BOROSIL®
Scientific
Borosil Scientific Limited

Manufacturers of Custom-Engineered Glassware

BOROSILICATE
GLASS 3.3

Custom - **Engineered** Glassware

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EXPAND

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Sections

Our Manufacturing Facilities

Introduction

Borosil Scientific Limited, a part of the Borosil Group, is a leading Indian manufacturer of custom scientific glassware, specializing in borosilicate glass products designed to meet precise customer requirements.

With over six decades of expertise since its establishment in 1962, the company delivers bespoke glass solutions for laboratory, industrial, research, decorative, and architectural applications across 90+ countries.

Our state-of-the-art manufacturing facility in Bharuch, Gujarat, is equipped with advanced annealing systems, in-house automated calibration labs, and a team of skilled glassblowers, ensuring exceptional quality, accuracy, and durability.

Driven by a mission to provide intelligent and reliable solutions that empower scientific research and discovery, Borosil Scientific Limited continues to set benchmarks in innovation, precision, and craftsmanship in borosilicate glass manufacturing.

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Bioreactor

Lab Products and Bioprocess Solutions

Precision Glass Engineering for Reliable Bioprocessing

Borosil Scientific Limited is one of India's leading manufacturers of scientific and industrial glass equipment.

With decades of experience in borosilicate glass fabrication, Borosil Scientific Limited provides custom-engineered glass components specifically designed for bioreactors, fermenters, and related bioprocess systems.

All components are made from Borosilicate 3.3 glass, ensuring high chemical resistance, thermal stability, and optical clarity - essential qualities for reliable and contamination -free bioprocessing.

Glass Parts for Bioreactor Applications

Borosil Scientific Limited manufactures a wide range of glass parts and assemblies compatible with leading bioreactor and fermenter systems, including laboratory, pilot, and production scale units.

Borosil Scientific Offers Bioreactors
From 2000 mL up to 20 Ltr
Working Volume

Types of Glass Bioreactor

- Flat Type and Round Type Bottom surface
- Glass Lids / Covers with Multiple Ports
- Reactor Vessels (Single or Double Wall Jacketed) – 2000 ml to 20 Ltr

Each component is precision-fabricated and QC-tested for dimensional accuracy, uniform thickness, and leak-proof performance.

Explore Our Bioreactors Range

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Material Excellence: Borosilicate 3.3

- High thermal resistance (ΔT up to 110°C)
- Excellent mechanical and chemical durability
- Non-reactive and biologically inert surface
- Smooth inner walls for easy cleaning and sterilisation
- Exceptional optical transparency for visual monitoring
- Compatible with CIP / SIP operations

Customization & Compatibility

Borosil Scientific Limited offers tailor-made glass components as per customer drawings or OEM standards.
Our fabrication ensures perfect interchangeability with major global bioreactor brands and systems.

We can provide:

- Custom port configurations
- Flange or thread-type connections
- Special jackets and inlet/outlet orientations
- Graduations, labeling, and logo engraving (optional)

Applications

- Bioreactors and Fermenters
- Cell Culture Vessels
- Process Development Systems
- Academic and R&D Laboratories
- Pharmaceutical and Biotechnology Industries

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Quality & Assurance

Every Borosil Scientific Limited glass part undergoes:

- Dimensional inspection using calibrated gauges
- Thermal shock and stress relief process
- Vacuum and pressure testing as required [*__Based on the capacity__*]
- Cleaning and packaging in a controlled environment

Why Choose Borosil Scientific Limited?

- Over 65+ years of expertise in borosilicate glass fabrication
- Manufacturer using Borosilicate 3.3 glass tubing
- Proven reliability across pharmaceutical, chemical, and biotech sectors
- OEM support for equipment manufacturers worldwide
- ISO-certified production and strict quality standards

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Laboratory High-Precision Soxhlet Extraction Assembly (Cold / Hot Process)

Hot Process Soxhlet

Description:

Continuous extraction using boiling solvent for efficient compound recovery.

Working:

Solvent vapor condenses, drips on the sample, dissolves compounds, and siphons back.

Applications:

Oils, fats, plant bioactive, food fat analysis.

Fields:

Organic & Pharmaceutical Chemistry, Food Tech, Analytical Labs.

Material:

Borosilicate 3.3 glass, 5000 mL- 7000 mL

Hot Process Soxhlet

JUMBO RANGE
Soxhlet Extraction

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Laboratory High-Precision Soxhlet Extraction Assembly (Cold / Hot Process)

Cold Process Soxhlet

Description:

Solvent extraction at room or controlled temperature for heat-sensitive compounds.

Working:

Solvent passes through the sample multiple times without heating.

Applications:

Essential oils, pigments, vitamins, pharma & cosmetic extracts.

Fields:

Pharmaceutical, Biotechnology, Food & Environmental Labs.

Material:

Borosilicate 3.3 glass, various joint sizes.

Cold Process Soxhlet

JUMBO RANGE Soxhlet Extraction

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Laboratory High-Precision Soxhlet Extraction Assembly (Cold / Hot Process)

Comparison Table (Hot vs. Cold Soxhlet)

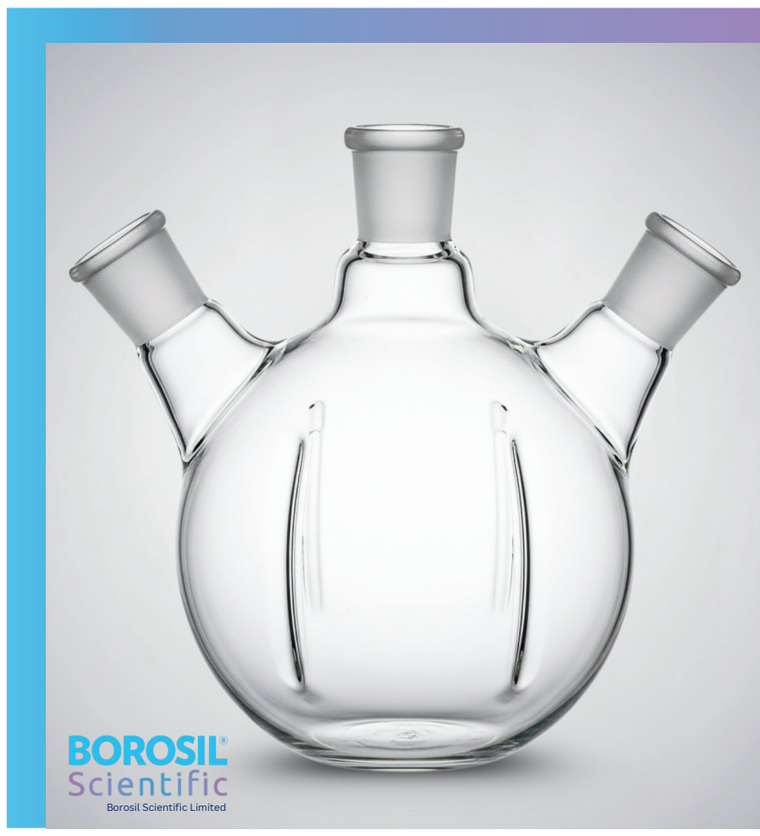
Feature	Hot Process Soxhlet	Cold Process Soxhlet
Extraction Method	Heated solvent (boiling)	Room/controlled temperature solvent
Suitable For	Thermally stable compounds	Thermally sensitive compounds
Cycle	Automatic reflux and siphoning	Multiple solvent percolations
Applications	Oils, fats, bioactives, food analysis	Essential oils, pigments, vitamins, cosmetic extracts
Fields	Organic, Pharmaceutical, Food, Analytical	Pharmaceutical, Biotechnology, Food, Environmental
Material	Borosilicate 3.3 glass	Borosilicate 3.3 glass
Capacity	Minimum 5000 mL – 7000 mL	Various standard joint sizes and capacities 5000 mL – 7000 mL
Material	Borosilicate 3.3 glass	Borosilicate 3.3 glass
Capacity	Minimum 5000 mL – 7000 mL	Various standard joint sizes and capacities 5000 mL – 7000 mL

JUMBO RANGE
Soxhlet Extraction

Glass Baffled Flask / Kettle (Spherical/Cylindrical)

Description:

A premium laboratory Baffled flask made from Borosilicate 3.3 glass, designed for chemical, pharmaceutical, and biotechnological applications. The internal baffles enhance mixing efficiency by preventing vortex formation, ensuring uniform stirring and improved oxygen transfer in liquid cultures or reactions.



Baffled spherical flask

Capacity :– 2 Ltr to 50 Ltr

Key Features:

Borosilicate 3.3 glass – excellent thermal and chemical resistance

Design:

Baffled interior for enhanced mixing and minimized vortexing

Neck Options:

Single, double, or multi-neck for sensors, inlets, or condensers

Applications:

Bioreactors, fermenters, chemical reactions, R&D, and process development

Advantages:

Uniform stirring, efficient oxygenation, ideal for viscous liquids

Baffled Cylindrical flask

Cylindrical Glass Jar (Flat/Round)

Flat Bell Jar

Description:

A cylindrical borosilicate glass jar with a flat base and a rounded dome top.

Capacity :– 150 mm to 400 mm

Cylindrical fermentation flat jar

Uses / Applications:

- **Vacuum Experiments:** Often used in physics labs to demonstrate air pressure or vacuum effects (e.g., ringing bell in vacuum experiment).
- **Desiccation:** Used with a desiccator plate to store moisture-sensitive materials.
- **Cover Chamber:** Acts as a transparent cover for chemical reactions or samples requiring isolation.
- **Display or Protection:** For instruments or delicate specimens in laboratories.

Subjects / Fields:

- **Physics –** vacuum and pressure experiments
- **Chemistry –** sample protection, desiccation
- **Material Science –** controlled environment storage
- **Education / Demonstration Labs**

Cylindrical Glass Jar (Flat/Round)

Round Bell Jar

Description:

A dome-shaped borosilicate glass jar with a round base or curved dome structure. Usually designed to fit onto a rubber or glass base plate for airtight sealing.

Capacity :– 150 mm to 400 mm

Round Bell Jar

Uses / Applications:

- **Vacuum Demonstrations:** Classical bell jar experiments with air pumps.
- **Biological Experiments:** For maintaining sterile environments in microbiology setups.
- **Protective Cover:** To shield equipment or reactions from dust or external interference.
- **Decorative or Research Display:** Used in research setups or exhibitions.

Cylindrical Glass Jar (Flat/Round)

Subjects / Fields:

- **Physics & Engineering –** vacuum and pressure studies
- **Biology / Life Sciences –** sterile enclosures
- **Chemistry –** reaction observation under a controlled environment
- **Educational Labs**

Key Difference Summary

Feature	Flat Bell Jar	Round Bell Jar
Base Type	Flat bottom	Round bottom
Stability	Stands independently on flat surfaces	Requires a ring or rubber base
Typical Use	Desiccation, sample protection	Vacuum experiments
Subjects	Chemistry, Materials	Physics, Biology

Bell Jar

Glass Special Condensers

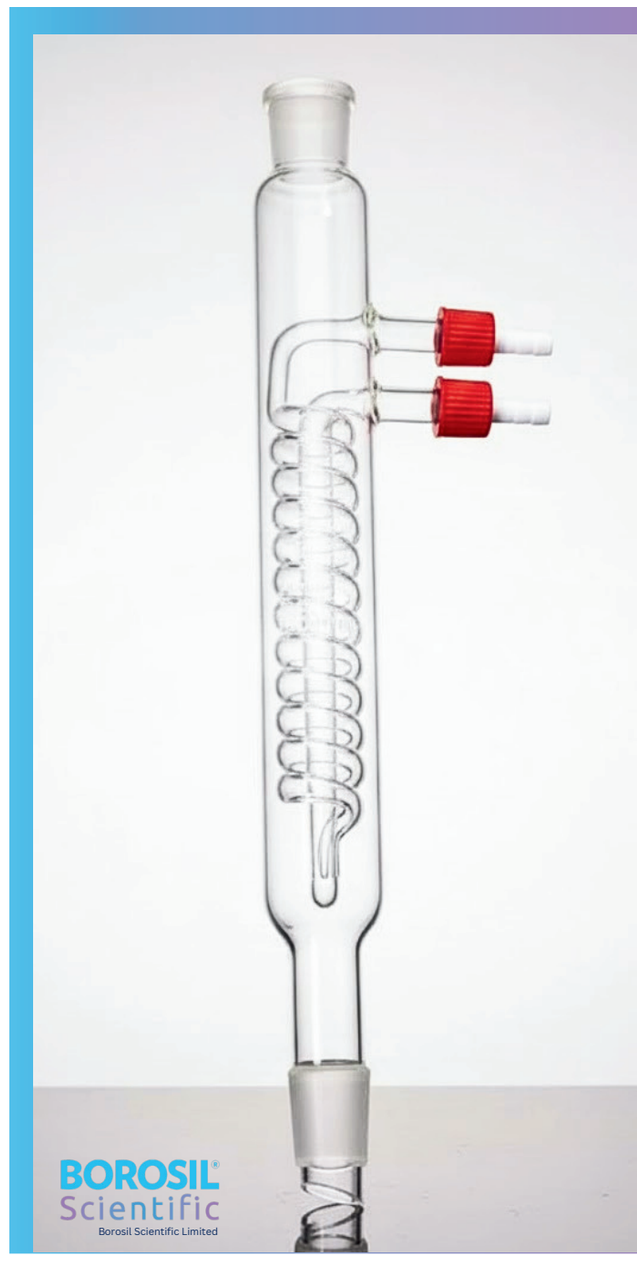
Material:

- Manufactured from Borosilicate Glass 3.3, ensuring excellent chemical resistance and thermal stability.

- End connections available in Standard Cone Joints, Ball & Socket Joints, or Flange Type fittings for compatibility with various assemblies.

Applications:

- Distillation Units
- Reflux Systems
- Solvent Recovery
- Pilot Plant Assemblies
- Heat Recovery in Chemical Processes

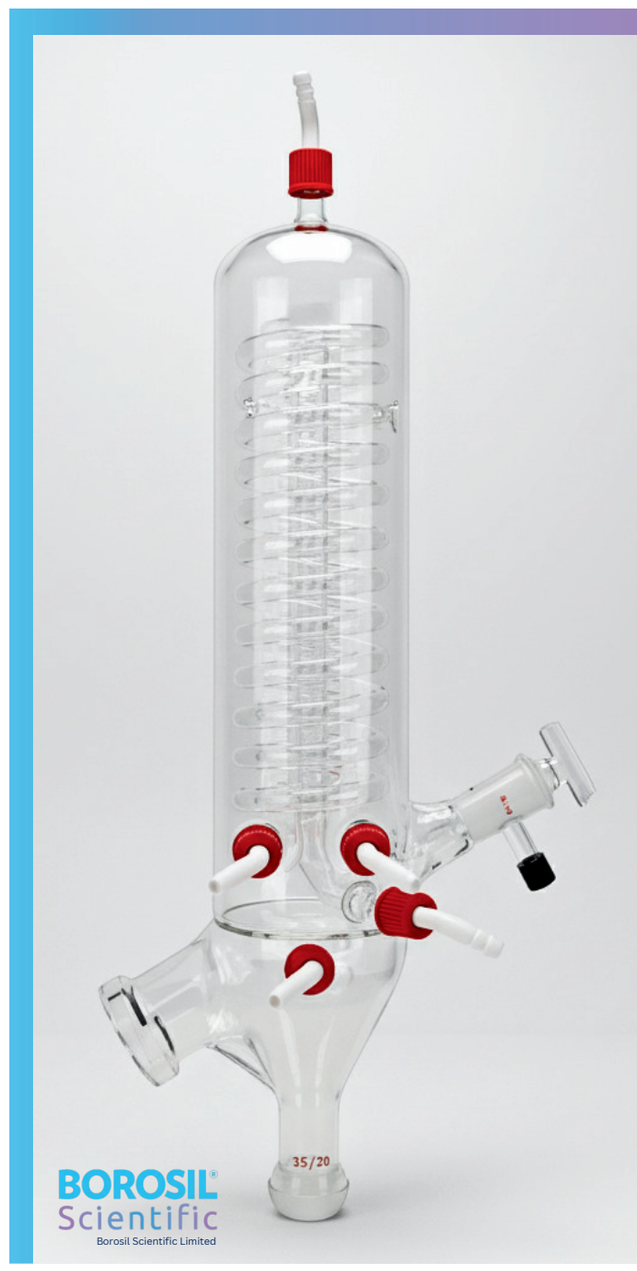


Dimroth Condenser

Rotary Film Evaporator (Rotavap) Condenser

Description:

An essential component of rotary evaporation systems, the Rotary Film Evaporator Condenser is designed to efficiently condense vapors generated during solvent evaporation under reduced pressure conditions.



Rotavap Condenser

Glass Special Condensers

Features:

- Made from Borosilicate Glass 3.3 for high visibility and superior chemical resistance.
- Available in Vertical or Diagonal configurations to achieve optimized condensation efficiency.
- High-surface-area cooling coils ensure maximum heat exchange performance.
- Equipped with vacuum-tight ground glass joints for leak-free operation.
- Fully compatible with standard rotary evaporator assemblies.

Applications:

- Solvent Recovery in Chemical, Pharmaceutical, and R&D Laboratories
- Concentration of Extracts and Sample Preparation
- Distillation under Reduced Pressure

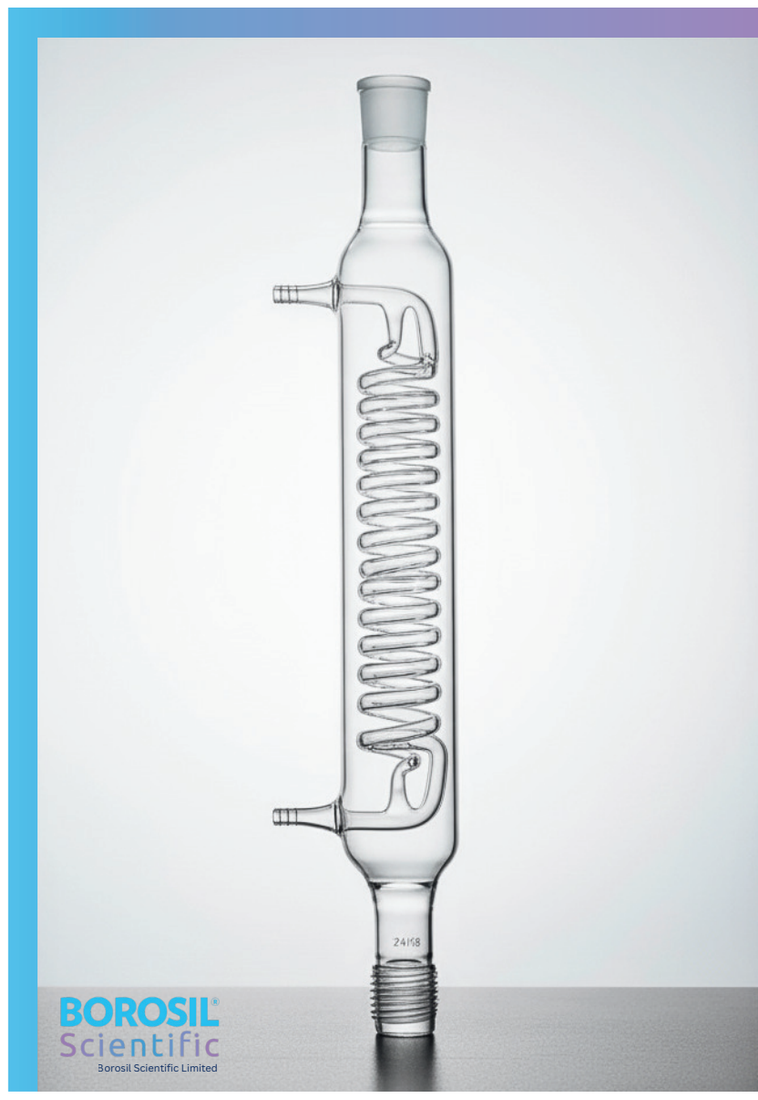
Spiral Condensers

Friedrich Condenser

Glass Special Condensers

Description:

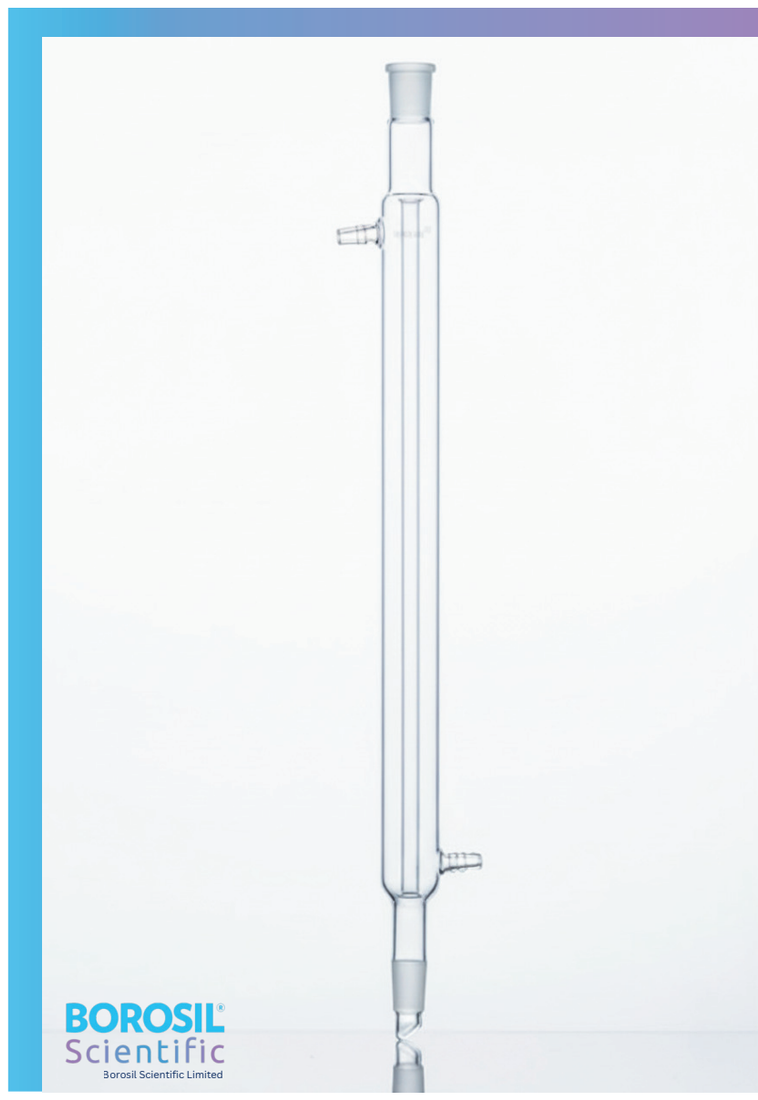
Glass Special Condensers are precision-engineered borosilicate glass heat exchangers designed for efficient vapor condensation in laboratory, pilot, and process-scale applications. Each condenser can be customized according to process parameters such as cooling area, flow rate, and installation configuration.



Double Coil Condenser

Types / Designs:

- **Coil Condensers (Double / Triple Coil):** Provide high-efficiency condensation in compact spaces.
- **Liebig / Graham / Dimroth Type:** Available in standard and heavy-duty versions.
- **Spiral Condensers:** Ideal for vacuum distillation systems.
- **Shell & Coil Condensers:** Suitable for large-scale chemical and pharmaceutical operations.
- **Jacketed Condensers:** Designed for controlled cooling using circulating chillers.



Liebig Condenser

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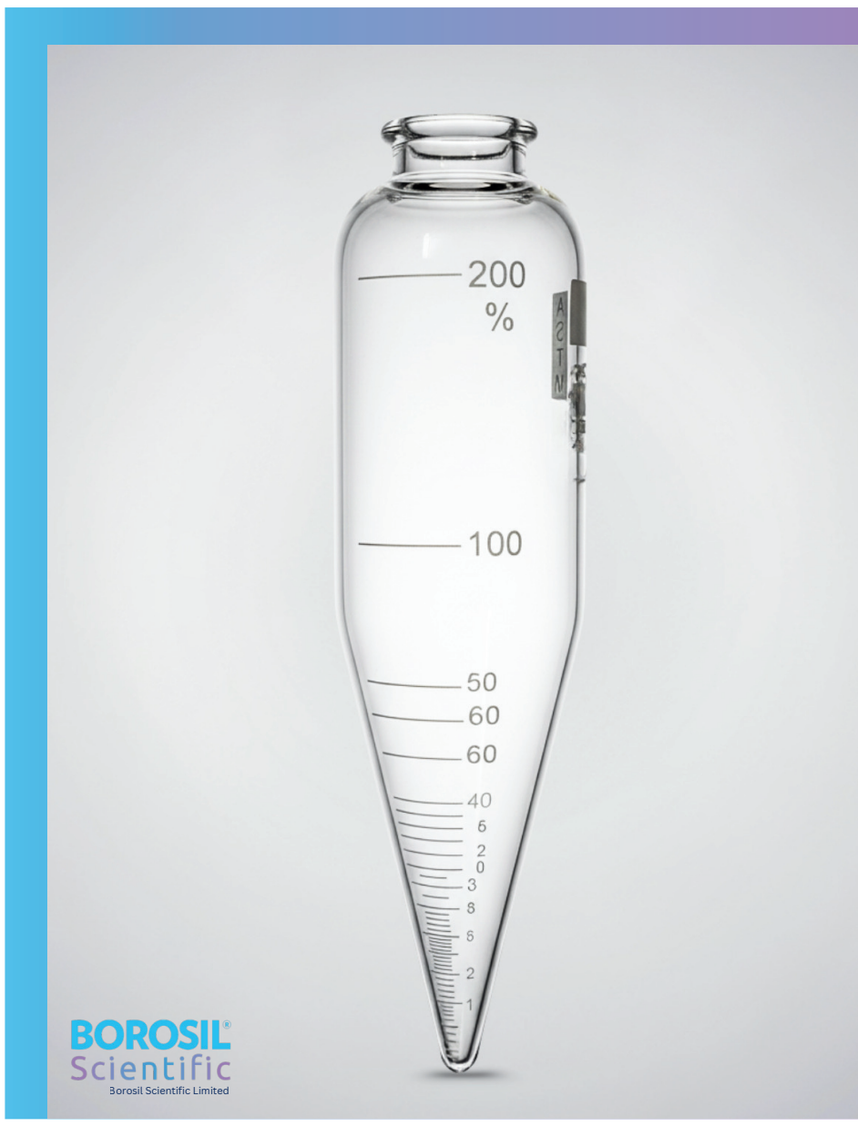
ASTM Centrifuge Tube – Borosilicate Glass 3.3

ASTM Centrifuge Tube –
Borosilicate Glass 3.3

Description:

Premium centrifuge tube made from Borosilicate Glass 3.3, designed for laboratory applications requiring high precision and durability. Available in Conical / Pear -Shaped Cylindrical Bottom with conical bottom design with conical bottom for efficient sample collection and separation.



Short cone

Specifications:

Material: Borosilicate Glass 3.3

Volume: 100 mL

Maximum Relative Centrifugal Force (RCF): Up to 700 × g

Design: Conical / Pear -Shaped Cylindrical Bottom with conical bottom (Finger tube on request)

Standards Compliance: ASTM D91 / ASTM D96

Chemical Resistance:

Excellent resistance to thermal shock, acids, alkalis, and solvents

ASTM Centrifuge Tube – Borosilicate Glass 3.3

Accuracy & Reliability:

Calibrated for precise measurement; engineered for consistent performance in repeated centrifugation cycles

Applications:

- Routine laboratory centrifugation
- Petroleum testing and analysis
- Sample separation and preparation in research and industrial laboratories

Key Advantages:

- Compliant with ASTM D91/D96 specifications
- High mechanical strength for safe centrifugation
- Transparent borosilicate glass for easy observation of samples
- Conical bottom ensures efficient sediment collection

Pear shaped

Finger Tube

Integrated Vacuum Cold Trap

Description:

The Integrated Vacuum Cold Trap is designed for use in scientific laboratories and industrial environments to effectively capture and condense volatile substances in gaseous or vapor form. It is especially suitable for operations involving liquid nitrogen cooling to protect vacuum systems and enhance process efficiency.

Technical Specifications:

Types: A & B

OD X Height (mm) Size: 40 X 250 mm and 50 X 300 mm

Material: High Borosilicate Glass 3.3 (Durable and Reusable)

Maximum Working Temperature: 250°C

Design Feature: The top of the unit includes a zigzag hose connection, allowing secure attachment of vacuum tubes with various inner diameters, ensuring versatility in different system setups.

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Integrated Vacuum Cold Trap

Features & Benefits:

- Efficiently traps condensable vapors and volatile compounds before they reach the vacuum pump.
- Made from chemically resistant, heat-tolerant Borosilicate Glass 3.3 (Borosil Scientific Limited) for durability and long service life.
- Ideal for liquid nitrogen-cooled vacuum operations.
- Easy to clean, inspect, and reuse.

Applications:

- Vacuum filtration and distillation systems
- Rotary evaporators and freeze-drying units
- Solvent recovery and vapor trapping in R&D and industrial laboratories

2 Liter BOD Bottle

Description:

BOD (Biochemical Oxygen Demand) bottles are used for the standard five-day BOD_5 test to determine the level of biodegradable organic matter in water or wastewater samples incubated at 20°C.

The 2 Ltr BOD Bottle from Borosil Scientific Limited is made from high-quality Borosilicate Glass 3.3, ensuring superior chemical resistance, thermal stability, and optical clarity.

Each bottle is precisely designed to eliminate air space, preventing oxygen interference for accurate results. It features a flared mouth, precision-ground glass stopper for an airtight seal, and a permanent white marking area for easy labeling and sample identification.

Specifications:

Parameter	Details	Parameter	Details
Capacity (mL)	2000	**Color/Marking**	Transparent body with permanent white marking area
Stopper Style	Robotic Glass Stopper		
Diameter (mm)	128		
Height (mm)	272		
Material	Borosilicate Glass 3.3		
Design	Flared mouth with airtight glass stopper		

Applications:

- Determination of BOD/BOD_5 in wastewater, surface water, and industrial effluents
- Environmental analysis and pollution monitoring laboratories
- Research and water quality control testing facilities

Imhoff Cone with Stand

Description:

The Imhoff Cone is a specially designed borosilicate glass vessel used for determining the volume of settleable solids in liquids such as wastewater, sludge, or industrial effluents. It allows precise measurement of sedimentation over a defined period under controlled conditions.

Applications:

- Wastewater and sewage treatment plants.
- Industrial effluent testing laboratories.
- Environmental monitoring and research.
- Sedimentation and solid-liquid separation studies.

Construction:

- Made from high-quality Borosilicate Glass 3.3 for excellent chemical and thermal resistance.
- Conical shape with clear graduation marks (typically up to 1000 ml) for accurate reading of settled solids.
- The stand is constructed from powder-coated metal or stainless steel, ensuring stable support during sedimentation testing.

Features:

- Transparent glass body for easy observation of settling particles.
- Graduated markings for direct volume measurement (in ml).
- Detachable and sturdy stand for convenient handling and cleaning.
- Resistant to most acids and alkalis.

Crystallizing Disc

Description:

The Crystallizing Disc is a flat, circular borosilicate glass plate designed for use in crystallization and evaporation processes. It provides a stable surface for the formation of crystals from solutions under controlled temperature and vacuum conditions.

Applications:

- Chemical and Pharmaceutical Crystallization
- Laboratory and Pilot Plant Operations
- Solvent Evaporation and Product Recovery
- Solid-Liquid Separation Processes

Construction & Material:

- Made from Borosilicate Glass 3.3p, offering exceptional chemical resistance, thermal stability, and mechanical strength.
- Available in various diameters (150 mm to 300 mm) to suit different vessel sizes.
- Smooth, polished surface ensures uniform crystal growth and easy cleaning.

Crystallizing Disc

Features:

- Excellent resistance to acids, alkalis, and solvents.
- High transparency for easy observation of crystallization.
- Compatible with glass reactors, crystallizers, and filtration assemblies.
- Can be customized with center holes, flange edges, or supports based on process requirements.

Evaporating Dish

Glass Muller (Borosilicate 3.3)

Glass Muller – Laboratory Grinding Tool

Description:

A high-quality glass muller designed for fine grinding, mixing, and homogenizing of powders, pigments, and other materials in laboratory settings. Made from durable Borosilicate Glass 3.3, ensuring chemical resistance, smooth surface, and long-term durability.

Short Form Muller

Types: Small, Medium and Long Type

Specifications:

- **Material:** Borosilicate Glass 3.3
- **Design:** Flat or slightly concave base for efficient grinding
- **Size:** Various sizes available (customizable for lab requirements)
- **Surface:** Smooth, non-porous to prevent contamination and allow easy cleaning
- **Chemical Resistance:** Withstands acids, alkalis, and most solvents

Glass Muller (Borosilicate 3.3)

Applications:

- Grinding pigments for paints, inks, and coatings
- Homogenizing pharmaceutical powders
- Preparing samples for analytical testing
- Laboratory research and material testing

Key Advantages:

- Durable and long-lasting borosilicate glass construction
- Smooth surface ensures uniform grinding without particle contamination
- Easy to clean and resistant to chemical corrosion
- Ideal for small-scale laboratory applications requiring precision

Medium Form Muller

Long Form Muller

Chemistry Laboratory Kit for Students and R&D Departments

Description:

The Chemistry Laboratory Kit is a comprehensive collection of high-quality instruments, glassware, accessories, and reagents designed to support teaching, training, and small-scale research in chemistry, chemical engineering, materials science, and allied fields. It is tailored for use by undergraduate students, postgraduate researchers, and R&D teams, providing reliable, durable, and safe equipment for a wide range of experiments from basic titrations and physical chemistry to synthetic work, analytical assays, and characterization.

Construction & Material:

- Made from Borosilicate Glass 3.3 for superior heat and chemical resistance.
- Includes durable plastic and rubber accessories for enhanced usability.
- All components conform to laboratory safety and precision standards.

Typical Components:

- Round Bottom and Flat Bottom Flasks
- Beakers and Measuring Cylinders
- Test Tubes and Test Tube Stand
- Funnels, Burettes, Pipettes, and Conical Flasks
- Glass Rods, Watch Glasses, and Droppers
- Reagent Bottles and Wash Bottles
- Thermometer and Spirit Lamp (optional)

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Chemistry Laboratory Kit for Students and R&D Departments

Features:

- Ideal for chemistry students, training centers, and R&D laboratories.
- Easy-to-use kit for demonstrating fundamental and advanced chemical reactions.
- Packed in a sturdy, organized case or box for convenient storage and handling.
- Available in customized configurations based on academic or industrial needs.

Applications:

- Educational Institutions (Schools, Colleges, Universities)
- Research and Development Laboratories
- Chemical and Pharmaceutical Training Labs
- Demonstration and Practical Experimentation

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