1982, Borosil

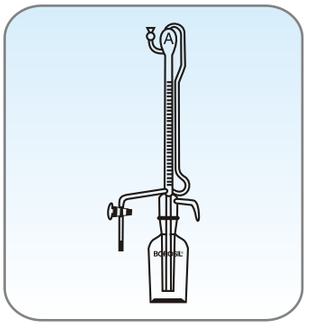
Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Total Height mm	Quantity Per Case
10	0.05	0.05	530	1
25	0.1	0.1	530	1
50	0.1	0.1	780	1

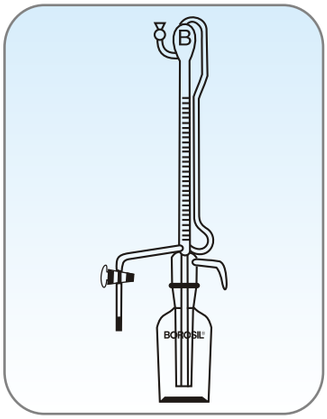


2149-Burettes, Automatic Zero, Mounted on Reservoir, Class A, With Rubber Bellow, Glass Stopcock, With Works Certificate, Borosil

Capacity ml	Graduation Interval ml	Tolerance ±ml	Quantity Per Case
10	0.05	0.02	1
25	0.1	0.05	1
50	0.1	0.05	1
100	0.2	0.1	1

Reservoir Capacity : 500 ml for 10ml size and 2000 ml for 25, 50 and 100 ml sizes.

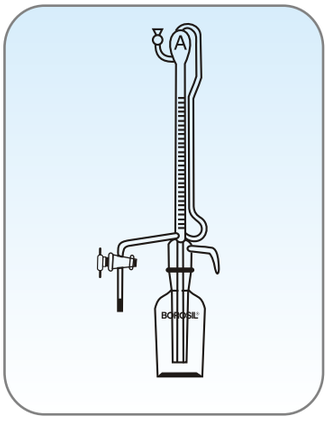




2150-Burettes, Automatic Zero, Mounted On Reservoir, Class B, With Rubber Bellow, Glass Stopcock, Borosil

Capacity ml	Graduation Interval ml	Tolerance ±ml	Quantity Per Case
10	0.05	0.05	1
25	0.1	0.1	1
50	0.1	0.1	1
100	0.2	0.2	1

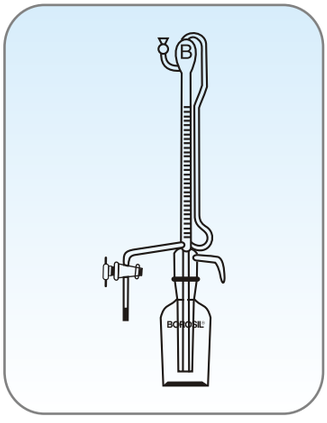
Reservoir Capacity : 500 ml for 10 ml size and 2000 ml for 25, 50 and 100 ml sizes.



2153-Burettes, Automatic Zero, Mounted On Reservoir, Class A, With Rubber Bellow, PTFE Stopcock With Works Certificate, Borosil

Capacity ml	Graduation Interval ml	Tolerance ±ml	Quantity Per Case
10	0.05	0.02	1
25	0.1	0.05	1
50	0.1	0.05	1
100	0.2	0.10	1

Reservoir Capacity : 500 ml for 10 ml size and 2000 ml for 25, 50 and 100 ml sizes.



2154-Burettes, Automatic Zero, Mounted On Reservoir, Class B, With Rubber Bellow, PTFE Stopcock, Borosil

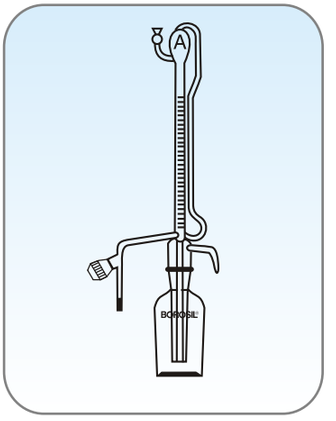
Capacity ml	Graduation Interval ml	Tolerance ±ml	Quantity Per Case
10	0.05	0.05	1
25	0.1	0.1	1
50	0.1	0.1	1
100	0.2	0.2	1

Reservoir Capacity : 500 ml for 10 ml size and 2000 ml for 25, 50 and 100 ml sizes.

2155-Burettes, Automatic Zero, Mounted On Reservoir, Class A, With Rubber Bellow, Boroflo Stopcock With Works Certificate, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Quantity Per Case
10	0.05	0.02	1
25	0.1	0.05	1
50	0.1	0.05	1
100	0.2	0.10	1

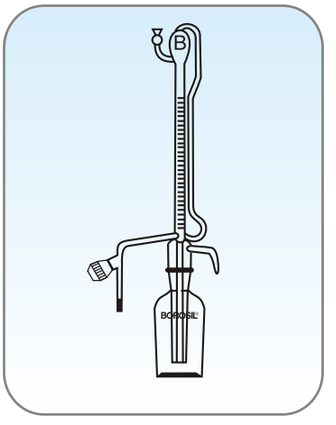
Reservoir Capacity : 500 ml for 10 ml size and 2000 ml for 25, 50 and 100 ml sizes.



2156-Burettes, Automatic Zero, Mounted On Reservoir, Class B, With Rubber Bellow, Boroflo Stopcock, Borosil

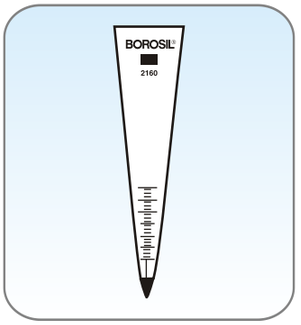
Capacity ml	Graduation Interval ml	Tolerance ± ml	Quantity Per Case
10	0.05	0.05	1
25	0.1	0.1	1
50	0.1	0.1	1
100	0.2	0.2	1

Reservoir Capacity : 500 ml for 10 ml size and 2000 ml for 25, 50 and 100 ml sizes.



CONES

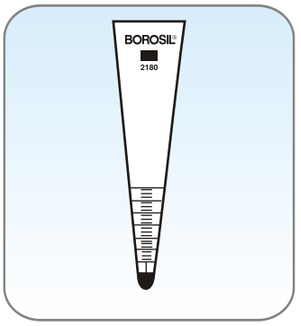
Borosil Brand cones are used for determination of small amounts of suspended matter in sewage by the Imhoff Sedimentation method.



2160-Cones, Imhoff, Sediment, Sharp Tip, Borosil

Approx Total Height mm	Approx Top Diameter mm	Quantity Per Case
454	105	10

Graduated from 0 to 1 ml in 0.1 ml divisions, 1 to 10 ml in 0.5 ml and 10 to 40 ml in 1 ml. also marked at 1000 ml.



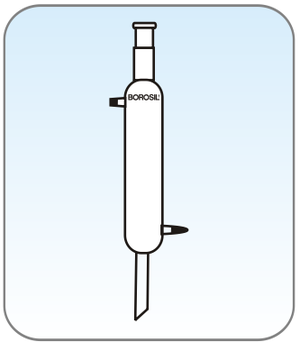
2180-Cones, Imhoff, Sediment, Blunt Tip, Borosil

Approx Total Height mm	Approx Top Diameter mm	Quantity Per Case
439	105	10

Graduation similar to Cat No. 2160. The Blunt tip increases its ruggedness and cleaning ease. For use with heavy sediments where small volumes are unimportant.

CONDENSERS

Borosil Brand Condensers are offered to meet the wide usage of condensers in laboratories for distillation or reflux operations. Condensers should be chosen carefully with regard to distillation rates, reflux rates, and temperature gradients. A comprehensive range of **Borosil** brand condensers for you to choose from.

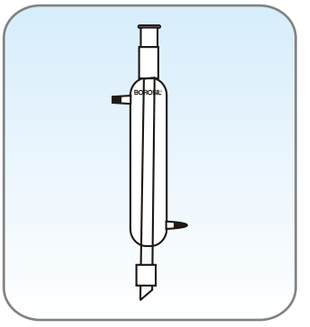


2340-Condensers, Liebig, With Sealed Inner Tube, Borosil

Approx Jacket Length mm	Approx Overall Height mm	Quantity Per Case
200	345	5
300	445	5
400	545	5
500	645	5

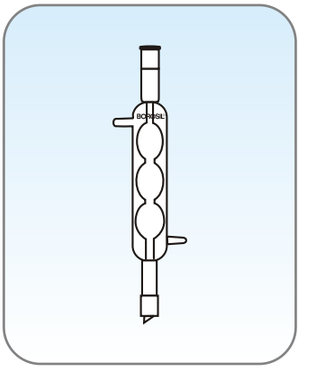
2400-Condensers, Liebig, Drip Tip, Interchangeable Inner Joint And Interchangeable Outer Joint, Borosil

Approx Jacket Length mm	Approx Overall Height mm	Interchangeable Joints		Quantity Per Case
		Inner	Outer	
200	350	19 / 26	19 / 26	5
300	450	24 / 29	24 / 29	5
400	550	24 / 29	24 / 29	5



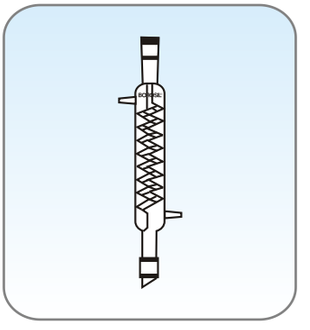
2480-Condensers, Allihn, Drip Tip, Interchangeable Inner Joint And Interchangeable Outer Joint, Borosil

Approx Jacket Length mm	Approx Overall Height mm	Interchangeable Joints		Quantity Per Case
		Inner	Outer	
200	350	19 / 26	19 / 26	5
300	450	24 / 29	24 / 29	5
400	550	24 / 29	24 / 29	5
600	750	29 / 32	29 / 32	5



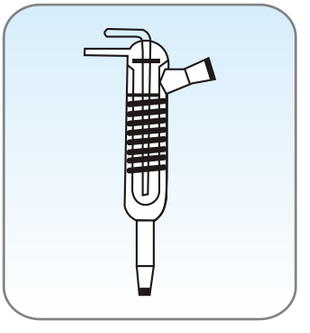
2560-Condensers, Graham, Coiled Distillate Type, Drip Tip, Inter-changeable Inner Joint And Interchangeable Outer Joint, Borosil

Approx Jacket Length mm	Approx Overall Height mm	Interchangeable Joints		Quantity Per Case
		Inner	Outer	
300	450	24 / 29	24 / 29	5
400	550	24 / 29	24 / 29	5
500	650	24 / 29	24 / 29	5



2640-Condensers, Friedrichs, Drip Tip, Interchangeable Inner Joint And Interchangeable Outer Joint, Borosil

Approx Overall Heigh mm	Interchangeable Joints		Quantity Per Case
	Inner	Outer	
350	24 / 29	24 / 29	5



CYLINDERS

Measuring cylinders serve simultaneously to receive and measure different amounts of liquids. Made from specially drawn tubing with durable, easy to read graduations for assured accuracy.

Borosil Brand Cylinders are built to last. We have built strength features into every cylinder. Heavy uniform wall tubing and strong stable hexagonal base contribute to sturdiness. Hexagonal base also prevents them from rolling off a laboratory bench. They are available in capacities from 5 ml to 2000 ml.

For accurate work, Class A certified cylinders are available.

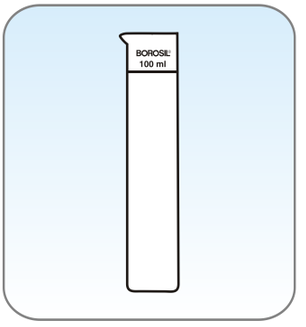
Cat No. 3025 provides cylinders with plastic bases, which are quite economical.

Our range also includes Nessler Colour Comparison and Rain Measure Cylinders.

2975-Cylinders, Colour Comparison, Nessler, Flat Bottom, Graduated, As Per I.S. 4161:1967, Borosil

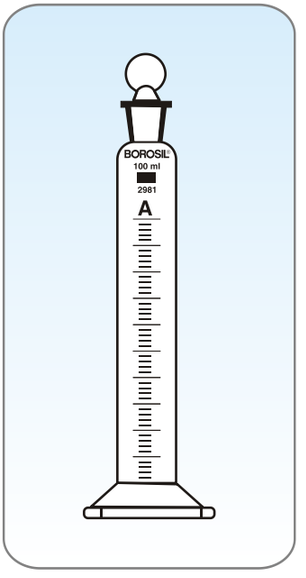
Capacity ml	Approx O.D. X Height mm	Quantity Per Case
50	26 x 150	20
100	34 x 180	20

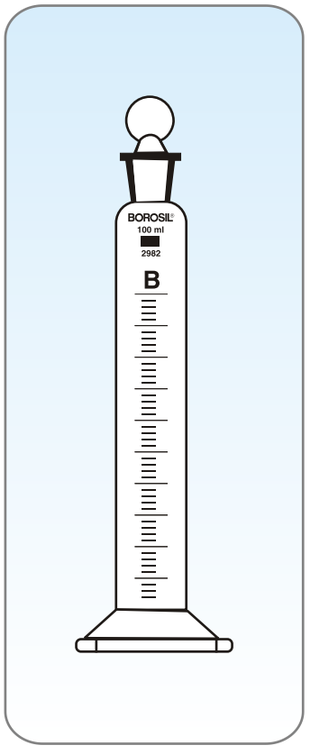
100 ml Cylinder is marked at 50 ml and 100 ml



2981-Cylinders, Graduated, Single Metric Scale, With Penny Head Interchangeable Stopper With Hexagonal Base, Class A, With Works Certificate, Borosil

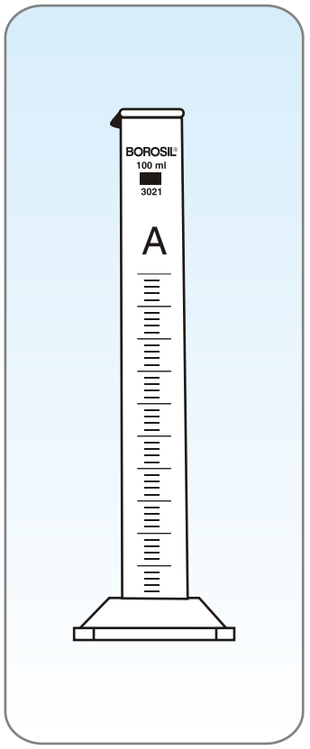
Capacity ml	Graduation Interval ml	Tolerance ± ml	Stopper Size	Approx Height mm	Quantity Per Case
5	0.1	0.05	10 / 15	130	5
10	0.2	0.1	10 / 15	160	5
25	0.5	0.25	14 / 15	186	10
50	1.0	0.5	14 / 1 5	206	10
100	1.0	0.5	19 / 20	285	10
250	2.0	1.0	24 / 25	370	5
500	5.0	2.5	24 / 25	430	5
1000	10.0	5.0	34 / 25	500	4
2000	20.0	10.0	34 / 25	620	4





2982-Cylinders, Graduated, Single Metric Scale, With Penny Head Interchangeable Stopper With Hexagonal base, Accuracy As per I.S. 878:1975, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Stopper Size	Approx Heigh mm	Quantity Per Case
5	0.1	0.1	10 / 15	130	5
10	0.2	0.2	10 / 15	160	10
25	0.5	0.5	14 / 15	186	20
50	1.0	1.0	14 / 15	206	20
100	1.0	1.0	19 / 20	285	20
250	2.0	2.0	24 / 25	370	10
500	5.0	5.0	24 / 25	430	10
1000	10.0	10.0	34 / 25	500	4
2000	20.0	20.0	34 / 25	620	4

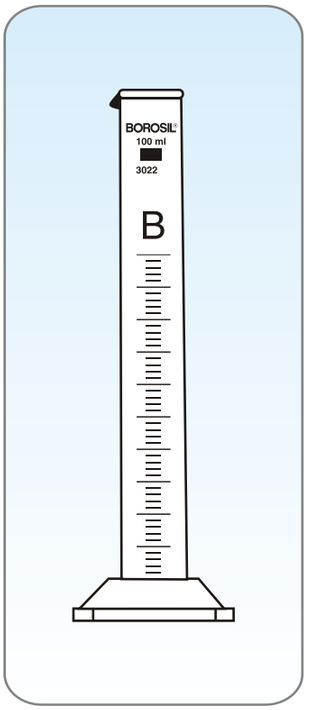


3021-Cylinders, Graduated, Single Metric Scale, With Pour Out, With Hexagonal Base, Class A, With Works Certificate, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Height mm	Quantity Per Case
5	0.1	0.05	110	5
10	0.2	0.1	140	5
25	0.5	0.25	170	10
50	1.0	0.5	200	10
100	1.0	0.5	260	10
250	2.0	1.0	335	10
500	5.0	2.5	390	5
1000	10.0	5.0	470	4
2000	20.0	10.0	570	4

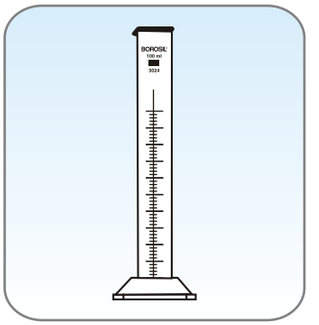
3022-Cylinders, Graduated, Single Metric Scale, With Pour out, With Hexagonal Base, Accuracy As per I.S. 878 : 1975, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Height mm	Quantity Per Case
5	0.1	0.1	110	10
10	0.2	0.2	140	10
25	0.5	0.5	170	20
50	1.0	1.0	200	20
100	1.0	1.0	260	20
250	2.0	2.0	335	20
500	5.0	5.0	390	10
1000	10.0	10.0	470	10
2000	20.0	20.0	570	4



3024-Cylinders, Graduated, Single Metric Scale, With Pour Out, Schelbach type, With Hexagonal Base, Accuracy As per I.S. 878 : 1975, Borosil

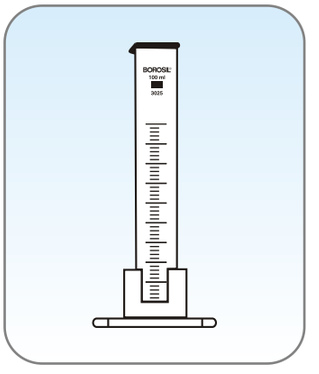
Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Height mm	Quantity Per Case
50	1.0	1.0	180	20
100	1.0	1.0	250	20

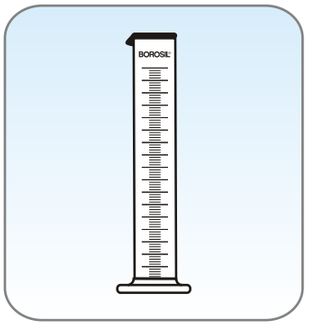


3025-Cylinders, Graduated, Single Metric Scale, With Pour Out, Detachable LDPE Plastic* Hexagonal Base, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Approx Height mm	Quantity Per Case
10	0.2	0.2	140	10
25	0.5	0.5	170	20
50	1.0	1.0	200	20
100	1.0	1.0	260	20

*For Physical and chemical resistance, please refer to page 16





3070-Cylinders, Rain Measure, Metric Scale, Graduated, With Round Base, As Per I.S. 4849:1992, Borosil

Size mm Rain	Used For Collector Area cm^2	Graduation Interval mm Rain	Tolerance ± mm rain	Quantity Per Case
20	200	0.2	0.05	5
20	100	0.2	0.1	10

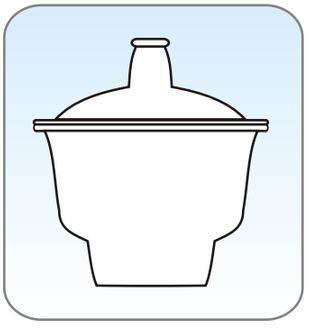
The cylinders are graduated to indicate rainfall in mm when used with appropriate rain collector.

DESICCATORS

Borosil Brand Desiccator bodies and covers are designed for strength and utility. The body has a streamlined contour for easy cleaning of used desiccant. Any desiccant such as sulphuric acid, phosphoric pentoxide, calcium chloride or silica gel can be used.

For your convenience, **Borosil** brand plain Desiccators of the same size have interchangeable covers and bodies.

Vacuum types desiccators, when ground surface is cleaned and greased, will hold a vacuum of 500 mm of Mercury over a 24 hour period.

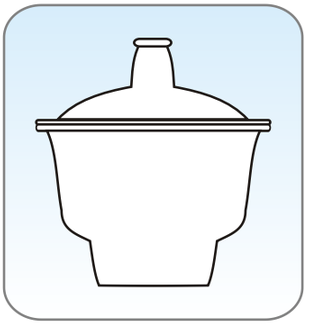


3080-Desiccators, With Cover, Knob Top, Borosil

Approx ID Ground Flange mm	Quantity Per Case
110	1
160	1
200	1
250	1
300	1

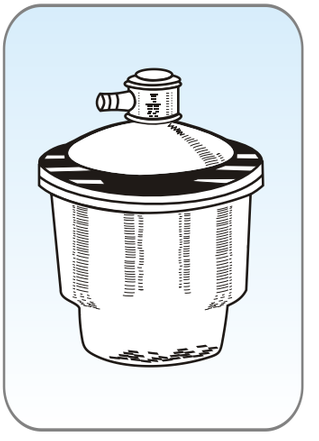
3082, Desiccators, With Cover, Plastic Knob, Borosil

Approx ID Ground Flange mm	Quantity Per Case
100	1
150	1
200	1
250	1
300	1



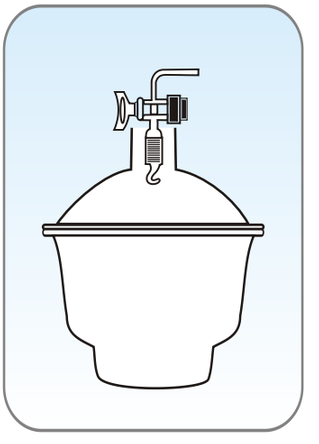
3118, Desiccators, Vacuum, With Cover And Sleeve, Borosil

Approx ID Ground Flange mm	Quantity Per Case
160	1
200	1
250	1
300	1



3083, Desiccators, Vacuum, Stopcock With PTFE Spindle, Borosil

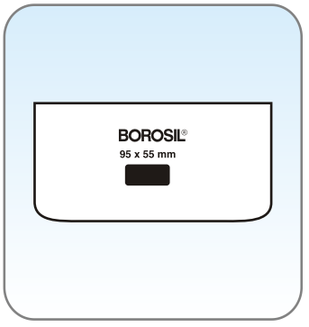
Approx ID Ground Flange mm	Quantity Per Case
100	1
150	1
200	1
250	1
300	1



DISHES

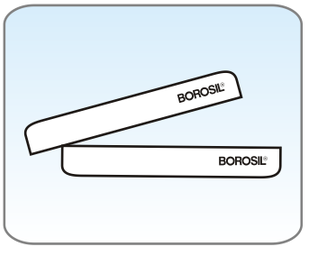
Borosil Brand Dishes are for your varied needs - crystallizing, evaporating, drying, storing, Petri dishes for culture, assay and micro-biological works. All dishes are safe, durable and economic.

Borosil brand dishes are inert, sterilisable and remain clear after repeated uses and washings. As you use again and again, your cost per dish keeps decreasing.



3140-Dishes, Crystallizing, Borosil

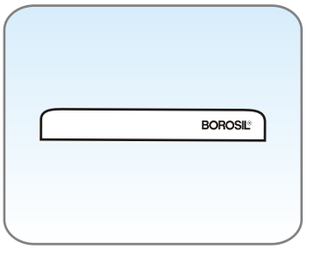
Approx O.D. x Height mm	Quantity Per Case
95 x 55	20
140 x 75	20
190 x 90	4



3160-Dishes, Culture, Petri, Borosil

Approx O.D. x Height mm	Quantity Per Case
50 x 17	100
80 x 17	100
100 x 17	100
150 x 20	40
200 x 20	10

These clear dishes withstand repeated sterillisation (wet or dry). The edges are beaded to provide greater mechanical strength. Excellent for routine work.

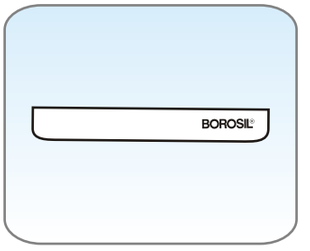


3161-Dishes, Tops only For Petri Dishes Cat No. 3160, Borosil

Approx I.D. X Height mm	Quantity Per Case
54 x 15	100
83 x 15	100
98 x 15	100
153 x 17	40
203 x 17	10

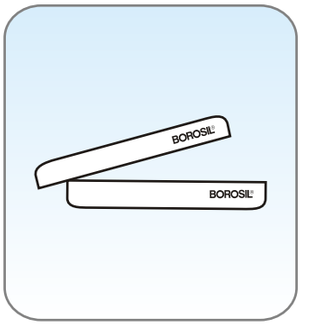
3162-Dishes, Bottom Only For Petri Dishes Cat No 3160, Borosil

Approx O.D. x Height mm	Quantity Per Case
51 x 17	100
80 x 17	100
95 x 17	100
149 x 20	40
200 x 20	10



3165-Dishes, Culutre Petri, Borosil S-Line

Approx O.D. X Height mm	Quantity Per Case
50 x 12	144
80 x 15	144
100 x 15	72
150 x 25	72
200 x 30	10



The accuracy of many biological assays depends on the flatness of the inside bottom of petri dishes used. This dish has an inner bottom held to very close flatness tolerances.These dishes are made of a different type of glass and process which enables absolutely flat inner surfaces of tops and bottoms with high clarity and free of bubbles.

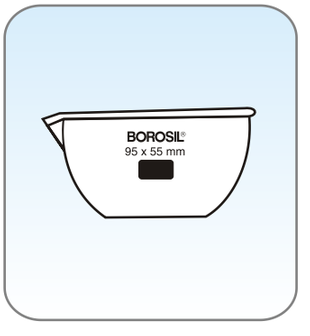
3170-Trays, Drying, Heavy Wall, Borosil

Approx Dimension mm	Approx Capacity ml	Quantity Per Case
320 x 180 x 51	1500	5
350 x 200 x 58	2400	5
386 x 217 x 63	3000	5
404 x 257 x 61	3500	5

These trays withstand hot air or steam sterilizations. Useful for paper chromatography too. Dimensions are approximate, represent inside length x width x height in mm.

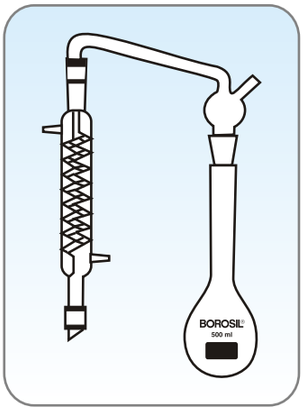
3180-Dishes, Evaporating, Flat Bottom, With Pour Out, Borosil

Approx O.D. x Height mm	Quantity Per Case
80 x 45	60
95 x 55	50
140 x 80	20
190 x 100	8



DISTILLING APPARATUS

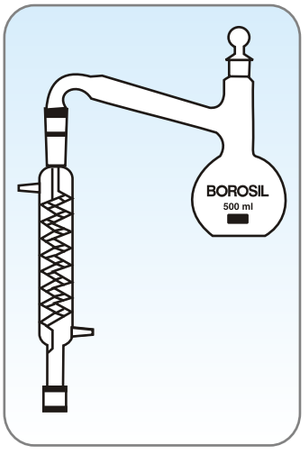
Distillation equipment to cover most of the needs of the average laboratory can be built from standard **Borosil** Components. Distillation assemblies for specific applications however are available as complete units, as listed herein.



3340-Distilling Apparatus, Ammonia, With Graham Condenser, Interchangeable Joints, Borosil

Capacity ml	Quantity Per Case
500	2

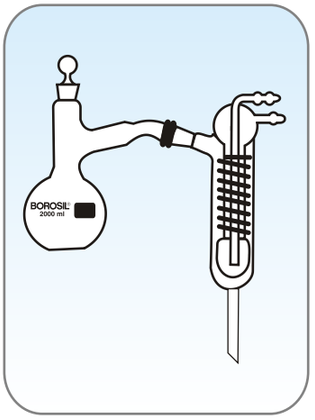
Used for determining nitrogen in organic compounds. Both the digestion and distillation stages can be performed in this apparatus. The assembly shown is the distillation stage where the amount of ammonia, and hence, nitrogen is established. The inlet tube allows the permanganate solution to be introduced after distillation. Supplied with an outer interchangeable 24/29 joint on the flask and an outer interchangeable 19/26 joint on the condenser.



3360-Distilling Apparatus, With Graham Condenser, Inter-changeable Joints, Interchangeable Stopper, Borosil

Capacity ml	Condenser Jacket mm	Interchangeable Joint	Quantity Per Case
500	200	19 / 26	2

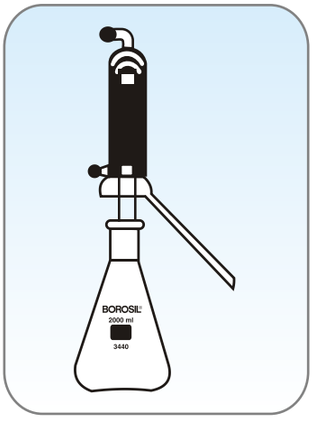
A general purpose batch distillation assembly with the facility for addition via the interchangeable stoppered neck. Ideally suited for the batch production of high purity distilled water. The flask has flat bottom with a side delivery tube.



3380-Distilling Apparatus, With Friedrichs Condenser, Interchangeable Joint, Interchangeable Stopper, Borosil

Capacity ml	Overall Height mm	Interchangeable Joint	Quantity Per Case
2000	350	24 / 29	2

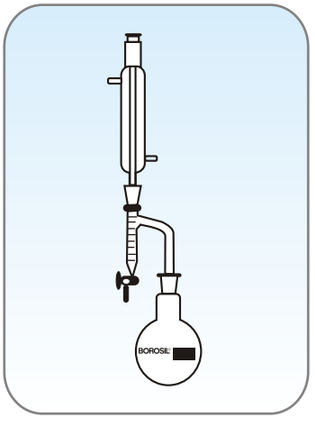
Similar in design to No. 3360 but incorporating a Friedrichs Spiral Condenser for increased distillation rates and interchangeable 24 / 29 joints between the condenser and the side arm of the flask.



3440-Distilling Apparatus, Compact With Friedrichs Condenser, Interchangeable Joint, Borosil

Capacity ml	Overall Height mm	Interchangeable Joint	Quantity Per Case
1000	495	34 / 35	2

A compact distillation assembly incorporating a specially designed Friedrichs Condenser with vapour tube rising to the top. The 1000ml Erlenmeyer flask is supplied with an outer interchangeable 34 / 35 joint.



3602 - Distilling Apparatus, Dean And Stark, Moisture Test, (As Per I.P. Specifications), Borosil

Capacity of Receiver ml	Quantity Per Case
10	2

Consists of receiver 10 ml graduated with19 / 26 outer joint and 24 / 29 inner joint, round bottom flask 1000 ml with 24 / 29 outer joint and Liebig condenser 200 mm with 19 / 26 joint. The 10 ml receiver is graduated from 1 ml to 10 ml in 0.1 ml intervals.

EXTRACTORS

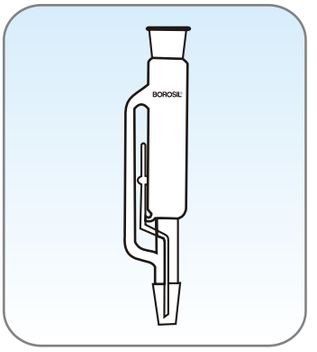
Liquid Solid Extraction involves the elution of a solid sample with pure solvent vapour. The sample is held in the extractor body either directly or in a thimble. The siphoning type of Soxhlet Exractor finds the widest application in laboratory work.

Borosil brand Soxhlet Extraction Apparatus are available in three sizes. The Component parts of the apparatus are provided with interchangeable joints for added flexibility.

3740-Extractors, Soxhlet, Interchangeable Joint, Borosil

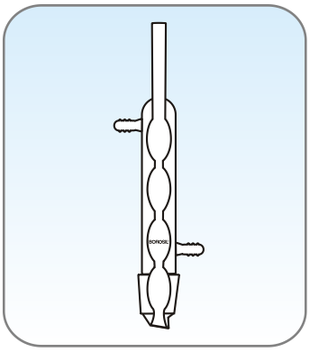
Capacity ml	Interchangeable Joints		Quantity Per Case
	Top	Bottom	
60	34 / 35	24 / 29	5
100	40 / 38	24 / 29	5
200	50 / 42	24 / 29	5

With a bulb in a siphon tube near the top to aid in the siphoning action. The siphon tube is protected from accidental damage by the vapour tube.



3741-Condensers, Only For Extraction Apparatus, Allihn, Borosil

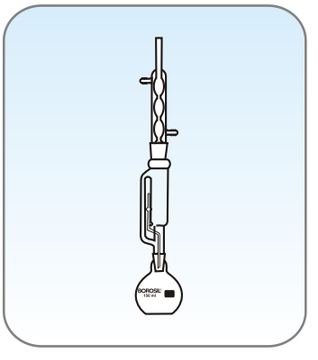
Size	Interchangeable Joints Bottom	Quantity Per Case
Small	34 / 35	5
Medium	40 / 38	5
Large	50 / 42	5



3840-Extraction Apparatus Soxhlet Complete With Allihn Condenser, Interchangeable Joint, Borosil

Size	Capacity ml	Flask Size ml*	Quantity Per Case
Small	60	150	5
Medium	100	250	5
Large	200	500	5

*For flask refer Cat No. 4100



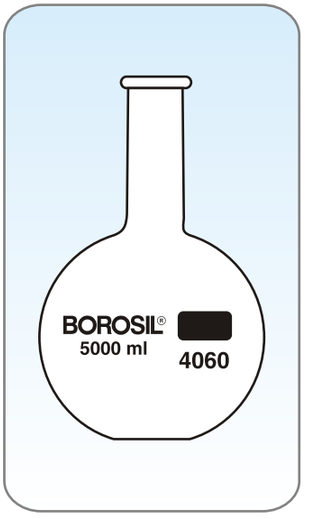
FLASKS

All laboratories must be equipped with flasks of different types. We offer a wide range of flasks boiling, culture, distilling, erlenmeyer, filtering, iodine and kjeldahl - for a variety of applications. You can select one to meet your requirement.

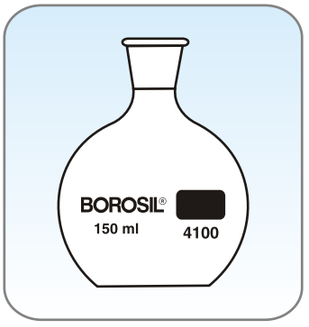
Borosil brand flasks are designed to give the best combination of thermal shock resistance, physical strength and resistance to chemical attack. They are made to withstand the demands of the modern laboratory. The flasks with interchangeable joints are particularly suitable for all glass apparatus assemblies. We offer the interchangeable joints most commonly specified for a particular capacity. Tube adaptors Cat. No. 8800 and 8820 can be used to connect flask with one size joint to any other apparatus having another size joint.

4060-Flasks, Boiling, Florence, Flat Bottom, Borosil

Capacity ml	Approx O.D. x Height mm	Approx Neck O.D. mm	Quantity Per Case
25	42 x 90	20	50
50	51 x 90	26	50
100	64 x 105	26	80
150	75 x 132	28	80
250	85 x 140	34	80
*300	87 x 160	24	20
500	105 x 170	33	40
1000	133 x 200	42	20
2000	167 x 250	50	20
3000	186 x 300	50	4
5000	223 x 340	60	2
6000	250 x 340	65	2
10000	279 x 400	65	1
20000	350 x 505	75	1

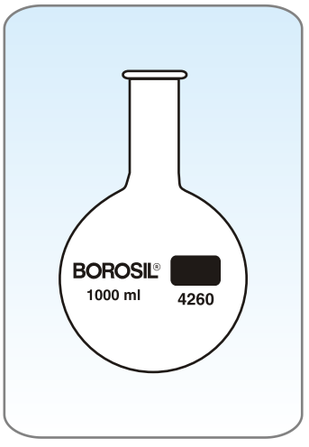


* Suitable for use in Polenske Apparatus



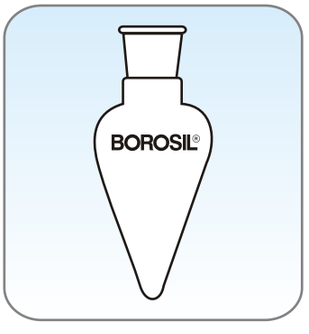
4100-Flasks. Boiling, Flat Bottom, Short Neck, Interchangeable Joint, Borosil

Capacity ml	Interchangeable Joint	Approx Height mm	Quantity Per Case
150	24 / 29	115	5
250	24 / 29	130	5
500	24 / 29	148	5



4260-Flasks, Boiling, Round Bottom, Borosil

Capacity ml	Approx O.D. x Height mm	Approx Neck O.D. Mm	Quantity Per Case
25	42 x 90	20	50
50	51 x 95	26	70
100	64 x 110	26	50
150	75 x 137	28	80
250	85 x 145	34	80
500	105 x 178	34	40
1000	128x 212	42	20
2000	166 x 260	51	20
3000	185 x 310	50	4
5000	223 x 350	60	2
6000	236 x 350	65	2
10000	285 x 420	65	1
20000	350 x 505	75	1

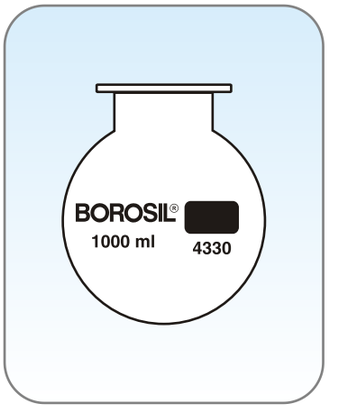


4315-Flasks, Boiling, Pear Shaped, Short Neck, With Interchangeable Joint, Borosil

Capacity ml	Interchangeable Joint	Quantity Per Case
25	14 / 23	5
50	14 / 23	10

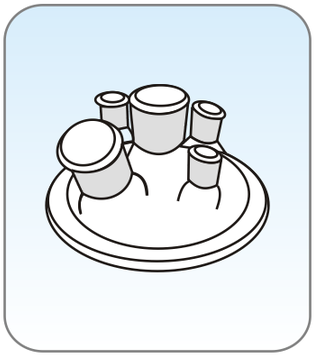
4330-Flasks, (Vessels) Reaction, Wide Mouth, Flat Flange, 100 mm I.D., 150mm O.D., Borosil

Capacity ml	Approx Height mm	Quantity Per Case
1000	170	2
2000	205	2
5000	260	2
10000	320	1
20000	400	1



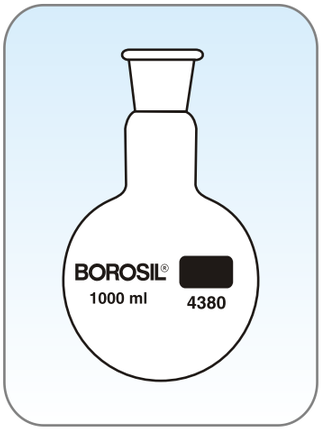
4331-Lids, For Flasks Reaction Cat No. 4330, Flat Flange And Interchangeable Joint, Borosil

Interchangable Joint Size					Quantity Per Case
Centre	Parellel	Side 5^0	Side 10^0	Side 15^0	
19 / 26	19 / 26	24 / 29	19 / 26	-	2
19 / 26	14 / 23	14 / 23	14 / 23	29 / 32	2
29 / 32	14 / 23	14 / 23	14 / 23	29 / 32	2

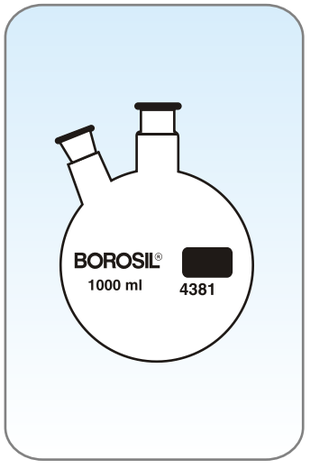


4380-Flasks, Boiling, Round Bottom, Short Neck, With Interchangeable Joint, Borosil

Capacity ml	Approx Height mm	Interchangeable Joint	Quantity Per Case
50	95	19 / 26	5
100	120	24 / 29	15
250	140	24 / 29	20
500	160	24 / 29	10
1000	188	24 / 29	10
2000	228	24 / 29	4
3000	255	24 / 29	4
5000	300	45 / 40	2
10000	385	55 / 44	1
20000	435	55 / 44	1

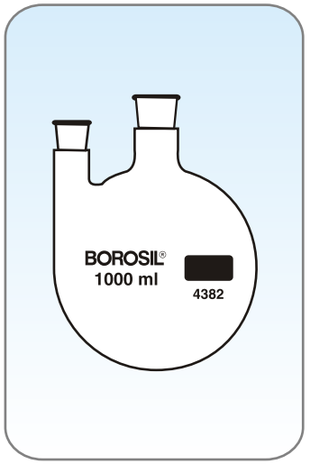


4381-Flasks, Round Bottom, Two Necks, Centre Neck And One Angled Side Neck, With Interchangeable Joints, Borosil



Capacity ml	Interchangeable Joint Size		Quantity Per Case
	Centre Neck	Side Neck	
100	24 / 29	14 / 23	4
100	24 / 29	19 / 26	4
250	24 / 2 9	14 / 23	4
250	24 / 29	19 / 26	4
500	24 / 29	14 / 23	4
500	24 / 29	19 / 26	4
1000	24 / 29	14 / 23	2
1000	24 / 29	19 / 26	2
2000	24 / 29	14 / 23	2
2000	24 / 29	19 / 26	2
2000	34 / 35	19 / 26	2
3000	34 / 35	19 / 26	2
5000	34 / 35	19 / 26	1
10000	55 / 44	24 / 29	1
20000	55 / 44	24 / 29	1

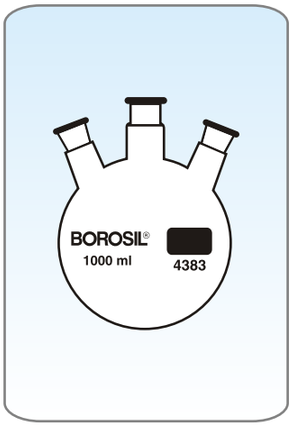
4382-Flasks, Round Bottom, Two Necks, Centre Neck And One Parallel Side Neck, With Interchangeable Joints, Borosil



Capacity ml	Interchangeable Joint Size		Quantity Per Case
	Centre Neck	Side Neck	
100	24 / 29	14 / 23	4
100	24 / 29	19 / 26	4
250	24 / 29	14 / 23	4
250	24 / 29	19 / 26	4
500	24 / 29	14 / 23	4
500	24 / 29	19 / 26	4
1000	24 / 29	14 / 23	2
1000	24 / 29	19 / 26	2
2000	24 / 29	14 / 23	2
2000	24 / 29	19 / 26	2
2000	34 / 35	19 / 26	2
3000	34 / 35	19 / 26	2
5000	34 / 35	19 / 26	1
10000	55 / 44	24 / 29	1
20000	55 / 44	24 / 29	1

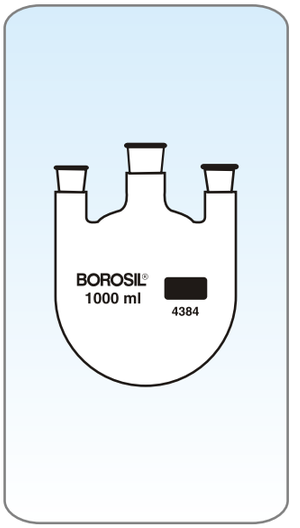
4383-Flasks, Round Bottom, Three Necks, Centre Neck And Two Angled Side Necks, With Interchangeable Joints, Borosil

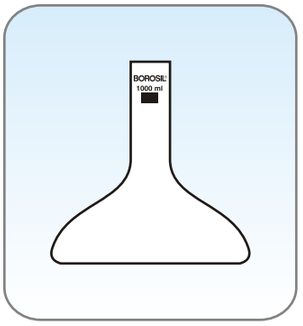
Capacity ml	Interchangeable Joint Size			Quantity Per Case
	Centre Neck	Side Neck	Side Neck	
100	19 / 26	14 / 23	14 / 23	4
100	14 / 23	14 / 23	14 / 23	4
250	19 / 26	14 / 23	14 / 23	4
250	19 / 26	19 / 26	19 / 26	4
500	19 / 26	14 / 23	14 / 23	4
500	19 / 26	19 / 26	19 / 26	4
1000	34 / 35	24 / 29	24 / 29	2
2000	24 / 29	19 / 26	19 / 26	2
2000	34 / 35	24 / 29	24 / 29	2
3000	34 / 35	24 / 29	24 / 29	2
5000	45 / 40	24 / 29	24 / 29	1
10000	45 / 40	24 / 29	24 / 29	1
20000	55 / 44	24 / 29	24 / 29	1



4384-Flask, Round Bottom, Three Necks, Centre Neck And Two Parallel Side Necks With Interchangeable Joints, Borosil

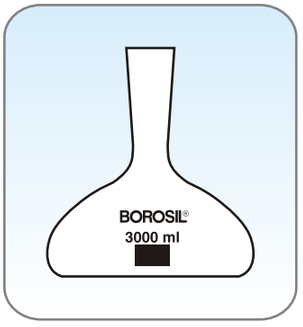
Capacity ml	Interchangeable Joint Size			Quantity Per Case
	Centre Neck	Side Neck	Side Neck	
100	19 / 26	14 / 23	14 / 23	4
100	14 / 23	14 / 23	14 / 23	4
250	19 / 26	14 / 23	14 / 23	4
250	19 / 26	19 / 26	19 / 26	4
500	19 / 26	14 / 23	14 / 23	4
500	19 / 26	19 / 26	19 / 26	4
1000	34 / 35	24 / 29	24 / 29	2
2000	24 / 29	19 / 26	19 / 26	2
2000	34 / 35	24 / 29	24 / 29	2
3000	34 / 35	24 / 29	24 / 29	2
5000	45 / 40	24 / 29	24 / 29	1
10000	45 / 40	24 / 29	24 / 29	1
20000	55 / 44	24 / 29	24 / 29	1





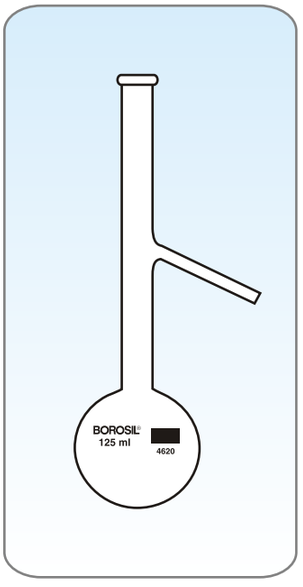
4420-Flasks, Lofo, Borosil

Capacity ml	Approx O.D. x Height mm	Approx Neck ID mm	Quantity Per Case
3000	260 x 205`	52	2



4422-Flasks, Culture, Haffkine, Borosil

Capacity ml	Approx O.D. x Height mm	Quantity Per Case
3000	241 x 273	2
4000	245 x 310	2



4620-Flasks, Distilling, With Side Arm, Borosil

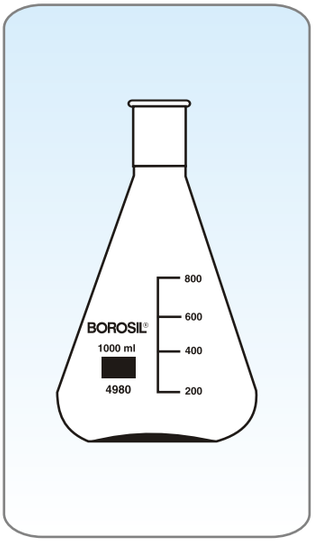
Capacity ml	Approx O.D. x Height mm	Approx Neck O.D. mm	Quantity Per Case
100	64 x 210	21	20
*125	68 x 214	19	20
250	88 x 226	25	20
500	110 x 250	28	4
1000	130 x 305	31	4
2000	170 x 318	40	4

*Specifications as per Institute of Petroleum Standard No. IP 123 / 64

4980-Flasks, Erlenmeyer, Graduated, Conical, Narrow Mouth, Borosil

Capacity ml	Approx O.D. x Height mm	Approx Neck O.D. mm	Quantity Per Case
10	34 x 60	15	30
25	42 x 70	21	40
50	51 x 82	21	100
100	64 x 105	25	100
150	72 x 124	28	100
250	85 x 140	34	80
500	104 x 176	34	40
1000	131 x 220	42	20
2000	165 x 286	48	20
3000	185 x 315	48	4
5000	220 x 377	50	2

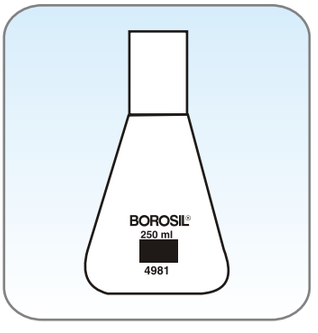
25 ml to 5000 ml Graduated



4981-Flasks, Erlenmeyer, Conical, Long Neck, Without Rim, Borosil

Capacity ml	Approx O.D. x Height mm	Approx Neck O.D. mm	Quantity Per Case
250	78 x 154	25	60

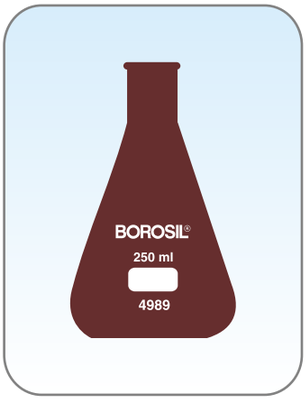
Suitable for culture work, designed for cotton plug or metal caps



4982-Flasks, Conical, Without Rim, Borosil

Capacity ml	Approx O.D. x Height mm	Approx Neck O.D. mm	Quantity Per Case
750	114 x 210	34	20

Suitable for culture work, designed for use in shaker machine



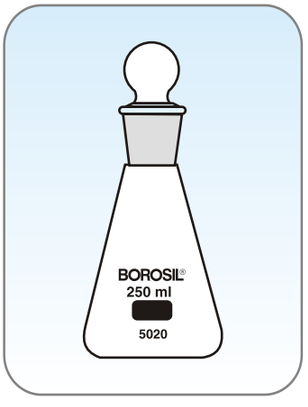
4989-Flasks, Erlenmeyer, Graduated, Conical, Amber, With Narrow Mouth, Borosil

Capacity ml	Approx O.D. x Height mm	Approx Neck O.D. mm	Quantity Per Case
100	64 x 105	25	50
150	72 x 124	28	50
250	85 x 140	34	40
500	104 x 176	34	20
1000	131 x 220	42	10

Similar in design to Cat. No. 4980

5000-Flasks, Erlenmeyer, Conical, Narrow Mouth, Interchangeable Joint, Borosil

Capacity ml	Approx Height mm	Interchangeable Joint	Quantity Per Case
250	145	24 / 29	10
500	175	24 / 29	5



5020-Flasks, Erlenmeyer, Conical, Narrow Mouth, With Interchangeable Stopper, Borosil

Capacity ml	Approx Height mm	Interchangeable Joint	Quantity Per Case
25	65	14 / 15	10
50	85	19 / 20	10
100	90	24 / 25	20
250	145	29 / 25	20
500	175	29 / 25	10

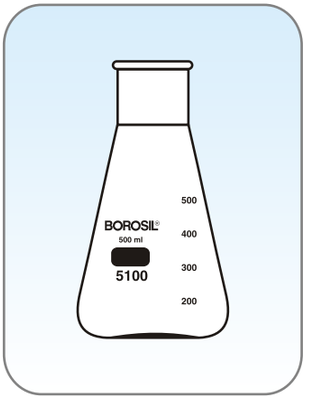
5021-Flasks, Conical, With Screw Cap, Borosil

Capacity ml	Approx O.D. x Height mm	Quantity Per Case
100	64 x 110	20
150	72 x 125	20
250	85 x 145	20
500	104 x 180	10
1000	131 x 225	10

Caps made of P.P.

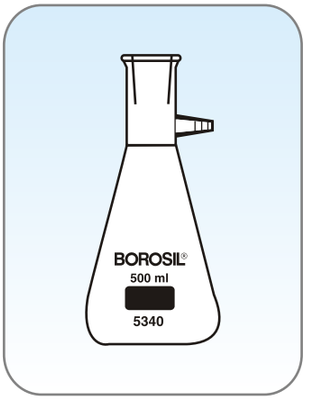
5100-Flasks, Erlenmeyer, Conical, Wide Mouth, Borosil

Capacity ml	Approx O.D. x Height mm	Approx Neck O.D. mm	Quantity Per Case
100	70 x 110	34	20
250	85 x 142	50	30
500	105 x 175	50	20
1000	130 x 220	56	10



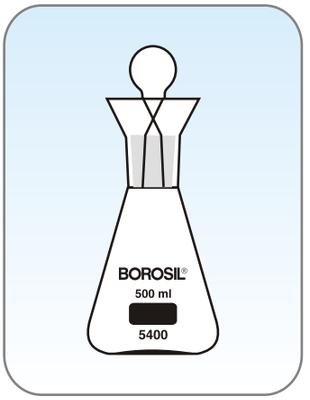
5340-Flasks, Filtering, Heavy Wall, Bolt Neck, With Tubulation, Borosil

Capacity ml	Approx O.D. x Height mm	Quantity Per Case
50	52 x 80	30
100	64 x 105	20
250	85 x 165	20
500	105 x 184	20
1000	136 x 250	10
2000	168 x 295	5
5000	237 x 450	2
**10000	215 x 500	1
**20000	300 x 560	1



** These flasks are bottle shaped

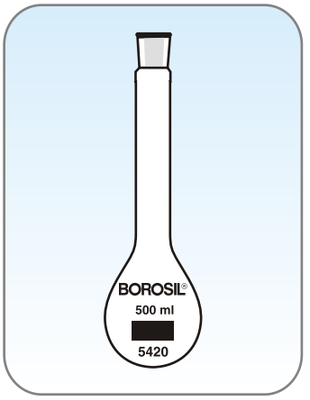
These flasks are blown in special moulds, in shapes designed to give maximum mechanical strength.The neck finish is designed for strength and to allow satisfactory stopper fit. For use with our Buchner Funnel No. 36060 and Gooch Crucible No. 32060 with sintered discs in different porosities.



5400-Flasks, Iodine Determination, Interchangeable Stopper, Borosil

Capacity ml	Interchangeable Joint	Quantity Per Case
100	24 / 29	10
250	24 / 29	10
500	24 / 29	10

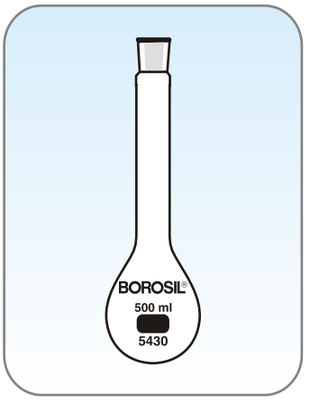
These flasks are blown specially for iodine value determination as per method of A.S.T.M.D-29. The Stopper handle projects above the liquid seal trough to facilitate its removal.



5420-Flasks, Kjeldahl, Round Bottom, Long Neck, Borosil

Capacity ml	Approx O.D. x Height mm	Quantity Per Case
10	30 x 180	10
30	40 x 180	10
100	61 x 210	20
300	80 x 298	20
500	97 x 325	20
800	113 x 375	20

These flasks, specifically styled for nitrogen determination as per kjeldahl method are provided with tooled necks for extra strength and stopper fit.



5430-Flasks, Kjeldahl, Round Bottom, Interchangeable Joint, Borosil

Capacity ml	Approx O.D. x Height mm	Interchangeable Joint	Quantity Per Case
500	97 x 305	24 / 29	20
800	113 x 375	24 / 29	20

Similar in design to Cat No. 5420 but with interchangeable joint, 500 ml capacity flask is a component part for Ammonia Distilling Apparatus Cat. No.3340

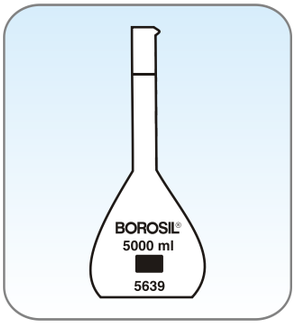
VOLUMETRIC FLASKS

Borosil brand volumetric flasks are built with your requirements in mind. They confirm to tight capacity tolerances and assure accurate reproducible results. The flasks have built in strength too. The flask body is specially blown and accurate bore tubing is used for the neck. And above all, you have interchangeable stoppers for convenience.

In capacities from 1ml to 2000 ml, **Borosil** brand volumetric flasks are available in Class A accuracy, certified by us and Class B accuracy, for general purpose work.

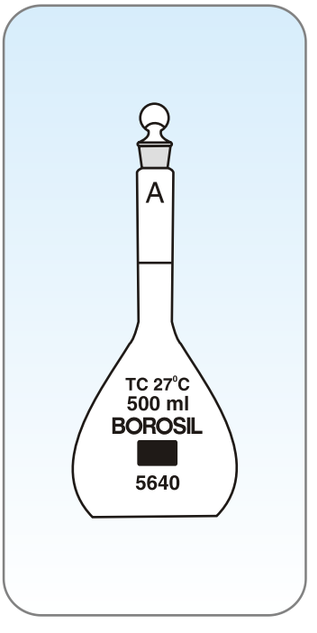
5639-Jars, Petroleum, Measuring, With Pour Out, With Works Certificate, Borosil

Capacity ml	Tolerance ± ml	Quantity Per Case
5000	2.5	1

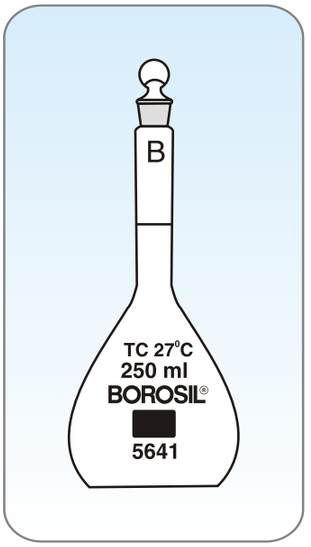


5640-Flasks, Volumetric, With Interchangeable Stopper, Accuracy As Per Class A Of I.S. 915 :2006, With Works Certificate, Borosil

Capacity ml	Tolerance ± ml	Stopper Size	Quantity Per Case
*1	0.015	10 / 15	4
*2	0.010	10 / 15	4
5	0.025	10 / 15	5
10	0.025	10 / 15	5
20	0.04	10 / 15	5
25	0.04	10 / 15	5
50	0.06	10 / 15	10
100	0.1	14 / 15	10
200	0.15	14 / 15	10
250	0.15	14 / 15	10
500	0.25	19 / 20	10
1000	0.4	19 / 20	10
2000	0.6	24 / 25	2



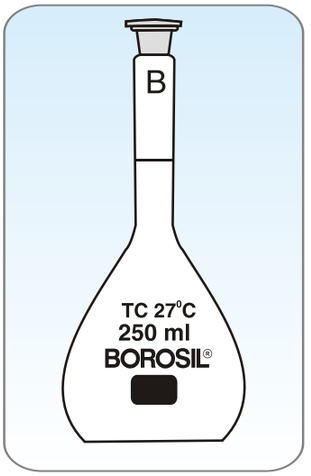
* 1ml and 2 ml sizes are of test tube shape.



5641-Flasks, Volumetric, With Interchangeable Stopper, Accuracy As Per Class B Of I.S. 915 : 2006, Borosil

Capacity ml	Tolerance ± ml	Stopper Size	Quantity Per Case
*1	0.02	10 / 15	10
*2	0.03	10 / 15	10
5	0.05	10 / 15	10
10	0.05	10 / 15	10
20	0.08	10 / 15	10
25	0.08	10 / 15	20
50	0.12	10 / 15	20
100	0.2	14 / 15	20
200	0.3	14 / 15	20
250	0.3	14 / 15	20
500	0.5	19 / 20	20
1000	0.8	19 / 20	20
2000	1.2	24 / 25	4

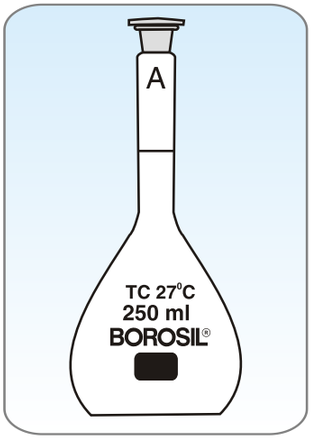
* 1ml and 2 ml sizes are of test tube shape.



5642-Flasks, Volumetric, With Interchangeable LDPE Plastic* Stopper, Accuracy As per Class B Of I.S. 915 : 2006, Borosil

Capacity ml	Tolerance ± ml	Stopper Size	Quantity Per Case
1	0.02	10 / 15	10
2	0.03	10 / 15	10
5	0.05	10 / 15	10
10	0.05	10 / 15	10
20	0.08	10 / 15	10
25	0.08	10 / 15	20
50	0.12	10 / 15	20
100	0.2	14 / 15	20
200	0.3	14 / 15	20
250	0.3	14 / 15	20
500	0.5	19 / 20	20
1000	0.8	19 / 20	20
2000	1.2	24 / 25	4

*For physical & chemical resistance please refer to page 16



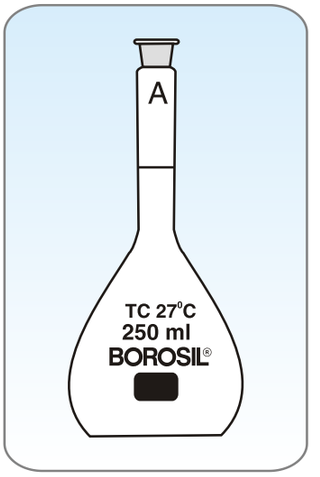
5645-Flasks, Volumetric, With Interchangeable LDPE Plastic* Stopper, Accuracy As per USP Class A, (US Pharmacopoeia), With Works Certificate, Borosil

Capacity ml	Tolerance ± ml	Stopper Size	Quantity Per Case
5	0.02	10 / 15	5
10	0.02	10 / 15	5
20	0.03	10 / 15	5
25	0.03	10 / 15	5
50	0.05	10 / 15	10
100	0.08	14 / 15	10
200	0.12	14 / 15	10
250	0.12	14 / 15	10
500	0.15	19 / 20	10
1000	0.3	19 / 20	10
2000	0.6	24 / 25	2

*For physical & chemical resistance please refer page 16

5646-Flasks, Volumetric, With Interchangeable LDPE Plastic* Stopper, Accuracy As per Class A, Of I.S. 915 : 2006 With Works Certificate, Borosil

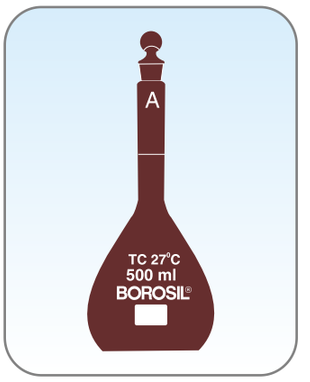
Capacity ml	Tolerance ±ml	Stopper Size	Quantity Per Case
1	0.015	10 / 15	4
2	0.010	10 / 15	4
5	0.025	10 / 15	5
10	0.025	10 / 15	5
20	0.04	10 / 15	5
25	0.04	10 / 15	5
50	0.06	10 / 15	10
100	0.1	14 / 15	10
200	0.15	14 / 15	10
250	0.15	14 / 15	10
500	0.25	19 / 20	10
1000	0.4	19 / 20	10
2000	0.6	24 / 25	2



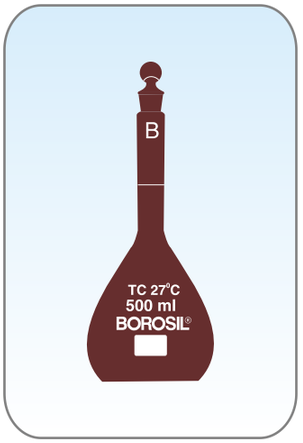
*For physical & chemical resistance please refer page 16

5648-Flasks, Volumetric, With Interchangeable Stopper, Amber, Accuracy As per Class A Of I.S. 915 : 2006, With Works Certificate, Borosil

Capacity ml	Tolerance ± ml	Stopper Size	Quantity Per Case
5	0.025	10 / 15	5
10	0.025	10 / 15	5
20	0.04	10 / 15	5
25	0.04	10 / 15	5
50	0.06	10 / 15	10
100	0.1	14 / 15	10
200	0.15	14 / 15	10
250	0.15	14 / 15	10
500	0.25	19 /20	10
1000	0.4	19 / 20	10
2000	0.6	24 / 25	2



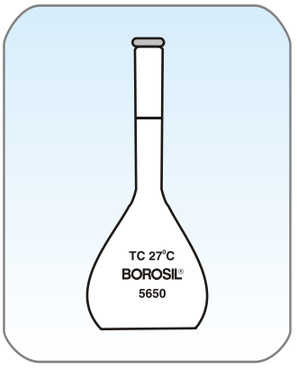
Similar in design to cat No. 5640



5649-Flasks, Volumetric, With Interchangeable Stopper, Amber, Accuracy As per Class B Of I.S. 915 : 2006, Borosil

Capacity ml	Tolerance ± ml	Stopper Size	Quantity Per Case
5	0.05	10 / 15	10
10	0.05	10 / 15	10
20	0.08	10 / 15	10
25	0.08	10 / 15	20
50	0.12	10 / 15	20
100	0.2	14 / 15	20
200	0.3	14 /15	20
250	0.3	14 / 15	20
500	0.5	19 / 20	20
1000	0.8	19 / 20	20
2000	1.2	24 / 25	4

Similar in design to cat No. 5641



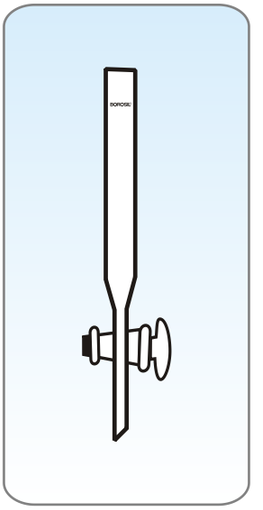
5650-Flasks, Volumetric, Sugar Estimation, Without Stopper, To B.S. 675 : 1953, Borosil

Capacity ml	Tolerance ± ml	Quantity Per Case
100 / 110	0.15	20

A two mark flask designed for the analysis of sugar solutions. The two graduation marks provide a dilution of 1 in 10.

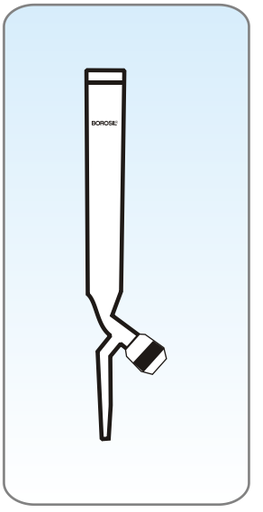
6100-Columns, Chromatography, Plain With Glass Stopcock, Borosil

Extractor Length mm	Bore mm	Quantity Per Case
200	10	5
300	10	5
300	18	5
450	30	5
500	10	2
500	18	2
600	30	2
600	40	2
1000	40	1



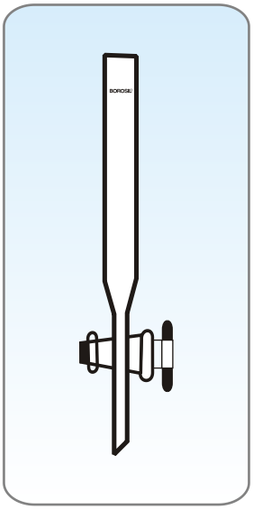
6110-Columns, Chromatography, Plain With Boroflo Stopcock, Borosil

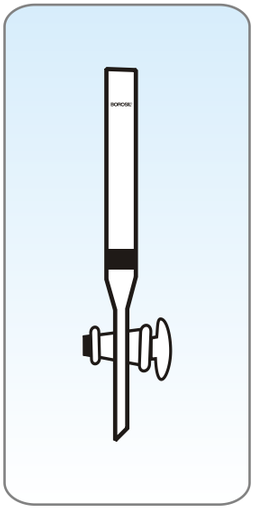
Extractor Length mm	Bore mm	Quantity Per Case
200	10	5
300	10	5
300	18	5
450	30	5
500	10	2
500	18	2
600	30	2
600	40	2
1000	40	1



6120-Columns, Chromatography, Plain With PTFE Stopcock, Borosil

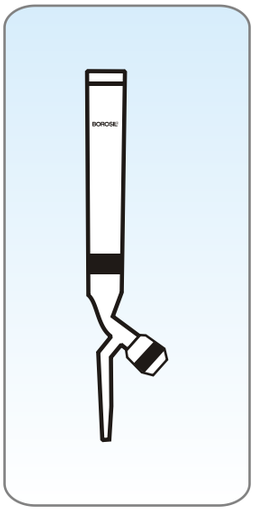
Extractor Length mm	Bore mm	Quantity Per Case
200	10	5
300	10	5
300	18	5
450	30	5
500	10	2
500	18	2
600	30	2
600	40	2
1000	40	1





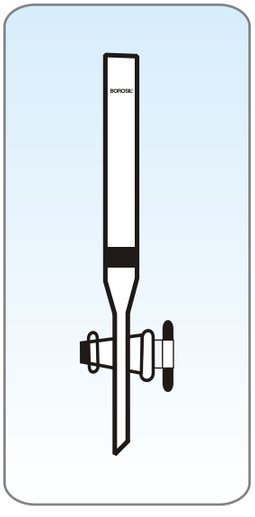
6101-Columns, Chromatography, Plain With Sintered Disc And Glass Stopcock Borosil

Extractor Length mm	Bore mm	Quantity Per Case
200	10	5
300	10	5
300	18	5
450	30	5
500	10	2
500	18	2
600	30	2
600	40	2
1000	40	1



6111-Columns, Chromatography, Plain With Sintered Disc And Boroflo Stopcock Borosil

Extractor Length mm	Bore mm	Quantity Per Case
200	10	5
300	10	5
300	18	5
450	30	5
500	10	2
500	18	2
600	30	2
600	40	2
1000	40	1



6121-Columns, Chromatography, Plain With Sintered Disc And PTFE Stopcock Borosil

Extractor Length mm	Bore mm	Quantity Per Case
200	10	5
300	10	5
300	18	5
450	30	5
500	10	2
500	18	2
600	30	2
600	40	2
1000	40	1

FUNNELS

Funnels may be used to separate solids from liquids, liquids from liquids and occasionally for pouring something into a container.

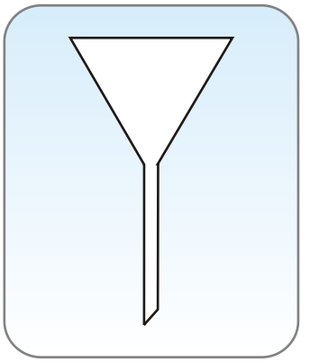
Borosil Brand funnels are available in comprehensive range for a variety of such applications. Sintered glass funnels are also available.

Separating funnels come in globe and pear shapes with ground glass stopcocks and interchangeable stoppers. These funnels are made from specifically moulded blanks. Stopcock bores, body openings and stems are carefully aligned to provide smooth, even liquid flow with fast cut-off.

The sturdy design of **Borosil** brand funnels make them excellent for rack work.

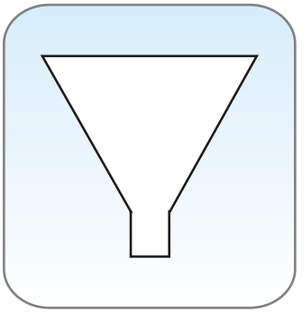
6140-Funnels, Plain, 60° Angle, Long Stem, Borosil

Diameter mm	Quantity Per Case
25	30
35	30
50	20
65	20
75	20
100	40



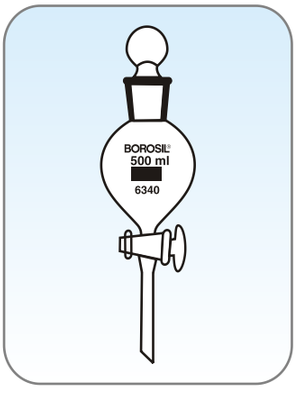
6220-Funnels, Powder, Borosil

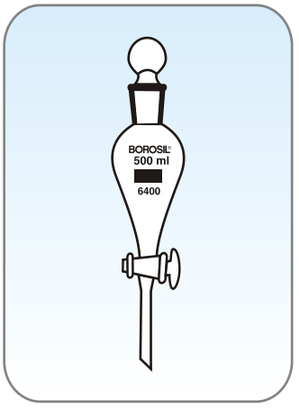
Diameter mm	Quantity Per Case
125	30
150	20
200	4
250	4



6340-Funnels, Separating, Globe Shape, With Stopcock And Interchangeable Stopper, Borosil

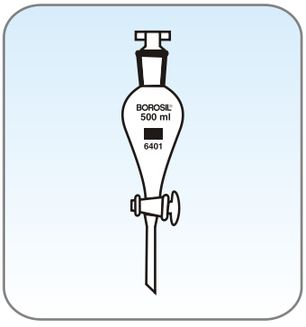
Capacity ml	Stopper Size	Quantity Per Case
125	19 / 20	10
250	19 / 20	10
500	24 / 25	10
1000	29 / 25	5
2000	29 / 25	10
5000	34 / 25	1





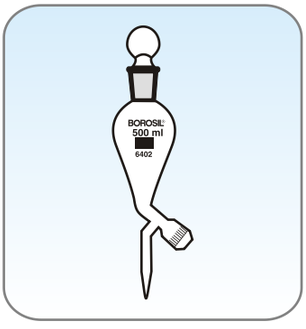
6400-Funnels, Separating, Pear Shape, With Stopcock And Interchangeable Stopper, Borosil

Capacity ml	Stopper Size	Quantity Per Case
60	14 / 15	20
125	19 / 20	20
250	19 / 20	20
500	24 / 25	10
1000	29 / 25	10
2000	29 / 25	10



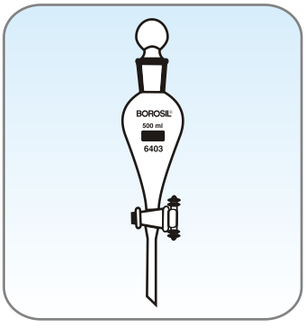
6401-Funnels, Separating, Pear Shape, With Hollow Plug Stop-cock, Hollow Interchangeable Stopper, Borosil

Capacity ml	Stopper Size	Quantity Per Case
125	19 / 20	20
250	19 / 20	20
500	24 / 25	10
1000	29 / 25	10



6402-Funnels, Separating, Pear Shape, Fitted With Boroflo Stop-cock With PTFE Key And Glass Stopper, Borosil

Capacity mm	Quantity Per Case
60	20
125	20
250	20
500	10
1000	10



6403-Funnels, Separating, Pear Shape, With PTFE Key Stopcock, Interchangeable Stopper, Borosil

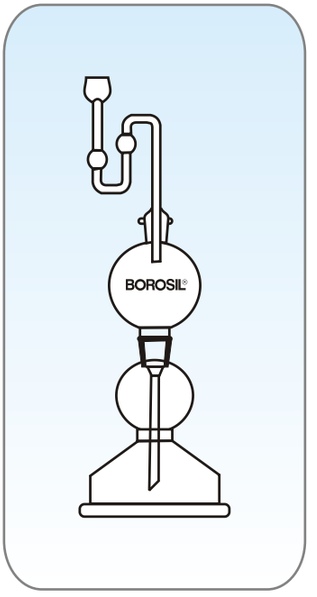
Capacity ml	Stopper Size	Quantity Per Case
250	19 / 20	20
500	24 / 25	10
1000	29 / 25	10

GAS GENERATOR

A rapid inexpensive and effective apparatus to produce controllable amounts of common gases such as hydrogen sulphide, carbon dioxide, etc. It is quickly charged and assembled and simple to operate.

6550-Gas Generator, Kipps, Borosil

Capacity ml	Quantity Per Case
500	1
1000	1

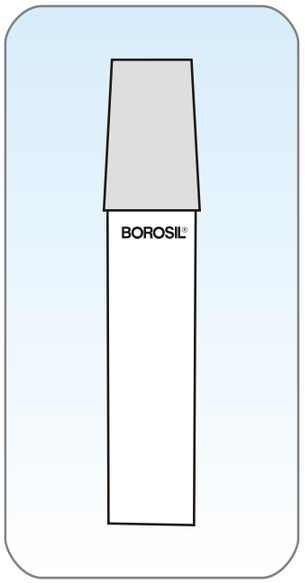


GROUND JOINTS

For those who fabricate and assemble their own apparatus, we offer **Borosil** brand Ground Glass Conical Joints. These are precision ground high quality interchangeable joints suitable for rapid and convenient assembly of apparatus for majority of laboratory applications.

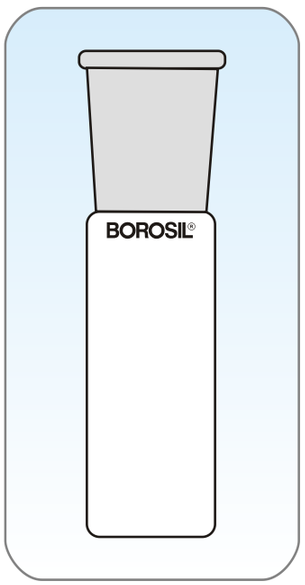
Borosil brand Ground Joints are manufactured from medium wall uniform tubing and careful attention is paid to accuracy of form, uniformity of surface finish, profile and taper to reduce the possibility of leakage and joint 'seizure'. The outer joints have extra glass tooled onto rims to add a chip resistance.

All **Borosil** brand Ground Joints are triple tested for proper taper control, for mating and for vacuum. The taper is as required by Bureau of Indian Standard Specifications.



6560-Ground Joints, Inner Part Only, Interchangeable, Borosil

Interchangeable Joint Size	Quantity Per Case
10 / 19	10
12 / 21	10
14 / 23	10
19 / 26	10
24 / 29	10
29 / 32	10
34 / 35	10
40 / 38	10
45 / 40	10
50 / 42	10
55 / 44	10



6580-Ground Joints, Outer Part Only, Interchangeable, Borosil

Interchangeable Joint Size	Quantity Per Case
10 / 19	10
12 / 21	10
14 / 23	10
19 / 26	10
24 / 29	10
29 / 32	10
34 / 35	10
40 / 38	10
45 / 40	10
50 / 42	10
55 / 44	10

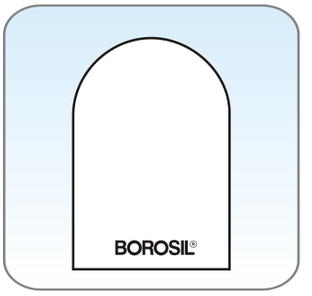
JARS

Borosil Brand glass jars serve a variety of applications in Education and Research, for high vacuum work and as spares for vacuum coating units, Fermentation jars for microbial fermentations in research and development, Museum Jars for storing and displaying valuable specimens and also for chromatographic work. The excellent resistance to chemical attack and good optical clarity of **Borosil** brand jars make them the most obvious choice.

Borosil Brand jars are specially blown to give sturdiness and long life. The rims are flat ground to close tolerances. The covers of museum jars are provided with a small orifice for easy filling of the preservative without unsealing the lid. The jars are not recommended for use over a direct flame or on a hot plate.

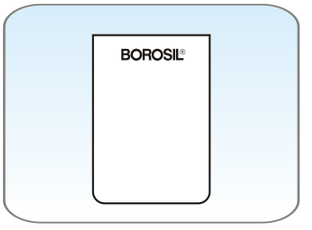
6886-Jars, Bell, Round Bottom, Edge Ground, Borosil

Approx O.D. x Height mm	Approx Capacity litre	Quantity Per Case
300 x 450	19	1
300 x 400	17	1
200 x 350	6	2



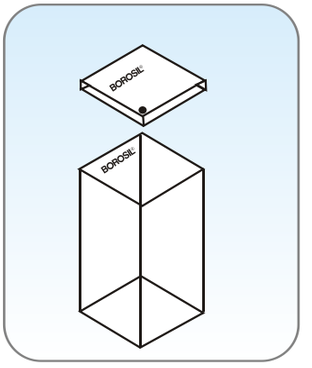
6905-Jars, Cylindrical, Fermentation, Borosil

Approx O.D. x Height mm	Approx Capacity Litre	Quantity Per Case
220 x 320	10	1
220 x 455	14	1



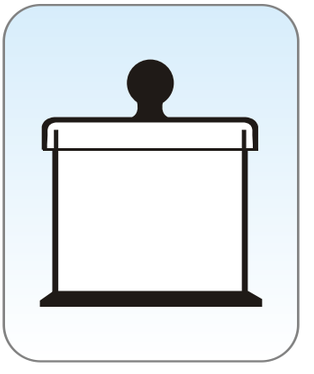
6910-Jars, Rectangular, Museum, With Cover,* Borosil

Height x Length x Breadth mm	Quantity Per Case
200 x 125 x 125	4
200 x 150 x 100	4
220 x 195 x 80	4
250 x 165 x 140	4
250 x 250 x 120	4
360 x 150 x 100	4
*Covers only for Cat No.6910	



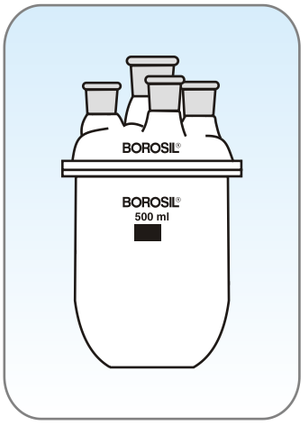
6915-Jars, Cylindrical, Museum, Drop-on Cover, With Knob, Borosil

Approx O.D. x Height mm	Quantity Per Case
85 x 85	6
100 x 100	6
120 x 120	6
150 x 150	4
200 x 200	2
250 x 250	1
300 x 300	1



KETTLES

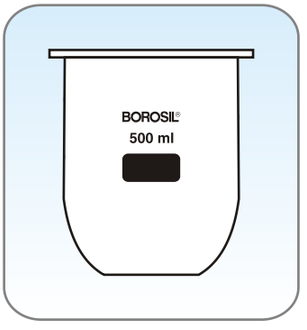
Borosil Brand resin reaction kettles are designed for organic reactions involving viscous materials. The wide mouth permits easy access to the interior for cleaning purposes. Covers are of heavy construction and lower sections are mould blown for maximum resistance to mechanical breakage. Covers are provided with openings with interchangeable joint for rapid assembly with condensers, stirrers etc. Flanges of covers and bottoms are finely ground for a tight seal.



6947-Kettles, Resin Reaction, Borosil

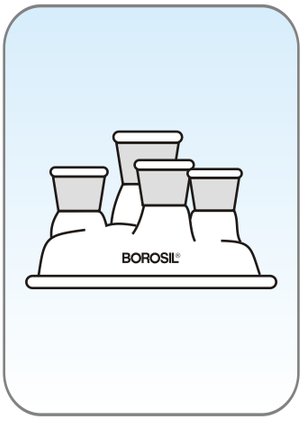
Capacity ml	Body Dia mm	Height mm	Quantity Per Case
500	95	178	2
1000	108	178	2
2000	140	190	2
4000	140	343	2

The 500 ml and 1000 ml kettles have interchangeable covers with four openings to accommodate 24 / 29 interchangeable joints. Kettles of 2000 ml and 4000 ml capacity have interchangeable covers with openings to accommodate three 24 / 29 interchangeable joints and one 34 / 35 interchangeable joint.



6948-Bottoms, Only for Kettles Cat no. 6947, Borosil

Capacity ml	Quantity Per Case
500	2
1000	2
2000	2
4000	2



6949-Covers, Only for Kettles Cat No. 6947, Borosil

Capacity ml	Quantity Per Case
500	2
1000	2
2000	2
4000	2

The 500 ml and 1000 ml kettles have interchangeable covers with four openings to accommodate 24 / 29 interchangeable joints. Kettles of 2000 ml and 4000 ml capacity have interchangeable covers with openings to accommodate three 24 / 29 interchangeable joints and one 34 / 35 interchangeable joint.

PIPETTES

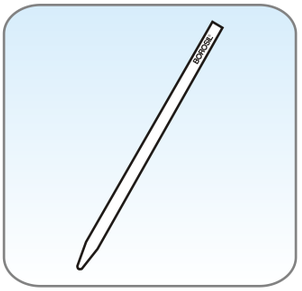
Borosil Brand pipettes are manufactured from specially selected heavy wall machine-drawn borosilicate accurate bore glass tubing. They have precision formed jets, bevel ground ends to resist chipping. The graduation marks are in durable white enamel or amber stain, resistant to normal laboratory reagents and repeated washing. All the pipettes are individually measured and then marked. Due to uniformity of bore, accuracy is ensured between any two readings. The pipettes can be autoclaved and if necessary can be flamed for sterilisation. Delivery time of the pipettes have been decreased as a result of change in international standards.

Cat No.7059, 7060, 7079 and 7080 are colour coded on top according to I.S.O. Standards (shown below) to facilitate easy identification. The Graduation marks are screen printed. Mouth piece of pipettes 5 ml and above are tooled with uniform OD and ID for easy sucking and cotton plugging. This tooling also gives added strength.

You can rely on the accuracy of **Borosil** brand pipettes. They are available both in Class A with Works Certificate and Class B tolerances.

Details of Colour Coding on graduated pipettes.

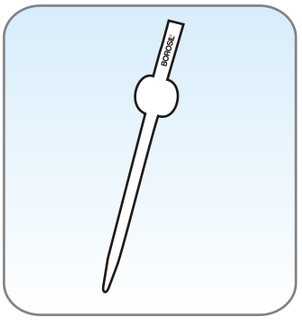
Capacity of Pipette	Colour code used
0.1 x 0.01 ml	White
0.2 x 0.01 ml	Black
1 x 0.01 ml	Yellow
1 x 0.1 ml	Red
2 x 0.02 ml	Black
2 x 0.1 ml	Green
5 x 0.05 ml	Red
5 x 0.1 ml	Blue
10 x 0.1ml	Orange



7040-Pipettes, Artificial Insemination, Cattle, Taper Tip, Borosil

Length mm	Quantity per case
450	60

These are made from machine-drawn high quality tubing. They are sturdy, strong and safe for repeated use and can be sterilised and cleaned conveniently. One end of the pipette is blunt and fire-polished and the other gently tapered to a length of about 12.5 mm and fire polished.

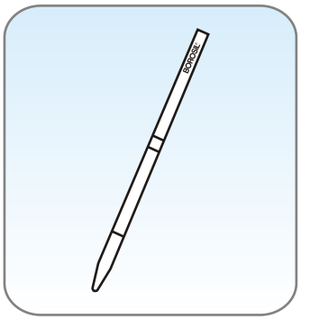


7041-Drum Sampling, Pipette Borosil

Length mm	Quantity per case
1010	4

7056-Pipettes, Bacteriological, Graduated, Borosil

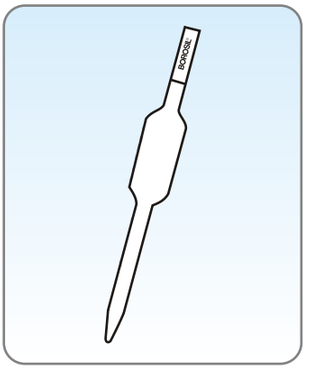
Capacity ml	Tolerance ± ml	Quantity per Case
1.1	0.025	10
2.2	0.04	10



These pipettes are used for the bacteriological examination of milk. The 1.1 ml size is graduated at 0.5 &1.1 ml, the 2.2 ml at 1.0, 2.0, 2.1 and 2.2 ml. The pipettes are as per specifications of I.S. 2025 : 1962.

7057-Pipettes, Gerber, Milk, Borosil

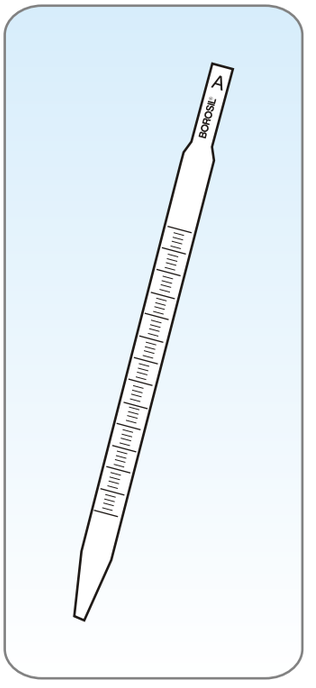
Capacity ml	Tolerance ± ml	Quantity per Case
10.75	0.03	10



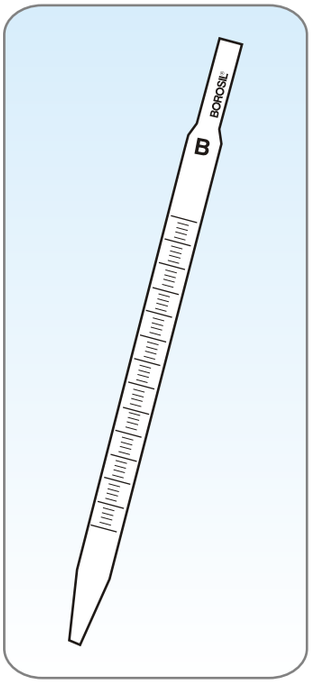
These are one mark transfer pipettes for measuring 10.75 ml used specifically in the testing of milk by Gerber method. The accuracy is as per I.S.1223 (Part II) : 1972. The pipettes are sturdy and designed for long life. For use in rural milk collection centres also.

7059 - Pipettes, Measuring (Mohr Type), Accuracy As Per Class A Of I.S. 4162 : 1985 With Works Certificate, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Quantity per Case
*0.1	0.01	0.006	10
*0.2	0.01	0.006	10
1	0.01	0.006	10
*1	0.1	0.006	10
2	0.02	0.01	10
*2	0.1	0.01	10
5	0.05	0.03	10
*5	0.1	0.05	10
10	0.1	0.05	10
25	0.2	0.1	10



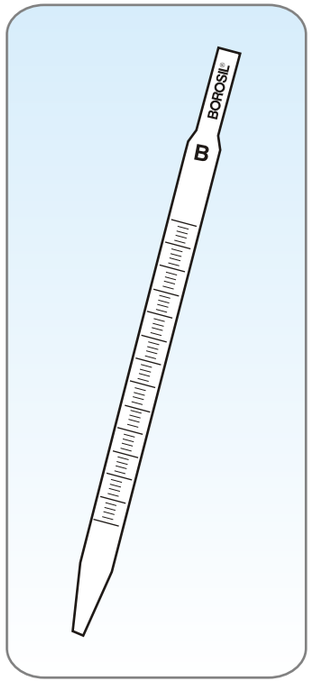
*Not covered by IS specifications.
These pipettes are graduated for delivery from zero mark to the last graduation mark.



7060-Pipettes, Measuring (Mohr Type), Accuracy As Per Class B Of I.S. 4162 : 1985, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Quantity per Case
*0.1	0.01	0.01	20
*0.2	0.01	0.01	20
1	0.01	0.01	20
*1	0.1	0.01	20
2	0.02	0.02	20
*2	0.1	0.02	20
5	0.05	0.05	20
*5	0.1	0.1	20
10	0.1	0.1	20
25	0.2	0.2	20

* Not covered by IS specifications.
These pipettes are graduated for delivery from zero mark to the last graduation mark.



7062-Pipettes, Measuring (Mohr Type), Accuracy As Per Class B Of I.S. 4162 : 1985, Borosil (White Marking)

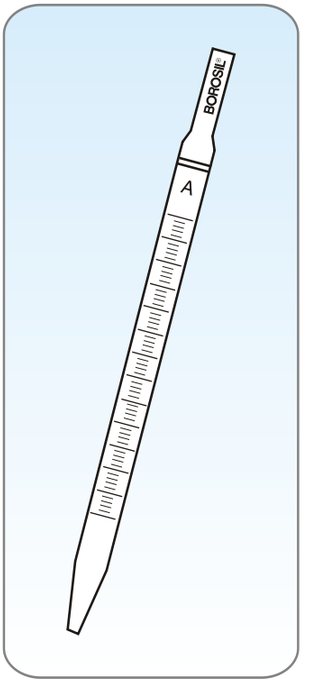
Capacity ml	Graduation Interval ml	Tolerance ± ml	Quantity per Case
*0.1	0.01	0.01	20
*0.2	0.01	0.01	20
1	0.01	0.01	20
*1	0.1	0.01	20
2	0.02	0.02	20
*2	0.1	0.02	20
5	0.05	0.05	20
*5	0.1	0.1	20
10	0.1	0.1	20
25	0.2	0.2	20

* Not covered by IS specifications
These pipettes are graduated for delivery from zero mark to the last graduation mark.

7079-Pipettes, Serological, Class A, With Works Certificate, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Quantity Per Case
0.1	0.01	0.006	10
0.2	0.01	0.006	10
1	0.01	0.006	10
1	0.1	0.006	10
2	0.02	0.01	10
2	0.1	0.01	10
5	0.05	0.03	10
5	0.1	0.05	10
10	0.1	0.05	10
25	0.2	0.1	10

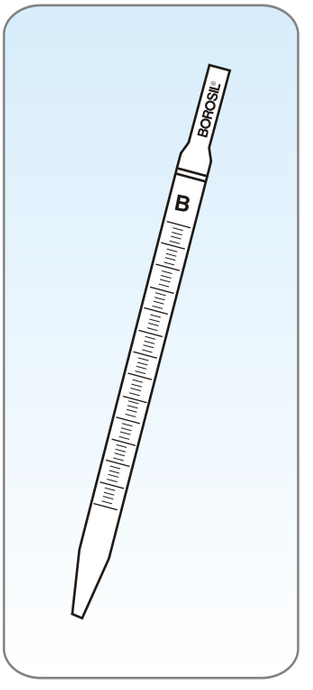
These pipettes are graduated to tip. Two rings at top indicate that these are calibrated to deliver their total capacity when the last drop is blown out.

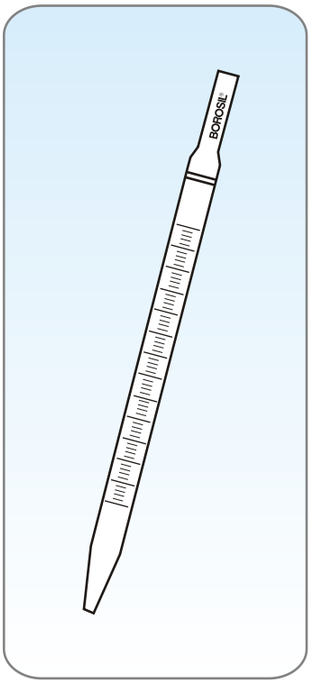


7080-Pipettes, Serological, Borosil

Capacity ml	Graduation Interval ml	Tolerance ± ml	Quantity per Case
0.1	0.01	0.01	20
0.2	0.01	0.01	20
1	0.01	0.01	20
1	0.1	0.01	20
2	0.02	0.02	20
2	0.1	0.02	20
5	0.05	0.05	20
5	0.1	0.1	20
10	0.1	0.1	20
25	0.2	0.2	20

These pipettes are graduated to tip. Two rings at top indicate that these are calibrated to deliver their total capacity when the last drop is blown out.

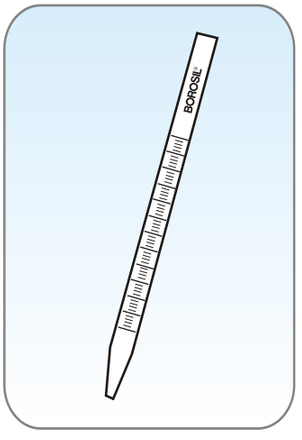




7082-Pipettes, Serological, Borosil (White Marking)

Capacity ml	Graduation Interval ml	Tolerance ±ml	Quantity per Case
0.1	0.01	0.01	20
0.2	0.01	0.01	20
1	0.01	0.01	20
1	0.1	0.01	20
2	0.02	0.02	20
2	0.1	0.02	20
5	0.05	0.05	20
5	0.1	0.1	20
10	0.1	0.1	20
25	0.2	0.2	20

These pipettes are graduated to tip. Two rings at top indicate that these are calibrated to deliver their total capacity when the last drop is blown out.

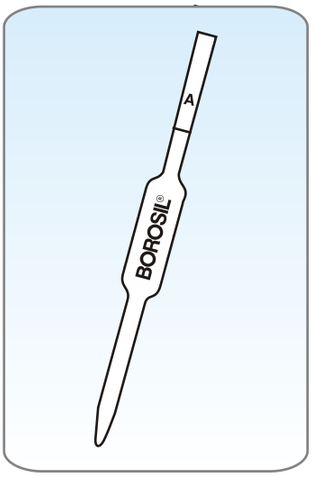


7090-Pipettes, Serological, Kahn, Accuracy As Per I.S. 4364:1967, Borosil

Capacity ml	Graduation Interval ml	Tolerance ±ml	Quantity per Case
0.1	0.005	0.002	10
0.2	0.01	0.004	10
0.5	0.02	0.006	10

Pipettes are calibrated to deliver from zero mark to the graduation mark

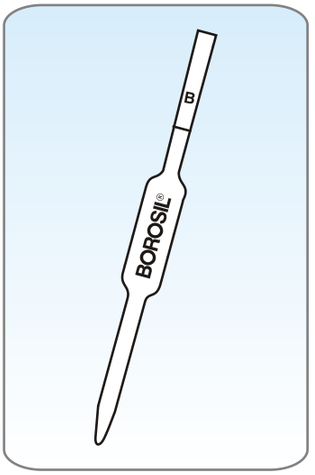
7100-Pipettes, Transfer, Volumetric, Accuracy As Per Class A Of I.S. 1117 : 1975, With Works Certificate, Borosil



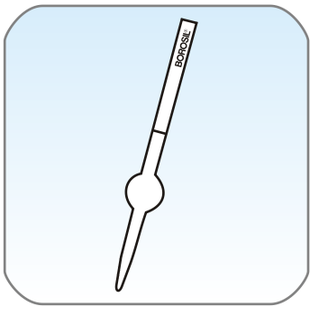
Capacity ml	Tolerance ± ml	Quantity per Case
*1	0.007	10
*2	0.01	10
3	0.01	10
4	0.01	10
5	0.015	10
6	0.015	10
7	0.015	10
8	0.02	10
9	0.02	10
10	0.02	10
20	0.03	10
25	0.03	10
50	0.05	10
100	0.08	10

* Not covered by I.S. Specifications

7102-Pipettes, Transfer, Volumetric, Accuracy As Per Class B of I.S. 1117 : 1975, Borosil



Capacity ml	Tolerance ±ml	Quantity per case
1	0.015	10
2	0.02	10
3	0.02	10
4	0.02	10
5	0.03	10
6	0.03	10
7	0.03	10
8	0.04	10
9	0.04	10
10	0.04	10
20	0.06	10
25	0.06	10
50	0.1	10
100	0.16	10



7105-Pipettes, Ostwald - Folin, Borosil

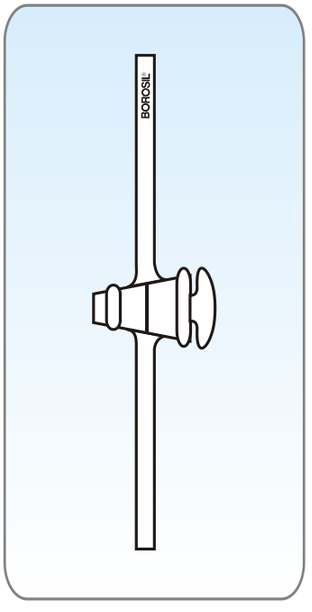
Capacity ml	Quantity per Case
0.5	10
1	10

These pipettes are generally used for blood serum tests. They are calibrated to deliver by blowing out the last drop.

STOPCOCKS

Borosil brand Stopcocks are available for both general purpose and high vacuum work. We now offer a bigger range to serve you better.

Borosil brand Stopcocks are manufactured to extremely high standards of quality which ensure uniform surface finish and accuracy of profile and which guarantee high efficiency and reliability. They are individually lapped and it is essential that stoppers and barrels are always correctly paired.



7280-Stopcocks, Straight Bore, Solid Stopper Plug, Borosil

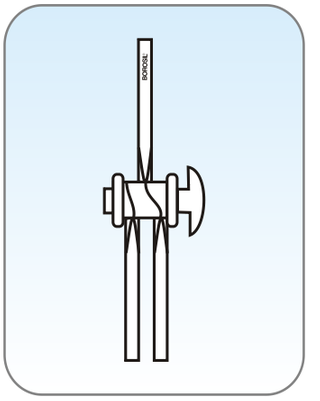
Bore of Stopper mm	Quantity per Case
2	10
3	10
4	10
6	10

7510-Stopcock, High Vacuum, Straight Bore, Solid Stopper Plug, Borosil

Bore of Stopper mm	Quantity Per Case
2	10
4	10

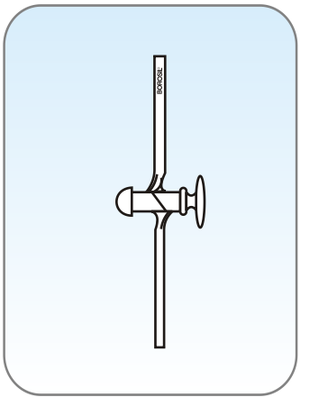
7520-Stopcocks, High Vacuum, Straight Bore, Solid Stopper Plug, Borosil

Bore of Stopper mm	Quantity Per Case
2	10



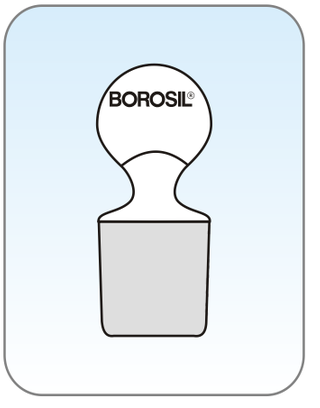
7544-Stopcocks, High Vacuum, Oblique Bore, Vacuum Cup, Hollow Stopper Plug, Borosil

Bore of Stopper mm	Quantity Per Case
2	10
4	10
6	10



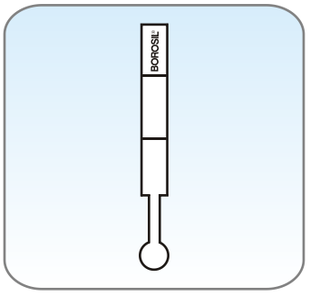
7570-Stoppers, Interchangeable Ground Joint, Hollow, Penny Head, Borosil

Interchangeable Joint	Quantity Per Case
10 / 19	20
14 / 23	20
19 / 26	10
24 / 29	10
29 / 32	10
34 / 35	10
45 / 40	10
55 /44	5



TUBES FOLIN - WU / CENTRIFUGE

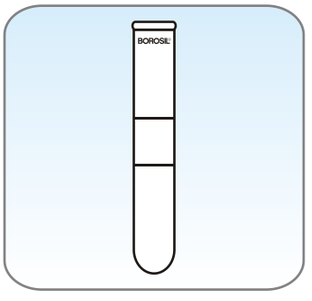
Based on your needs, we offer an assortment of centrifuge tubes, Folin-Wu Tubes. All are made from uniformly drawn high quality tubing for extended service life and your safety.



7840-Tubes, Blood Sugar, Folin-Wu, As Per I.S. 3740 : 1966, Borosil

Capacity ml	Approx O.D. x Length mm	Quantity Per Case
25	20 x 215	20

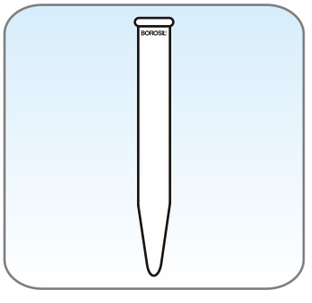
The tube is engraved at 12.5 ml and 25 ml



7920-Tubes, Digestion, Folin - Wu, Borosil

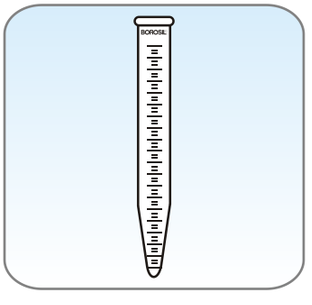
Approx O.D. x Length mm	Quantity Per Case
25 x 200	20

The tube is calibrated at 35 ml and 50 ml



8060-Tubes, Centrifuge, Conical Bottom Plain, Borosil

Capacity ml	Approx O.D. x Length mm	Quantity Per Case
15	17 x 120	100

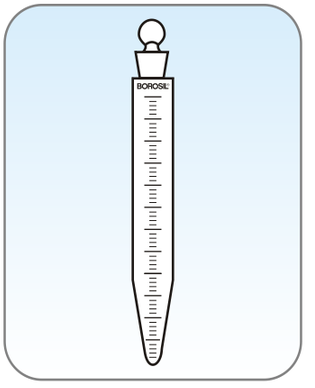


8080-Tubes, Centrifuge, Conical Bottom Graduated, Borosil

Capacity ml	Approx O.D. x Length mm	Quantity Per Case
15	17 x 120	30
50	29 x 135	20

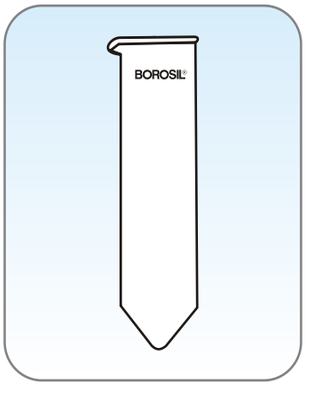
8084-Tubes, Centrifuge, Conical Bottom, Graduated, With Stopper, Borosil

Capacity ml	Approx O.D. x Length mm	Quantity Per Case
15	17 x 139	30
50	29 x 151	10



8320-Tubes, Centrifuge, Short Conical Bottom, Pour Out, Heavy Duty, Plain, Borosil

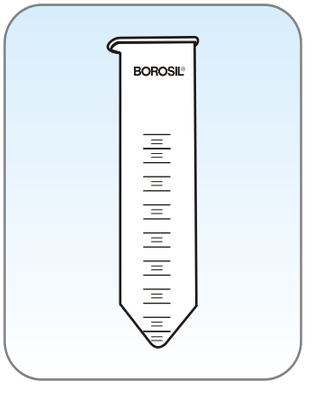
Capacity ml	Approx O.D. x Length mm	Quantity Per Case
40	29 x 116	20



8340-Tubes, Centrifuge, Short Conical Bottom, Pour Out, Heavy Duty, Graduated, Borosil

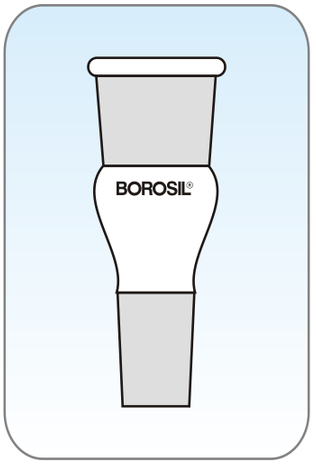
Capacity ml	Approx O.D. x Length mm	Quantity Per Case
40	29 x 116	20

Graduated upto 10 ml in 0.5 ml and from 10 ml to 40 ml in 1ml divisions



ADAPTERS

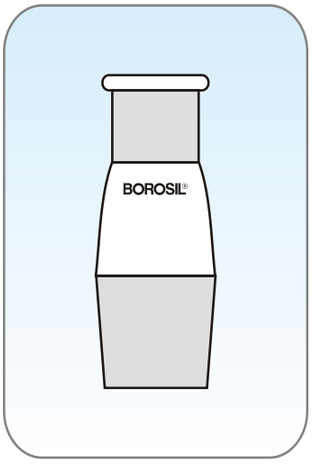
Adapter tubes listed here are the most widely used ones and will permit a laboratory to assemble their own apparatus using the flasks and condensers listed earlier. The joints are fully interchangeable and made to the same precision as all **Borosil** ground joints.



8800-Adapter, Enlarging, Interchangeable Joints, Borosil

Joint Size Outer	Join Size Inner	Quantity Per Case
19 / 26	14 / 23	5
24 / 29	14 / 23	5
24 / 29	19 / 26	5
29 / 32	19 / 26	5
29 / 32	24 / 29	5
34 / 35	19 / 26	5
34 / 35	24 / 29	5
34 / 35	29 / 32	5

With an outer interchangeable joint at top and a smaller inner interchangeable joint at bottom.



8820-Adapter, Reduction, Interchangeable Joints, Borosil

Joint Size Outer	Joint Size Inner	Quantity Per Case
14 / 23	19 / 26	5
14 /23	24 / 29	5
19 /26	24 / 29	5
19 / 26	29 / 32	5
19 / 26	34 / 35	5
24 / 29	29 / 32	5
24 / 29	34 / 35	5
29 / 32	34 / 35	5
29 / 32	40 / 38	5

With an outer interchangeable joint at top and a larger inner interchangeable joint at bottom.

TEST TUBES
CULTURE TUBES

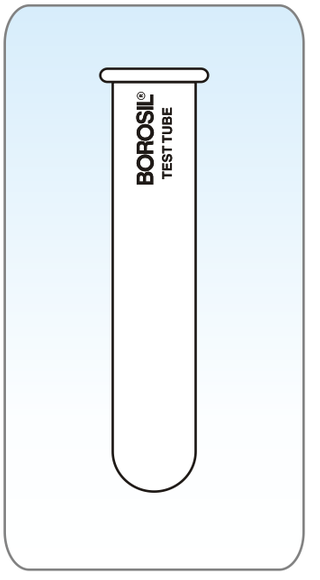
Borosil Test tubes and Culture Tubes are made from machine drawn, uniform thickness, low expansion borosilicate glass tubing. The bottoms of these are with uniform thickness to withstand both mechanical and thermal shocks. The rims wherever provided, are strong. Test-tubes (Culture tubes), without rim have heavy fire-polished ends which are resistant to mechanical shocks of daily use. You will find that in the long run it is economical to use **Borosil** tubes only.

Culture tubes are good for cell growth.

The Caps and washers provided on Screw cap Culture tubes withstand repeated autoclaving.

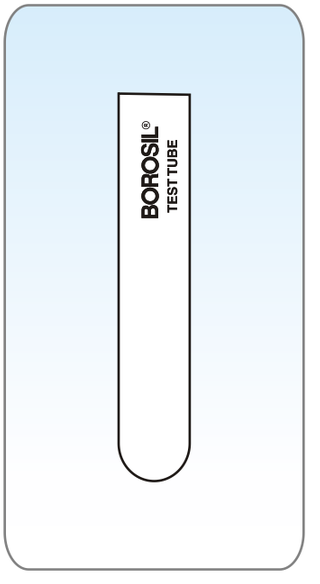
9800-Tubes, Test, With Rim, Borosil

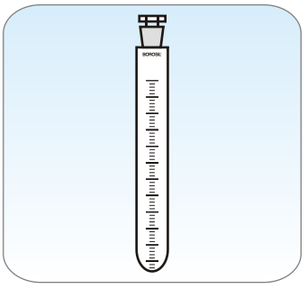
Approx O.D. x Lengh mm	Quantity Per Case
10 x 75	800
12 x 75	800
12 x 100	800
15 x 125	800
15 x 150	400
18 x 150	400
25 x 100	200
25 x 150	200
25 x 200	100
32 x 200	50
38 x 200	50



9820-Tubes, Test (Culture), Without Rim, Borosil

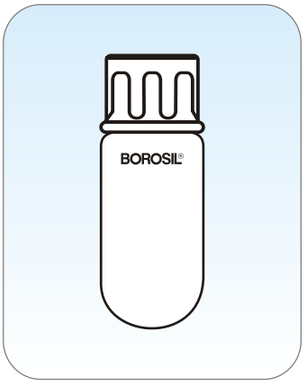
Approx O.D. x Lengh mm	Quantity Per Case
10 x 75	800
12 x 75	800
12 x 100	800
15 x 125	800
15 x 150	400
16 x 100	800
18 x 150	400
25 x 100	200
25 x 150	200
25 x 200	100
32 x 200	50
38 x 200	50





9830-Tubes, Test Graduated, With Interchangeable Stopper, Borosil

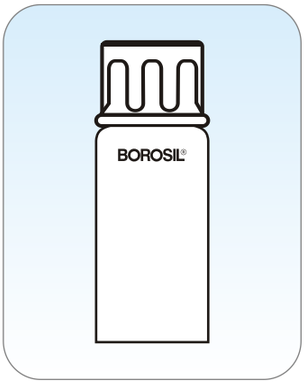
Capacity ml	Approx O.D. x Length mm	Graduation Interval ml	Stopper Size	Quantity Per Case
15	15 x 150	0.2	14 / 15	30
20	18 x 150	0.5	14 / 15	30



9900-Tubes, Culture, Media, Round Bottom, With Screw Cap And Rubber Liner, Borosil

Capacity ml	Approx O.D. x Length mm	Quantity Per Case
5	16 x 75	275
10	16 x 125	115
30	25 x 100	240
60	25 x 200	100

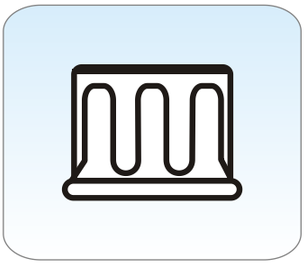
These are ideal replacement for media culture bottles. They are provided with special bakelite caps to facilitate handling and sealing. The caps have a rubber liner.



9910-Tubes, Culture, Media, Flat Bottom, With Screw Cap And Rubber Liner, Borosil

Capacity ml	Approx O.D. x Length mm	Quantity Per Case
5	16 x 50	150
15	25 x 57	120
30	25 x 95	240

Similar to 9900 but with flat bottom for convenient storage. Ideal replacement for Bijou Bottles, Mc Cartney Bottles and Universal Bottles.



9980-Caps, Bakelite Screw Cap Only, With Rubber Liner, Borosil

Capacity ml	Fitting Tube Dia	Quantity Per Case
5 & 10 ml	16 mm	100
15 to 60 ml	25 mm	100

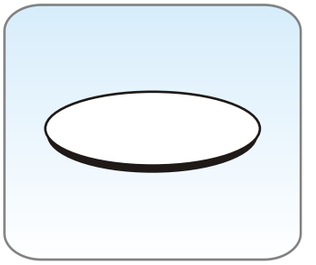
These caps are available as spares for Culture Tubes No.9900 and 9910.

WATCH GLASSES

These Watch glasses possess high chemical durability thus preventing contamination of solution. They are moulded to the same radius of curvature for convenient stacking. The heavy wall and uniform fire polished edges provide mechanical strength.

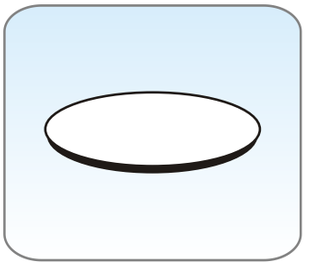
9985-Watch Glasses, Borosil

Diameter mm	Quantity Per Case
75	40
100	40
125	20
150	20



9986-Watch Glasses, Borosil S - Line

Diameter mm	Quantity Per Case
80	50
100	50
120	50
150	50



These watch glasses are made of a different type of glass and process which enables absolutely flat curved surface with high clarity free of bubbles.

SINTERED WARE

TECHNICAL DATA

Borosil Brand sintered glassware is used for the filtration of liquids and gases in the laboratory. It incorporates a porous glass disc as a filter media, which is non corrosive and reusable. It is also used for gas washing, dispersion and absorption.

Sintered disc is manufactured by crushing **Borosil** brand glass, powdering, cleaning, separating into various mesh sizes and then fusing together in the form of a disc. The sintered disc is graded into 5 grades -G1, G2, G3, G4 and G5. The grades are classified by maximum pore size, which is obtained by measuring pressure at which the first air bubble breaks away from filter under certain conditions. The pressure differential is then used to calculate the equivalent capillary diameters in microns. The desired pore size is obtained by suitably controlling the grain size, firing time, temperature and the thickness of the disc. Each disc is tested and graded individually.

The pore diameters are reasonably uniform, which ensures required flow rate through the filter. The flow rate further depends on pressure differential between the two sides of the disc, free area of the disc, viscosity of the fluid being filtered, etc. Between different discs of same size and grade, there is a fair amount of uniformity in pore size and hence the results from two or more discs of the same size and grade will be uniform. This ensures reproducible analytical results.

The discs have maximum surface hardness and hence glass powder does not get scraped off during cleaning or with chemicals. Filters do not shed particles during usage.

The discs are sealed to tubing without blocking the pores. Then they are annealed properly in automatically controlled lehrs. .

POROSITY GRADES AND THEIR GENERAL USE

Porosity Grade	Pore Size (Microns)	General use
1	90-150	Filtration of coarse materials / precipitates, gas dispersion, gas washing, extractor bed, support for other filter materials.
2	40-90	Filtration of medium precipitates gas disperation, gas washing.
3	15-40	Filtration of fine grain precipitates. Anayical work with medium precipitates. Mercury filtration
4	5-15	Analytical work with fine and very fine precipitates. Non return mercury valves.
5	1-2	Bacteriological filtration.

CHEMICAL DURABILITY

Borosil Sintered ware is produced from the same high quality material from which all **Borosil** brand borosilicate laboratory glassware are manufactured and thus have excellent resistance to chemical attack.

OPERATING PRESSURE

The sintered discs and the glassware are incorporating them are mainly designed for the application of vacuum or for passage of gases at a relatively low pressure. In all cases the differential pressure must not exceed 100 KN / m^2 (15 psi)

THERMAL LIMITATIONS

The resistance to thermal shock of sintered ware is comparatively less than that of standard **Borosil** glassware. Therefore, articles of sintered ware should not be subjected to excessive temperature changes nor to direct flames.

Borosil Sintered crucibles are particularly suited for drying to constant weight. Dry sintered crucibles at room temperature can be placed directly into a drying oven at 150^{0}C, although customary practice is to dry at 110^{0}C. Sintered ware may safely be heated in furnace to 500^{0}C without ill effect, provided that the cycle of heating and cooling is gradual. It is advisable that rate of heating should not be more that 2^{0}C / min. This prevents internal strains caused by excessive temperature differences between the surrounding glass vessel and the sintered disc, which can lead to fracture of apparatus.

Sintered ware of porosity grades 4 and 5 when cold and damp should never be subjected to a sudden temperature change since the evolution of steam may set up sufficient pressure within the filter, to crack it.

Filtration Apparatus should be kept on its rim (stem upwards) in oven or sterilizer. A perforated support base is advantageous for air convection in case of pipeline filters. Care should be taken by use of heat insulating material such as asbestos to avoid premature heating near filter seal. Apparatus should remain in the oven or sterilizer during cooling to avoid too fast cooling rate.

CLEANING OF SINTERED WARE

- New sintered filters should be washed carefully with hot hydrochloric acid and then rinsed with distilled water before they are used. This treatment will ensure that all loose particles are removed from the filter.
- It is recommended that all sintered filters are thoroughly cleaned “immediately” after use. This is the most favorable time for ease of cleaning and will ensure less risk of contamination in subsequent use.
- Many precipitates can be removed from the filter by backflushing with water. However, great care must be taken with large diameters and fine filters, as positive pressures on the reverse side may break the filter.
- Under no circumstances, should sintered apparatus be subjected to mains water pressure when back flushing as in most instances this will lead to fractured filters.
- Drawing water through the filter from the reverse side with a vacuum pump is also effective.

- Filters clogged by dust and dirt during gas filtration can be restored by treatment with a warm detergent solution followed by blowing through clean air from the clean side of the filter. Dirt particles are brought to the surface by the foam and removed by rinsing with water.
- Some precipitates may clog the filter which may be removed by chemical cleaning as given below :

Fats and grease :

Carbon tetrachloride or suitable organic solvent.

Albumen, Glucose :

Hot ammonia or hydrochloric acid, mixture of hot concentrated sulphuric and nitric acids.

Organic substances :

'Chromic' acid cleaning solution* or concentrated sulphuric acid containing a little potassium nitrate or Perchlorate (0.5%) (possibly need to soak overnight)

Copper or iron oxide :

Hot concentrated hydrochloric acid with potassium chlorate.

Barium sulphate :

Hot concentrated sulphuric acid

Mercury Residues :

Hot concentrate nitric acid

Mercury Sulphide :

Hot aqua regia

Silver chloride :

Ammonia or sodium hyposulphite

Stannic oxide :

Boiling sulphuric acid**

Alumina or silica residues :

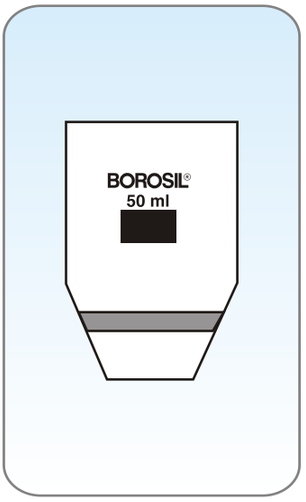
2% hydrofluoric acid followed by concentrated sulphuric acid. Rinse immediately with distilled water and then with acetone. Continue rinsing until no trace of acid remains.

High concentrations of hydrofluoric acid, hot phosphoric acid or caustic alkali solutions should never be used for cleaning. Their use will cause a rapid deterioration in the filter and an increase in pore size.

* For bacteriological, pharmaceutical and biological work, "chromic" acid cleaning solution should be avoided because of the biological effect of chromium ions.

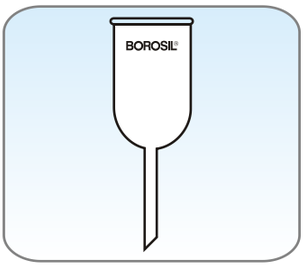
** Undue thermal strain may be introduced with boiling sulphric acid.It is therefore adviseable to leave the item in the acid to cool.

Please ensure prolonged rinsing with water after chemical cleaning.



32060-Crucible, Gooch Type, Low Form, With Sintered Disc, Borosil

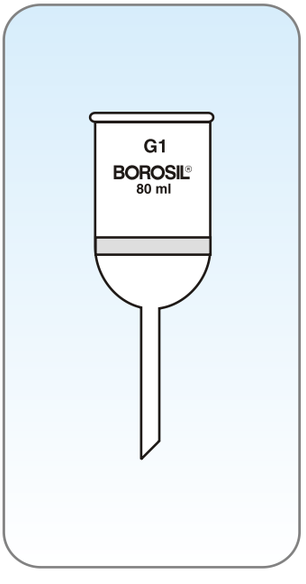
Capacity ml	Porosity Grade	Dia of Disc mm	Approx Height mm	Quantity Per Case
15	1	20	44	20
15	2	20	44	20
15	3	20	44	20
15	4	20	44	20
15	5	20	44	20
30	1	30	50	20
30	2	30	50	20
30	3	30	50	20
30	4	30	50	20
30	5	30	50	20
50	1	40	60	10
50	2	40	60	10
50	3	40	60	10
50	4	40	60	10
50	5	40	60	10



32061-Tubes, Filter, For Gooch Crucibles, Borosil

Approx O.D. x Length mm	Quantity Per Case
27 x 150	5
36 x 160	5
56 x 170	10

These are suitable for use with our filtering crucibles Gooch Type with sintered disc, No. 32060 lower part 8 mm O.D. x 75 mm length in all sizes.

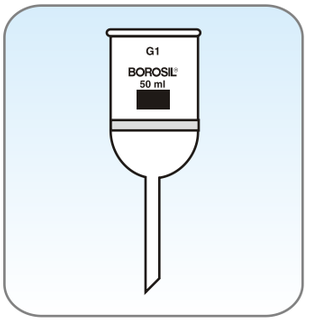


36060-Funnels, Buchner Type, With Sintered Disc, Borosil

Capacity ml	Porosity Grade	Dia of Disc mm	Approx Height mm	Stem Dia mm	Quantity Per Case
35	1	30	137	8	5
35	2	30	137	8	5
35	3	30	137	8	5
35	4	30	137	8	5
35	5	30	137	8	5
80	1	40	149	8	5
80	2	40	149	8	5
80	3	40	149	8	5
80	4	40	149	8	5
80	5	40	149	8	5
200	1	65	205	13	5
200	2	65	205	13	5
200	3	65	205	13	5
200	4	65	205	13	5
200	5	65	205	13	5
500	1	90	255	17	2
500	2	90	255	17	2
500	3	90	255	17	2
500	4	90	255	17	2
500	5	90	255	17	2

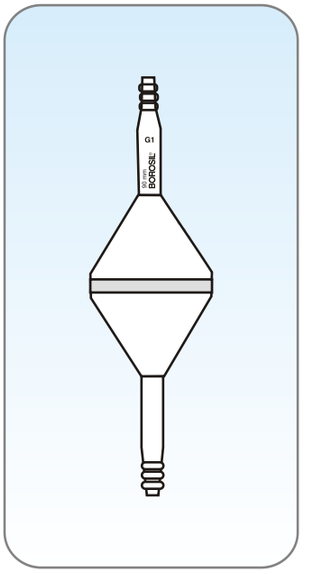
36060-Funnels, Buchner Type, With Sintered Disc, Borosil

Capacity ml	Porosity Grade	Dia of Disc mm	Approx Height mm	Stem Dia mm	Quantity Per Case
1000	1	120	275	19	2
1000	2	120	275	19	2
1000	3	120	275	19	2
1000	4	120	275	19	2
1000	5	120	275	19	2



39580-Tubes, Sealed, With Reduced Ends, With Sintered Disc, (Pipeline Filters), Borosil

Capacity ml	Porosity Grade	Dia of Disc mm	Approx Height mm	Stem Dia mm	Quantity Per Case
30	1	30	125	9	5
30	2	30	125	9	5
30	3	30	125	9	5
30	4	30	125	9	5
30	5	30	125	9	5
65	1	65	210	13	5
65	2	65	210	13	5
65	3	65	210	13	5
65	4	65	210	13	5
65	5	65	210	13	5
90	1	90	320	17	5
90	2	90	320	17	5
90	3	90	320	17	5
90	4	90	320	17	5
90	5	90	320	17	5



QUARTZ WARE

Borosil TRANSPARENT LABORATORY WARE

Borosil Fused Silica 99.95% SiO_2 surpasses all of the desirable chemical and weathering durability properties usually associated with opaque Silica ware. We manufacture as per IS and BS Standards.

a) There is little or no visible surface change or damage to silica with prolonged exposure to water, atmospheric gases, contaminants, oxide of nitrogen and ozone.

b) Attack does occur, on exposure to alkaline solution and acids at very high temperatures.

c) Low expansion and hence excellent dimensional stability and thermal shock resistance.

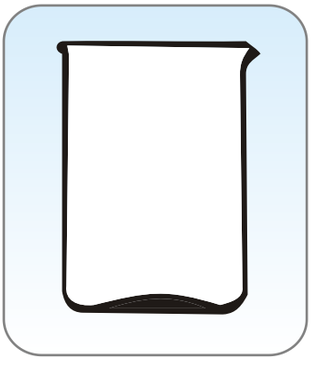
Resistant to chemical attack.

Virtually unaffected by sulphuric, nitric and hydrochloric acids. Hot alkalies and certain metal oxides react on silica. It is attacked by hydrofluoric acid. At high temperatures, it is also attacked by phosphoric acid.

Continuous use of fused silica above 1000°C leads to devitrification with formation of crystobalite which is a crystalline phase and will lead to breakage on repeated use. For accurate and long use, it is advisable to wash the articles in distilled water and alcohol to remove trace impurities.

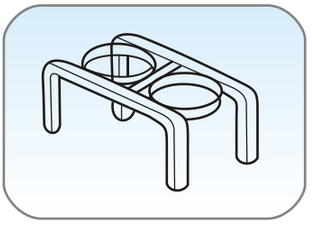
Heating fused quartz to elevated temperatures causes $Si0_2$ to undergo dissociation. Consequently, when flame-working fused quartz, there is a brand of haze or smoke which forms just outside the intensely heated region. This haze presumably forms because the $Si0_2$ recombines with oxygen from the air (and perhaps water) and condenses as extremely small particles of amorphous $Si0_2$.

Electrical resistivity (at 350°C)		7 x 10^7 ohm cm	
Low Expansion and constancy of Weight		Average co-efficient of expansion 0°C to 800°C	5.5 X 10^{-7} / °C
Softening Point	1685°C	Annealing Point	1200°C
Operating Temp (continuous)	1050°C	Strain Point	1120°C
Operating Temp (intermittent)	1350°C	Working Temp	1950°C



1002-Beakers, Low Form, With Spout, Borosil

Capacity ml	Approx O.D. x Height mm	Quantity Per Case
25	35 x 45	5
50	40 x 58	5
100	50 x 75	5
150	55 x 88	5
250	70 x 95	1
500	85 x 115	1
1000	105 x 145	1

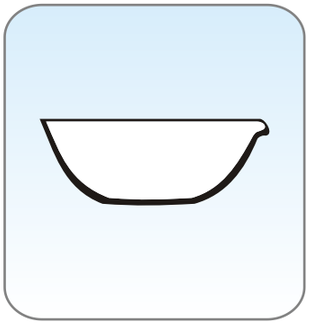


3175-Muffle Trays, Borosil

Type	Nominal Length mm	Quantity Per Case
2 Holes	39	1
4 Holes	76	1

3185-Dishes / Basins, Round with Spout, Borosil

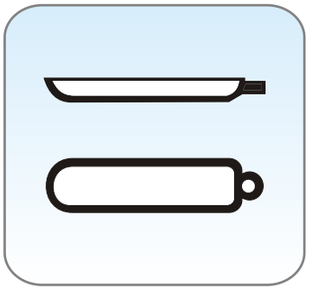
Approx O.D. x Height mm	Nominal Length mm	Quantity Per Case
55 x 23	20	10
75 x 27	45	5
85 x 35	70	5
95 x 36	85	1
100 x 38	100	1
115 x 47	200	1



3186-Combustion Boats with Handle, Borosil

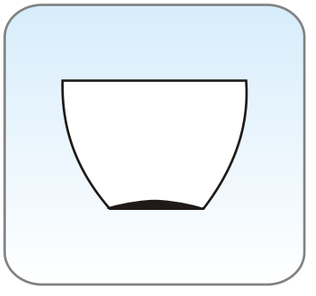
Approx O.D. x Length mm	Quantity Per Case
12 x 77	1

Prices for other sizes on request



3190-Crucibles, Without Lid, Borosil

Capacity ml	Approx O.D. x Height mm	Quantity Per Case
15	40 x 26	10
25	47 x 30	10
50	57 x 35	10
80	69 x 45	10
150	80 x 54	5



3191-Lids For Crucibles, Borosil

Capacity ml	Quantity Per Case
15	10
25	10
50	10
80	10