

PRODUCT CATALOGUE

INDUSTRIAL PROCESS TECHNOLOGY



The Transparent Specialist

A BOROSIL Scientific Company

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About Us



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Introduction

GOEL SCIENTIFIC GLASS WORKS has been started to design, manufacturing and supply of process equipment's to meet design requirement as per ASME (American Society of Mechanical Engineers) Standards and European standards, we have immense skill persons for development of pharmaceutical process equipment's, chemical process equipment's, cosmetics process equipment's, Agro and fertiliser industries which are typically include the following key elements:

1. Design Code Compliance

Process equipment's must comply with ASME Boiler and Pressure Vessel Code (BP), particularly Section VIII div 1 with API Code. Design meets the customer need and easy for operations.

2. Material Specifications

- Common materials include carbon steel, stainless steel (e.g., 304, 316), and other alloys that meet ASME requirements for corrosion resistance and mechanical properties.
- Materials should be certified according to ASTM standards.

3. Welding Standards

Design Pressure and Temperature pressure and temperature limits should be specified based on the intended process conditions.

- Maximum allowable working pressure (MAWP) and temperature need to comply with ASME guidelines.

4. Inspection and Testing

- The Equipment should undergo hydrostatic testing,
- Non-Destructive Testing (NDT), And other inspection
- processes as mandated by ASME.
- Documentation of these tests is essential compliance.

5. Design Calculations

- Detailed calculations demonstrating operation and stability for the equipment's ability to withstand expected conditions, including stress analysis, fatigue analysis, these tests is essential compliance

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6. Support Structures

- Design and engineering specifications for supports, brackets, and foundations should ensure stability and safety as per ASME criteria.

7. Documentation

- Required documentation includes design drawings, material certificates, inspection reports, and compliance certifications.
- An operation and maintenance manual should also be provided.

8. Safety Features

- Incorporation of safety valves, pressure relief systems, and monitoring equipment to ensure safe operation.

9. Quality Control

- All manufacturing processes should follow a quality assurance program that complies with industry best practices.

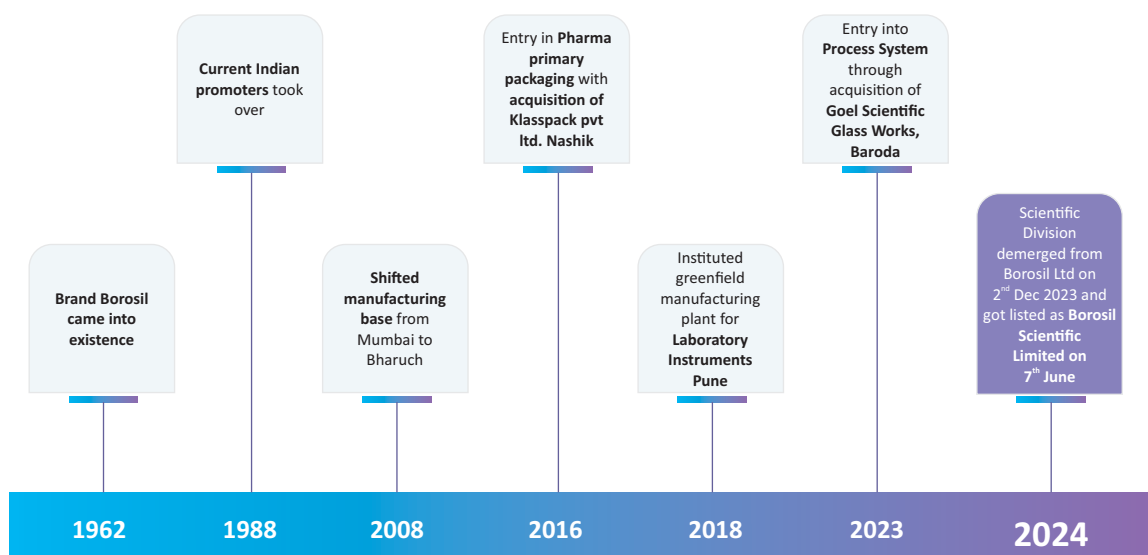
Each reactor's specifics will depend on its application, size, and intended use, so it is crucial to tailor these specifications accordingly while ensuring full compliance with ASME standards.

BOROSIL®

SINCE 1962

Born as a Public Limited Company

Over 6 Decades of Trust



Our Range of Products

- 1 **Reaction Vessel or Reactor**
- 2 **Stirrer Vessel**
- 3 **Synthesizer Vessel**
- 4 **Agitated Nutsche Filter Cum Dryer5) Fermenter**
- 6 **Vacuum Tray Dryer**
- 7 **Nutsche Filter (Vacuum Or Pressure Nutsche Filter)**
- 8 **Shell And Tube Heat Exchanger Or Pre Cooler Or Pre Heater**
- 9 **Filtration Column and Evaporator**
- 10 **Storage Tanks And Silo Storage Vessel**
- 11 **Pressure Vessel**
- 12 **MultiMill**
- 13 **Vibro shifter**
- 14 **Rapid Mixture Granulator**
- 15 **Isolator Or Containment System**

Our Product Moc :- SS316 , SS304, SS321 , Hast Alloy , MS is 2062 And Other Alloy Material As Per Requirements.



This Is Mixing Pressure Vessel Which Are Used In Process Of Slurry Preparation, Bromination, Chlorination, Esterification, Oxidation, Hydrogenation And Homogenization Under High Vacuum Or High Pressure, High Or Low Temperature.

Blade Design : (Hydrofoil, Wide Hydrofoil, Anchor With Paddle, Propeller Type And Pitch Blade Turbine Type, Flat Blade Turbine, Ruston Turbine Type)

MOC: Ss316, Ss304, Ms, Cs, Hastelloy, Duplex Steel S, PTFE Or Rubber Lining Inside For Highly Corrosive Chemical.

Design And Range Of Capacity

Capacity :- 10 litre To 20000 litre

Shell Diameter :- 300mm To 4000mm

Pressure Range :- Full Vacuum To 40 Kg/Cm²

Thickness :- 4 To 30 Mm Thk.

Temperature Range :- Cryogenic To 350°C

Advantages :

- 1 Compact Design
- 2 Cheap And Easy Installation
- 3 Low Maintenance
- 4 High Mixing Efficiency
- 5 Low Operational Cost
- 6 Lower Power Consumption
- 7 High Heat and Mass Transfer Area

Stirrer Vessel

Goel Scientific offers high-performance stirred vessels designed for various Applications in the pharmaceutical, chemical, Agro, food, and dye Industries. Our stainless steel vessels cater to storing liquids and gases while providing exceptional automation and efficiency.

Features :

- Compact design for efficient space utilization
- Easy installation and low-cost maintenance
- High heat and mass transfer efficiency
- Reduction in batch cycle time
- High mixing efficiency with lower power consumption

Applications:

Hydrogenation, Oxidation, Homogenization, Chlorination, Esterification, Bromination, Slurry Preparation

Versatility in gas-liquid, liquid-liquid, and solid-liquid reactions

Vessel Thickness : 5 mm to 40 mm

Temperature Range : Cryogenic to 350 °C

Pressure Range : Full Vacuum to 60 kg/cm²

Capacity : 10 to 50,000 litre

Shell Diameter : 300 mm to 6000 mm

Material of Construction Options: Stainless Steel, Carbon Steel, Titanium, Duplex Steel, Hastelloy, Aluminium, Nickel or Non-corrosive Linings (PTFE, FRP, Rubber, etc.)



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It is a reaction and process vessel which are used for mixing with Filtration process of API Drugs in pharma industries with under pressure and required temperature to produce the desired product.

Design core of equipment :

This design meets the requirements of ASME STD. , API STD. AND European std.

MOC : SS316, SS304 , MS IS2062 , CARBON STEEL ,HASTELLOY,TITANIUM, MSGLETC.

Capacity : 20 litre to 10 KL

APPLICATION :

- 1 Pharma Industries
- 2 Chemical Industries

FEATURES :

- 1 Most Durable Versatile Design
- 2 Easy Process Handling
- 3 Fully Automatic Operation
- 4 Bottom Plate Up And Down Pneumatic

ANFD (Agitated Nutsche Filter Cum Dryer)

This Vessel Is Designed for Specially Three Combined Process Like Mixing, Filtration, and Drying Which Is a Very Versatile Design in the Pharma Industry. ANFD Has a Modern Design with Automation Based System for Process Control to Easy Handling of Material Discharge Also.

Moc : S316, Ss304, Hastelloy, Ms Etc. In Some cases Apply Coating Internal Halar Type For Some Hazardous Applications.

Model Type : Vertical Cylindrical Type Gmp And Non-Gmp Model

Impeller Type : S Type Design

Application : Pharma ,Chemical ,Cosmetic , Dye And Intermediate Industries

Key Feature :

- 1 Versatile Design
- 2 More Processes Take In One Place Make Low Operational Cost
- 3 Easy For Maintenance.

Capacity : 20 litre to 5000 litre





- Pilot Scale (10L to 5000L w/v)
- Pilot-scale vessels for bacterial, yeast, or cell culture
- Available volumes: 20L to 500L in modular configurations
- Fully automated in-situ sterilization with integrated steam generator
- Integrated/external CIP system for seamless cleaning
- SCADA software for simultaneous multi-bioreactor management
- Advanced automation with industry-grade sensors, valves, and gas mixing
- Designed to meet cGMP guidelines with operator safety in mind

Features :

- Modular and scalable design for diverse applications
- Interconnectivity with external devices
- Customizable automation and control systems
- Piping modules prevent operator exposure
- High-quality components for reliability and efficiency

Applications :

- Fermentation of aerobic and anaerobic bacteria, yeast, and fungi
- Mammalian, insect, and human cell culture
- Vaccine production, monoclonal antibodies
- Renewable energy, biofuels, and biopolymer production
- Available Sizes: 20L, 30L, 40L, 50L, 70L, 80L, 100L, 130L, 150L, 200L, 250L, 300L, 400L, 500L, with customization options up to 5000L.

Vacuum Tray Dryer

The Vacuum Tray Dryer is a versatile batch drying machine that features multiple heating plates, designed specifically for the pharmaceutical, chemical, food, and herbal industries.

Utilizing advanced technology, this machine employs a condenser and heat exchanger to effectively dry various materials while maintaining product integrity.

Available with 3 to 96 trays, catering to diverse capacity requirements depending on the machine size and type.

Applications : Pharmaceutical industry, Chemical industry, Food & Beverage industry, Dye And Intermediate

MODEL : cGMP , AND NON GMP

MOC : SS316 , SS304 , MS IS 2062 ETC.

Suitable for drying a wide range of materials, including plastic powder and electrodes.

Silent Feature

- 1 N2 Flushing With N2 Provision
- 2 Vacuum In Line With Vacuum Brake
- 3 Validation Port
- 4 Dial Type Temperature Gauge
- 5 The design meets cGMP standards
- 6 high contact heat transfer ratio.



VTD Accessories

Heat Exchanger With Receiver
Hot Water Tank With U Bundle Vacuum Pump
CAPACITY OF VTD 1) 2 TRAY TO 96 TRAY

Nutsche Filter (Vacuum or Pressure Nutsche Filter)



Nutsche filter is a process vessel where the Filtration of substances under desired pressure and temperature to separate solid and liquid within required cake capacity and ML capacity.

MOC: SS316, SS304, MS IS2062, HASTELLOY, ETC.

Coating: PTFE, PFA, AND HALAR COATING.

Capacity: 20 litre to 5000 litre

FEATURES:

- 1 Noise Free Operation
- 2 Easy Handling
- 3 Versatile and Compact Design
- 4 Rigid And Durable Life
- 5 Cost-effective solution For the Filtration Process

APPLICATION:

- 1 Pharma API Industries
- 2 Chemical Industries
- 3 Food Industries
- 4 Cosmetic Industries
- 5 Dye And Intermediate

Shell And Tube Heat Exchanger (or Pre Cooler or Pre Heater)

Shell and tube heat exchangers are one of the most popular types of exchangers due to the flexibility the designer has to allow for a wide range of pressures and temperatures. This is used for condensation and heating substances under process take place in column or tube vice versa. It is designed according to ASME sec 8 div 1 which meets the requirement for pharma API industries, chemical industries, food and beverages, cosmetics and Petrochemical industries, etc.

There are two main types shell and tube heat exchangers

- 1 TEMA STD. TUBULAR EXCHANGER
- 2 FEED WATER HEATER AND POWER PLANT CONDENSER

MOC : SS316 , SS304 , CARBON STEEL, MS IS2062, HASTELLOY , SUPER DUPLEX GRADE ETC.

Main Parts Of Shell And Tube Exchanger

- 1 Front header
- 2 Rear header
- 3 Tube bundle
- 4 Shell

Classification of HE DUE TO No. Of passes based on application

- 1 SINGLE-PASS
- 2 MULTI PASS (2 PASS, 4PASS AND 6 PASS)

Silent Feature :

- 1 Maintenance free
- 2 Fast operation
- 3 Durable span life
- 4 ASME STD. Meet
- 5 Capacity range from 0.5 m² to 200 m²



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Filtration Column And Evaporator



A Filtration column is a vertical design of an inline column used for the Filtration process under pressure and ambient temperature.

An evaporator is a closed-body vessel used for the evaporation process, which takes place under pressure and temperature to produce gaseous form from liquid.

MOC : SS304 , SS316 , SUPER DUPLEX GRADE, CARBON STEEL, MSIS2062 ETC.

Application :

- 1 Pharma Industry
- 2 Food And Beverages
- 3 Chemical Industries
- 4 Petrochemical Industries
- 5 Agro industries

Storage Tanks And Silo Storage Vessel

Design Codes: IS 2825, ASME Section VIII Div-1, API 650, IS 803

Capacity Range : 10 litre to 50,000 litre (10 L to 50 KL)

Materials of Construction (MOC) :

- Carbon Steel (IS2062, IS2002)
- Stainless Steel Grades (SS304, SS316, Ss309, SS310, SS321)
- Specialty Alloy Materials

Lining & Coating Options: PTFE, Rubber, FRP, HDPE, Halar, Anti-Static Halar

Designed for safe storage of acids, chemicals, bases, and other materials under pressure or atmospheric conditions

Various storage tank types: vertical cylindrical, horizontal cylindrical, air receivers, vacuum traps, petroleum tanks, silos, etc.

Customizable with PTFE lining, PFA coating, Halar coating, insulation, and jacketed designs for specialized materials

Precision engineering with performance measured by nozzles and manholes.

Applications Industries : Pharmaceuticals, Dairy, Chemicals, Dyes & Intermediates, Food & Beverage, Fertilizers, Petrochemicals, Refineries, and more

Raw Material Storage : Pressure tanks, air receivers, silo tanks

Finished Product Storage : Solid material SS IPC bins, SS containers

Process Storage : Receivers, batch measuring tanks

Available Capacities

Storage tanks and vessels available in capacities ranging from 10 litre to 50,000 litre to meet diverse industrial needs





A pressure vessel is a closed body vessel used to store substances liquids or gases under isolated conditions within the required pressure and temperature.

It has been designed to meet the requirements of ASME STD. Div 8 sec 1 and 2.

Pressure vessel MOC:

MS IS2062, CARBON STEEL (A105, SA516GR70), SA240316L, SS304, SS321, SS310, SS347, SUPER DUPLEX GRADE, HASTELLOY ETC.

Coating Inside For Handling Toxic And Hazardous Material

- 1 PFA Or PTFE Coating Or Lining
- 2 Anti Static Halar Coating
- 3 Rubber Coating

Capacity : 5 litre To 50 KL

Advantages :

- 1 Flexibility Of Size
- 2 Rigid And Built Design Quality
- 3 Diversity In Material Of Construction As Per Need
- 4 Easy Maintenance
- 5 Easy Handling
- 6 Easy Installation And Erection At Site.
- 7 Long Life Span

Application :

- 1 Petro Chemical Industries
- 2 Pharms Industries
- 3 Chemical Industries
- 4 Food And Beverages
- 5 Refineries
- 6 Dye And Intermediate
- 7 Cosmetics Industries

Mass Mixing Equipment Blender

Mass Mixing Process Applications Like Dyes And Intermediates , Chemicals , Pharmaceuticals , Fertilizer , Food And Beverage , Pesticides , Pigments , Pharma Bulk Drugs , Dairy Industries.

Goel Has Offer Following Equipment For Mass Mixing And Size Reduction Of Substance.

- 1 Blender (Ribbon blender , Octagonal blender , V Cone blender)
- 2 RMG
- 3 MULTI MILL

Ribbon Blender Design :

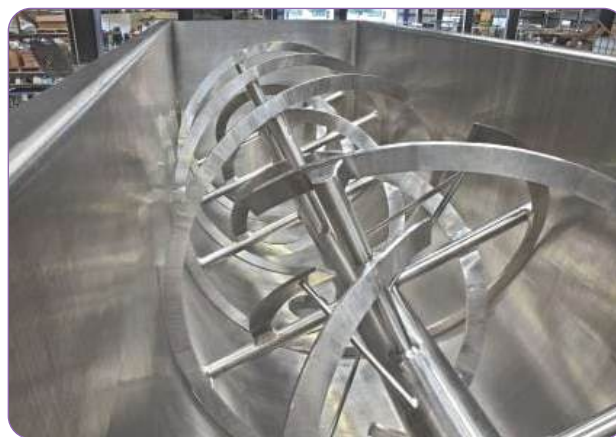
- Capacity Range: 50 litre To 15000 litre
- Material Of Construction: Various Grades of Stainless Steel, Mild Steel, Hastelloy (GMP and Non-GMP Model)

Special Features And Advantages :

- Cheap And Batch Type Production
- Homogeneous Mixing
- Dust Free Operation And Low Operation Cost
- Easy Handling And Operations
- Top Charging And Bottom Charging Through Butterfly Or Ball Valve Or Sliding Gate.



Octagonal Blender



Ribbon Blender

Rapid Mixture Granulator (RMG)

This is Equipment Designed for Granulation Process Where We Can Gain Very Fast Mass Mixing Dry Powder Process with Fine Desire Grain Size.

MOC : SS304, SS316, MS AND OTHER AS PER NEED

Size : 10 L TO 400 L CAPACITY

KEY FEATURE :

Operation Cost Low

Fast Mixing With Fine Grain Size

Low Maintenance Cost

Automation-Based Control In Mixing And Discharge.

APPLICATION :

Pharma, Chemical Industries, Dye And Intermediate, and Fertiliser Industries.



Multimill (Granulation Product)

- **Design Compliance :** cGMP (Current Good Manufacturing Practices)
- **Materials :** Contact parts made from AISI 316; non-contact parts from AISI 304
- **Speed Control :** A.C. frequency drive with adjustable speed up to 2880 RPM
- **Portability :** Compact, portable unit with ease of movement
- **Cleaning & Maintenance :** Easy-to-clean design for contact parts
- **Screens :** Options for various perforated sieve sizes

Features :

- Operates on the principle of variable force swing beaters with knife and impact edges
- High-speed particle size reduction through air impact inside a cylindrical hopper
- Suitable for granulating, pulverizing, mixing, and size reduction processes

Applications :

- Pharmaceutical Industry
- Food Industry
- Chemical Industry
- College Laboratories and R&D Centers

Available Capacities :

Models available from 1 kg/hour to 50 kg/hour (GMP and non-GMP options)

- It is used for Mixing, Grain size, And size reduction. Widely used in Pharma industries.
- 50 Kg To 200 Kg/Hour.



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Sieving Technology Vibro Shifter



Vibro Sifters are used for raw material sieving in the Pharmaceutical, Food, and Chemical industries. Raw material is fed through a feed hopper and there is a sieve of the required mesh size through which the sieved material falls. There is a vibro motor and spring-type suspension system through which the vibration of the vibro motor is transmitted to the sieve chamber. As the sieve vibrates the material gets sifted or sieved through it.

Silent Features :

Compact Vibratory Screen Designed Powder Sieving Machine For High Speed & Dust Free Sieving.

Noiseless And Maintenance Free Vibro Screen Machine.

All Contact Parts And Screen Made Of Ss 304 (Ss 316 Optional)

Low Power Consumption Compared To Reciprocating Vibratory Vibro Sieve System.

Easy Dismantling And Cleaning Of Contact Parts Of Vibrating Screen.

Machine Available With Flame Proof And Double / Triple Deck Options For Lab/Pharmaceutical Industry

Capacity And Design Range :

12 Inch To 38 Inch

0.25 Hp/1440 Rpm / 3 Phase Motor

Double Or Tripple Deck As Per Application

Collector As Per Need Of Customer

It Is Used For Material Sieving In Pharmaceutical And Chemical Industries.

Moc: Ss316 , Ss304 , And Msis2062

Sieving Size: 5 Micron To 100 Micron.

Application: Pharmaceutical, Food, Chemical Industries



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