



# GARG

—GLASS - INDIA—

Creating Solutions & Transparency



**GARG SCI-TECH GLASS (INDIA) PVT. LTD.**

## COMPANY PROFILE



**GARG**  
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**GARG SCI - TECH GLASS (INDIA) PVT. LTD.**

Garg Sci – Tech Glass (India) Pvt. Ltd. is the leading ISO 9001:2015 certified manufacturer of Borosilicate 3.3 Industrial Glass Equipment's / Process Plants in India, meeting to stringent International Standards. We are now a leading manufacturer and supplier of reactors and accessories made of Borosilicate Glass right from R&D scale to Pilot Plant and finally Production Scale. We provide complete corrosion resistance solution to the engineering needs of our clients in the Chemical, Pharmaceutical, Petrochemical, and Allied Industries. Our products are also used in Laboratories and Academic Institutions as well as for R&D purpose. All our glass equipment complies with ISO 3585/ 3586/ 3587 for Buttress Ends DN 25 to DN 800 and find extensive use in the construction of complete Glass Process Plants/ Kilo Labs/ Pilot Plants in the Chemical Process Industry.

Our promising track records for on time delivery, premium quality, strong adherence to BS and DIN Standards coupled with excellent after sales services, has earned us remarkable market share in India. With our world class quality and backed by our strong and sound management, we have already entered into the international markets and have received excellent response from countries like Malaysia, Iran, New Zealand, Singapore, Jordan, Dubai, Israel, Bangladesh, etc.

We have expertise in Glass Fabrication Blowing Technique with technical backup and high quality engineering products made of Borosilicate Glass 3.3.

We provide necessary Basic Engineering and Detailed Engineering Services, required for the Design, Construction and Operation of Glass Process Plants and Systems where, glass is an ideal material of construction. As regards the quality and services offered by 'Garg Sci – Tech Glass' provide not only state of the art equipment but also the Services of Installation, Operation and Maintenance along with the expertise of our technical team.

In the construction of Glass Process Plants, PTFE as a material plays a crucial role. We thus engaged in the manufacturing of PTFE components like Gaskets, 'O' Rings, Bellows, Bushes, PTFE Tube Sheets (for Glass Shell & Tube Heat Exchanger), Mechanical Seals, PTFE Distributors, etc. required for the construction of Glass Process Plants.

We are also engaged in manufacturing complete range of Glass Plant Supporting Structure Parts like Bends, Brackets, Support, Cross, Base, Tee, Vessel Holders, etc. along with metal parts like Couplings, Chuck & Seal Assembly, etc. required for Glass Assemblies. This 'Single Window' facility available only with Garg Sci – Tech Glass would enable to maintain a thorough and uniform quality control at all levels.

We also have excellent support from our strong Technical and R&D Team for providing package solutions.

## Message from Managing Director



*Greetings,*

As a young glassblower I had started my career with Laboratory Glassware and there may be hardly any item that I have not fabricated with my own hands. Laboratory has always been my favourite area, although over the years, I gradually diverted to Industrial Glassware. It is my great pleasure to present you to our industrial catalogue with an assurance of quality as per International Standard of Practices.

It is said, *"Every great company is the lengthened shadow of a single man"*

With our management team, I have worked hard to achieve a certain position at which we are right now. As I look at the growth over the years, I am extremely proud of what we have achieved and even more motivated about our position for an equally promising future. We have successfully transitioned from a single city start-up to become a respected company, gathering business from across the country, while earning our client's trust along the way.

Garg Sci – Tech Glass has always considered Quality as its foremost concern and we aim to continue abiding by the highest ethical and compliance standards. Our dedicated, customer – oriented team provides a personal and customized service to our customers, building relationships along the way.

We have travelled a long way to become the Market Leaders in Borosilicate Glass 3.3 Industrial Equipment's manufactures. This would not have been possible without your support & patronage.

At Garg Sci – Tech Glass, I take pride in standing tall and successful along with my employees and customers for maintaining core values and believing in us.

I sincerely hope that you as our valuable customers will trust our expertise, based on our decades of experience in the Scientific Glass Industry.

We look forward to your continuous support in our efforts to excel in our activities.

With Best Regards

*Anil Garg*

Managing Director

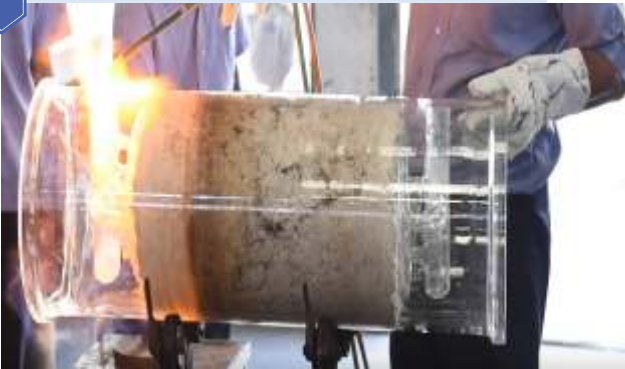
**01** Glass Big Flange Making Process



**02** Glass Flange Dimension Checking Process



**03** Glass Coil Condenser Making Process



**04** Glass Vessel Making Process



**05** Cylindrical Flask Making Process



**06** Spherical Vessel Making Process



**07** Column Grinding Process



**08** Condenser Hydro Pressure Testing



01

## Raw Material



02

## Semi Raw Material



03

## Finished Material



## PIPELINE COMPONENTS

Pipeline Components are also used in the Design of Process Plant. For example Pipe Sections are used in Column, Feed Pipes are fitted in Reducing Tee Pieces and Reducers are also used as the Top or Bottom Components in Column.



## VALVES & STOPCOCKS

Valves and Stopcock can be relied upon to require minimum maintenance & to provide maximum reliability. These valves & filters provide the relatively easy on-off function to control flow & pressure relief. All wetted parts of valves & filters are made of Borosilicate Glass 3.3 & PTFE, which ensures maximum resistance to corrosion. The complete valve consists of Glass Valve Body, PTFE Bellow with Nut, Bakelite Valve Bonnet with MS Spindle etc. Different types of valves like Line Valve, Drain Valve, Bottom Outlet Valve, Vent Valve, Adjustable Overflow Valve, Non-Return Valve (Flap Type), Non-Return Valve (Ball Type), Pressure Relief Valve, Sampling Valves are available.

## VESSELS

Borosilicate Glass Vessels in either Jacketed or Unjacketed Form are essential components of many Units and Plants. The Glass Reaction Vessel can be combined with various components such as Stirrer Drive, Vessel Covers and Heat Exchangers to construct the wide variety of Stirred Units and Reaction Systems. These Glass Vessels find universal application as Reactors, Receivers, Reboilers, Separators, Measuring, Feed Vessels and Glass Storage Vessels in the Chemical Industry. The complete range of Standard Glass Vessel is available upto 500 Liter Capacity.



## HEAT EXCHANGERS

Heat Exchangers provide the optimum solution for all requirements encountered because of the wide range of Heat Exchangers available. Heat Exchangers are used for condensation of Vapours or Cooling of Gas or Cooling of Liquids. Two basic types of Glass Heat Exchangers are available such as Coil Type and Shell and Tube Type. Glass Coil Type Heat Exchangers are available as Condensers, Boilers and Immersion Heat Exchangers with Heat Transfer Area upto 8 M<sup>2</sup>.



**Shell and Tube Type Heat Exchangers** are designed for use with tubes in the widest possible range of corrosion resistant materials. Shell & Tube Type Heat Exchangers are available with Glass/ Mild Steel (MS)/ Stainless Steel (SS)/ FRP in combination with Glass Tubes as standard. They can be designed for Single Pass or Multi Pass on Tube Side as per clients requirement. The overall heat transfer co-efficient is Shell and Tube Heat Exchanger is about three times higher than in Coil Type Heat Exchangers. Whenever requirement of heat transfer area is high, Shell and Tube Heat Exchanger is the only alternative with Heat Transfer Area upto 26M<sup>2</sup>. The pressure drop of coolant in Shell and Tube Heat Exchanger is minimal compared to Approx. 2 kgs in Coil Type Heat Exchanger.

## COLUMN COMPONENTS

Column Components provide the optimum solution for every requirement encountered in practice for operations such as Distillation, Rectification, Absorption, Reaction and Extraction because of the wide range of different components available. This applies not only to the various types of column and pipe sections available but also to the wide selection of internals, random and structured packing that can be supplied



## HEATING MANTLES & BATHS

**Heating Mantles** can be supplied in either Flame Proof or Non – Flameproof Type. They are used for the electrical heating of Spherical/ Cylindrical Vessels. Heating Mantles provide a positive alternative to Steam Heating using Boilers or Immersion Heaters. They are fitted with safety cut-out thermostats in order to prevent overheating of the Glass Vessel. Heating Mantles are available upto 300 Ltr. Capacity for Spherical/ Cylindrical Vessel.



**Baths** are available in two types such as Heating Bath and Cooling Bath and can be supplied in either Flame Proof or Non – Flameproof Type with Inner Cooling Coil along with Insulation and Cladding. Heating Baths are used for Electrical or Steam Heating of Glass Vessels. Depending upon the temperature requirements, different types of thermic fluids or water can be used as heating media. Whereas Cooling Baths are used for cooling Glass Vessels with Ice Crystals. Baths are available upto 500 Ltr. Capacity for Spherical/ Cylindrical Vessel.

## STIRRERS & MOTORS

### Stirrer:

Stirrer Assemblies for use with Spherical/ Cylindrical Vessels generally comprises two main components such as a Drive Unit (including Shaft Seal) and a Stirrer Shaft. In addition, a Reducer or Vessel Cover is normally required to connect the Top Neck of the Vessel to the Drive Unit. Special Stirrers in Glass and MS – PTFE can be designed for specific application as per customer requirement.

Variable Speed Drive Units can be supplied with Electric Motors. Shaft Seals are designed to operate either under Vacuum or at Pressure upto the maximum recommended for the Vessel.

### Chuck & Seal:

Glass Reducer/ FEP Lined Reducing Flange is required to connect the Chuck & Seal to Top Neck of the Vessel. Bellow Seal is used for atmospheric pressure or upto the pressure permitted into the Glass Vessel. Mechanical Seal is used for high vacuum application.

Chuck & Seal Assembly consists of Chuck, Bellow Seal or Mechanical Seal, Glass Seal Plate, Clamping Plate, Flexible Shaft, Stud, etc.

### Motor:

Foot Mounted Flame Proof Motor with reduction Gear Box ratio 1:10 (130 RPM) is supplied as standard. It must, therefore, be mounted on the support structure. A motor is coupled with the gearbox. The other end of the gearbox is coupled with Flexible Shaft. 1:7 (190 RPM) Reduction Gearbox can also be supplied on request. This should be specific at the time of inquiry.



## MEASUREMENT AND CONTROL

Measurement and Control equipment complement the component range and helps to ensure that borosilicate glass 3.3 plant and apparatus operates correctly & safely. Non-standard components can also be supplied as per your order.



## SIGHT GLASS

The Sight Glass is a device used between any kind of non-transparent pipeline to observe the flow of liquid. This can be used both in horizontal as well as a vertical pipeline. The sight glass is constructed in such a way that it gives a complete view from every angle.

## COUPLINGS & BELLWS

Couplings are a strong & heavy-duty system that provides maximum reliability with minimum need for maintenance. This is achieved by use of easy to install corrosion resistant gaskets and carefully dimensioned individual parts of the coupling. The material of construction is selected based on the type of products being handled and the atmospheric conditions of the installation area. For GMP application S.S. Coupling with S.S. Nuts – Bolts are used. PTFE Bellows are used to compensate for different thermal movement between the glass and associated equipment, as it absorbs vibrations from associated equipment or foundation. PTFE 'O' Rings are the most widely used Gaskets. They are manufactured from pure, high-quality PTFE and offer almost identical properties corrosion resistance to Borosilicate Glass.



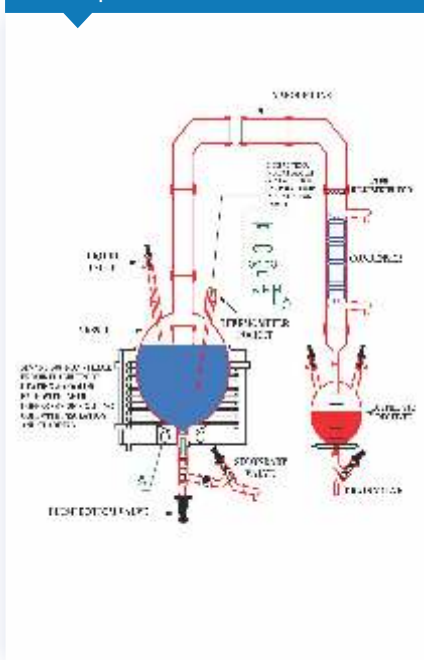
## TUBULAR SUPPORTING STRUCTURE

Structure is designed to support plant and other equipment in Borosilicate Glass 3.3 These structures are available in the form of modular system that not only meets standard requirement but also facilitates solutions for problems of unique nature. These structures consist of steel pipes, which are connected using the appropriate fittings. As a result, these structure can be Assembled, Dismantled, Expanded or Modified very easily and quickly. Standard Support is made of G.I. Pipes with C.I. Fittings. For GMP application S.S. 304/ S.S.316 Pipes with S.S. 304/ S.S.316 Fittings are used.

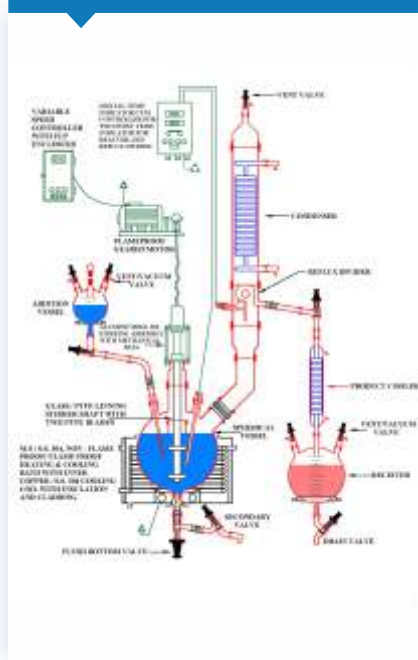


Our Standard Units are equipped with almost all facilities of utilities. All the fundamental and essential features such as Cooling, Heating, Stirring, Condensation, etc. have been incorporated in them in order to serve Multi – Purpose Concept. These units are widely acclaimed and used in R & D Centers, Industries and Educational Institutions.

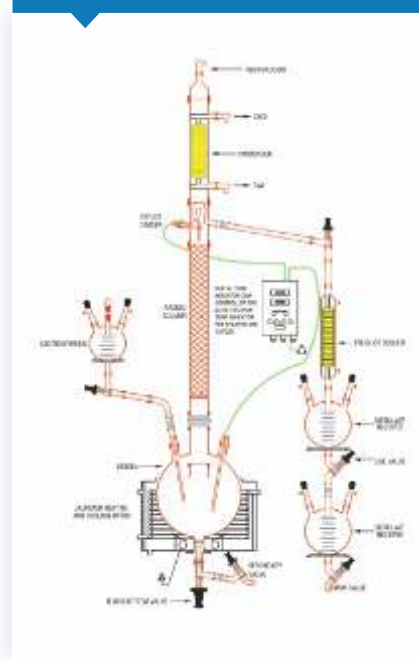
## Sulphuric Acid Dilution Unit



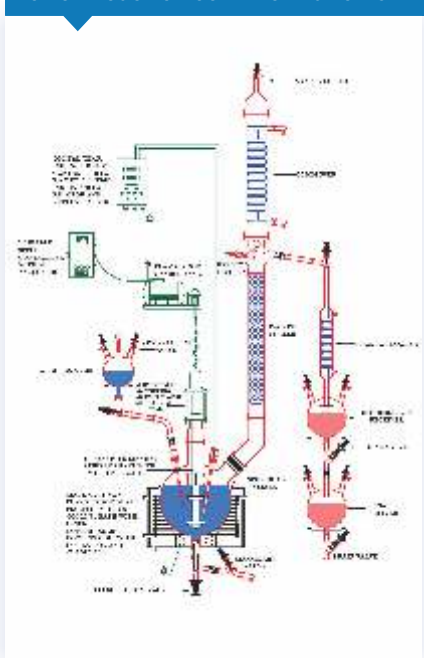
## Reaction Distillation Unit



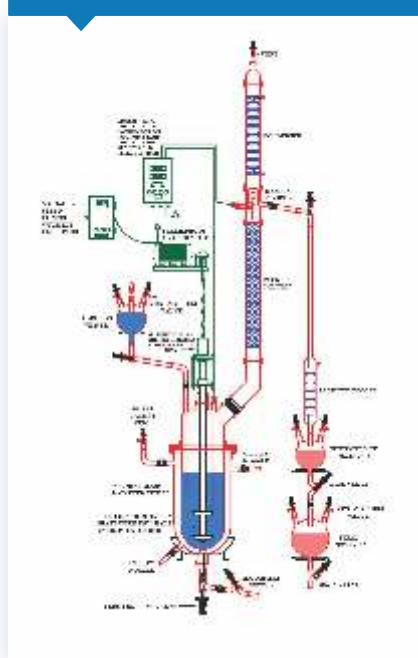
## Fractional Distillation Unit



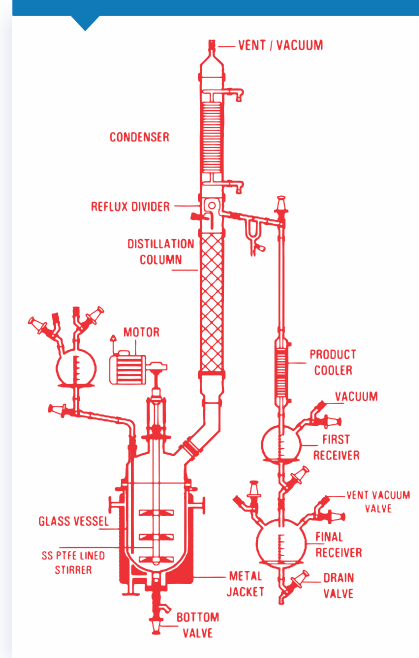
## Reflux Reaction cum Distillation Unit



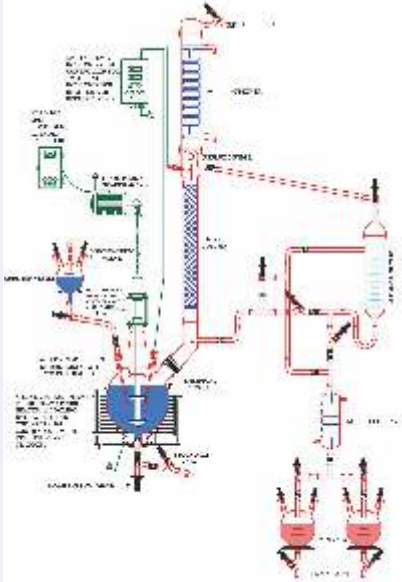
## Jacketed Distillation Unit



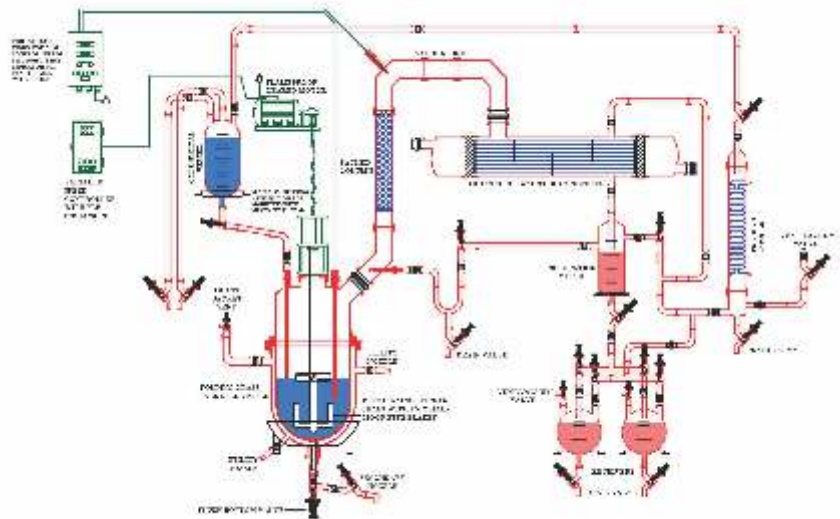
## Glass Reactor with Metal Jacket



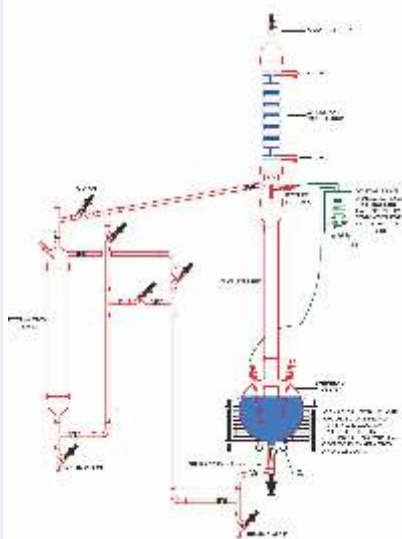
Multi Purpose Distillation Unit



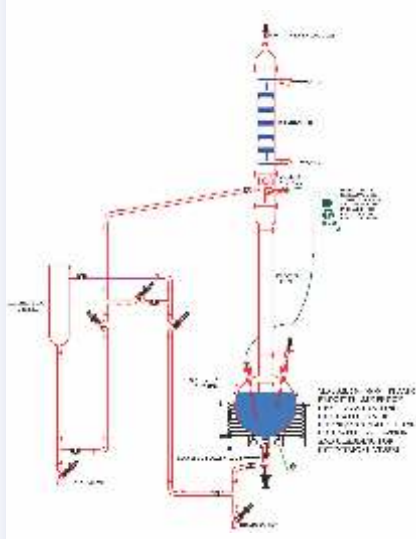
Multipurpose R & D & Kilo Lab Unit



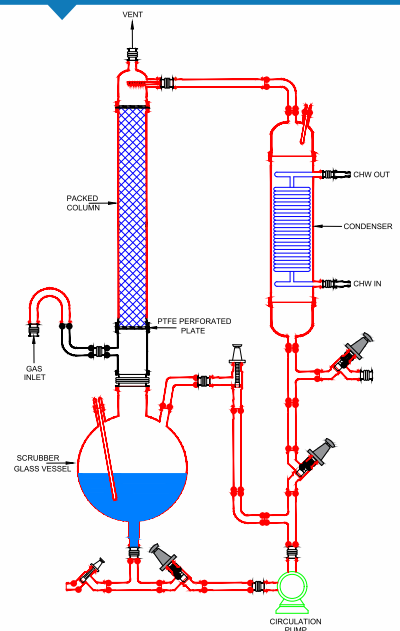
Liquid - Liquid Extraction Unit

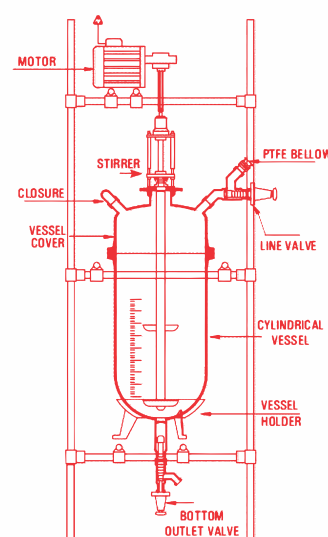


Solid - Liquid Extraction Unit



Mobile Gas Scrubber





The diagram illustrates a fixed mixing reactor, a common piece of equipment in chemical processing. It consists of a central cylindrical vessel supported by a frame. A motor is connected to a stirrer shaft that extends into the vessel, with a PTFE bellows at the top to prevent leakage. The vessel has a closure at the top and a bottom outlet valve. A line valve is also present on the side. The vessel is held in place by a holder.

Labels in the diagram include:

- MOTOR
- PTFE BELLOW
- STIRRER
- CLOSURE
- VESEL COVER
- LINE VALVE
- CYLINDRICAL VESSEL
- VESEL HOLDER
- BOTTOM OUTLET VALVE

**Cylindrical Mixing Reactor with Reflux**

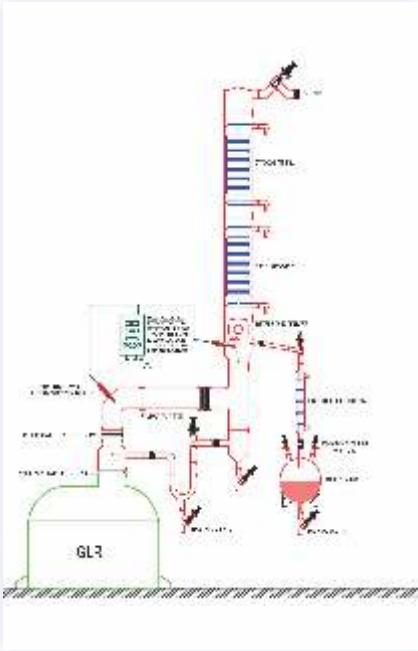
The diagram illustrates a cylindrical mixing reactor system with reflux. Key components and their functions are labeled as follows:

- VARIABLE SPEED CONTROLLER**: Controls the speed of the reactor's internal mixing.
- PUMP**: Circulates the reaction mixture.
- THERMOCOUPLE**: Measures the temperature of the reaction mixture.
- THERMIST**: A temperature-sensitive resistor used for temperature control.
- ADDITION VALVE**: Allows for the addition of reagents to the reaction mixture.
- REFLUX VALVE**: Controls the flow of the reaction mixture back into the reactor.
- HEATING JACKET**: Surrounds the reactor to provide external heating.
- SUPPORT FRAME**: Provides structural support for the reactor and its associated components.

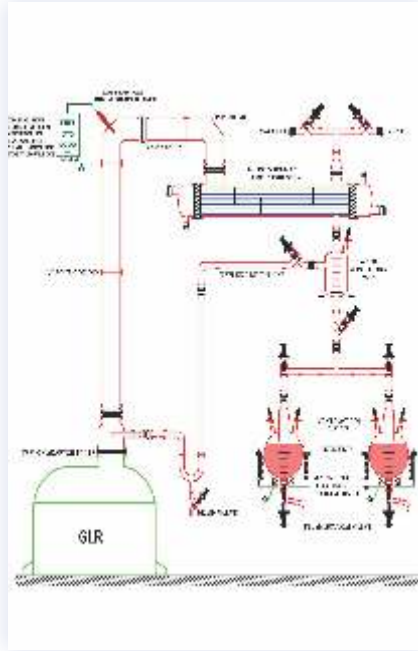
The diagram illustrates a Glass Storage Reactor (GSR) system. It features three vertical cylindrical vessels, each equipped with a stirrer at the bottom. These vessels are interconnected by a complex network of red pipes. A pump is positioned on the left side of the system, and a vent is located on the right. The vessels are supported by a frame, and the entire system is enclosed in a blue box labeled 'Glass Storage Reactor'.



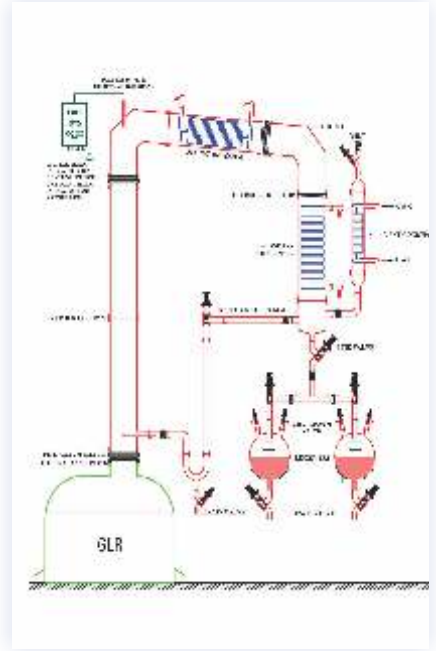
GLR Overhead Distillation Assembly With Dean & Stark Arrangement



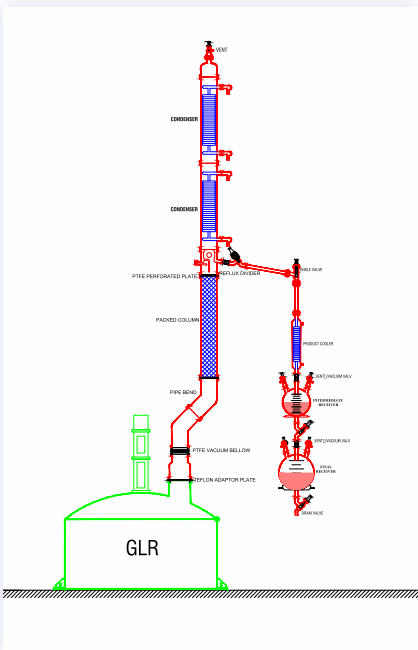
GLR Overhead Distillation Assembly With Shell & Tube Condenser / Reflux Return & Separation



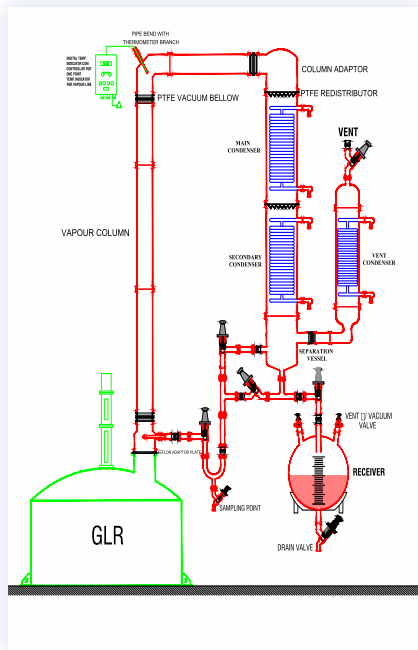
GLR Overhead Distillation Assembly With Vertical And Horizontal / Vent Coil Condenser & Reflux Return Arrangement



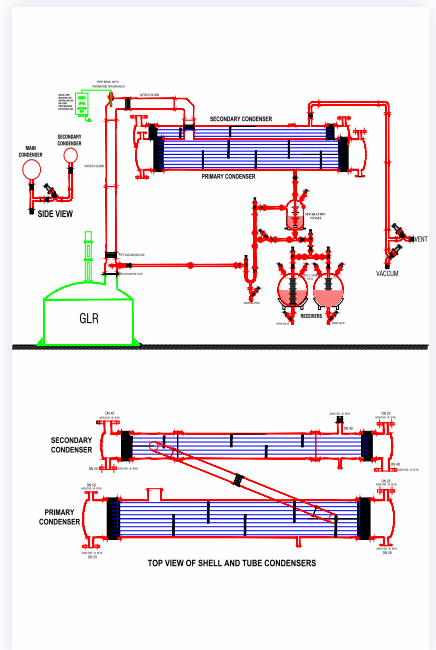
GLR Overhead Distillation Assembly With Coil Condenser / Product Cooler & Receivers



GLR Overhead Distillation Assembly With Vertical / Vent Coil Condenser & Reflux Return Arrangement



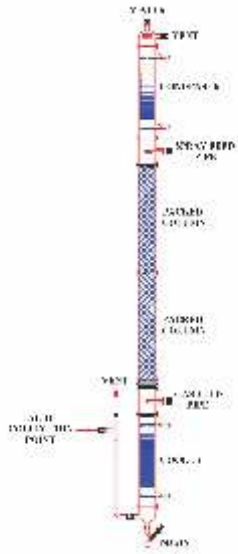
GLR Overhead Distillation Assembly With Primary & Secondary Shell And Tube Condensers Along with Upper And Lower Layer Separation Arrangement



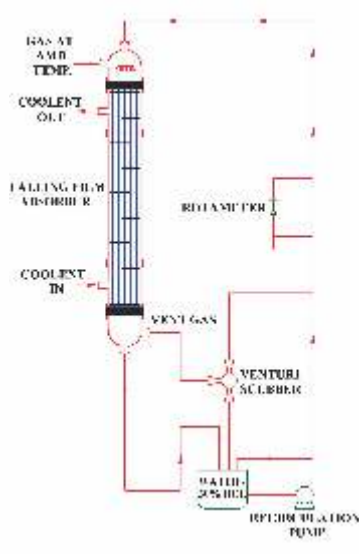
We deliver Process Packages in four major stages from initiation to completion which include Designing, Engineering, Supply, Installation and Commissioning. In addition, as optional we also provide the same on Turnkey basis as well with Complete Packaged Instrumentation. Based on our vast experience of over three decades we strive to continuously bring new innovation in these packages to make them more efficient.

We guarantee performance based on actual process parameters required by clients.

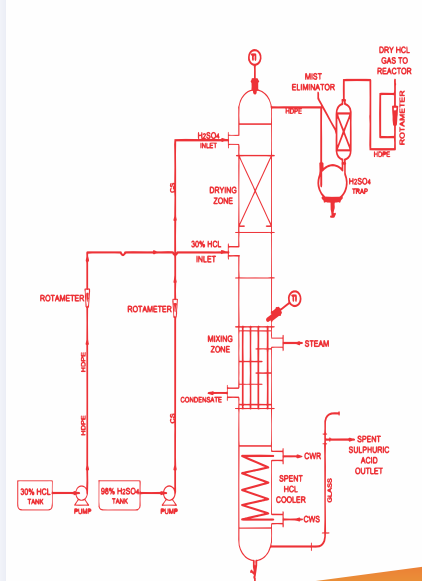
### HCL Gas Absorber Adiabatic Type



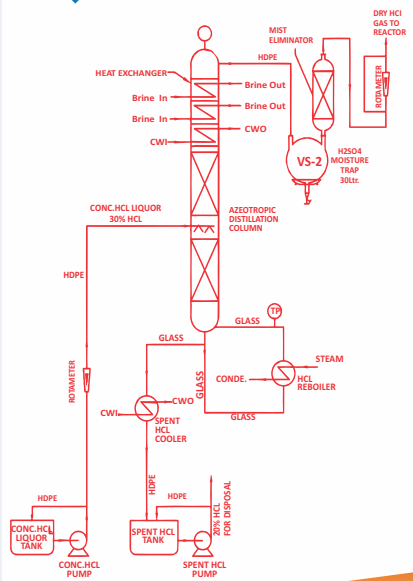
### HCL Gas Absorber Falling Film Type



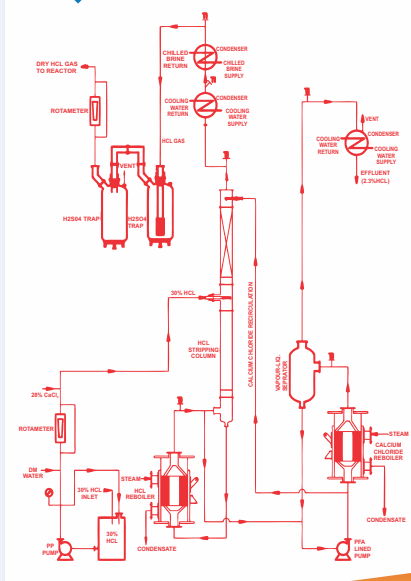
### HCL Gas Generation Unit (Sulphuric Route)



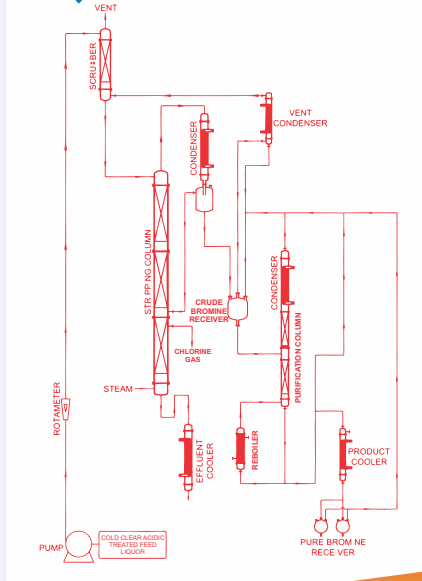
### HCL Gas Generation Unit (Boiling Route)



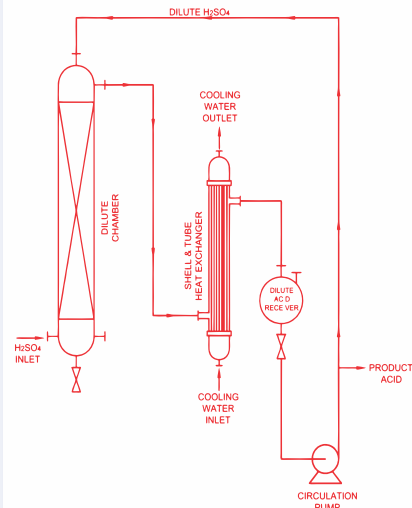
### HCL Gas Generation Unit (Calcium Chloride Route)



### Bromine Recovery Plant



### Sulphuric Acid Dilution Unit



### Rotary Film Evaporators



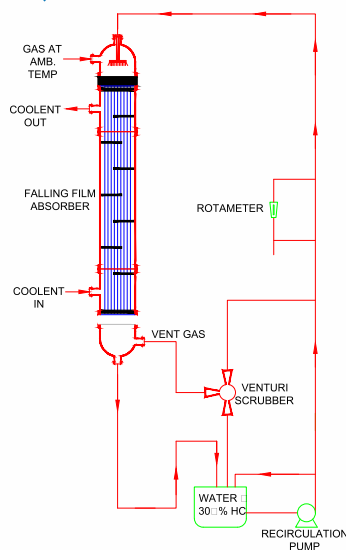
### Rotary Film Evaporators



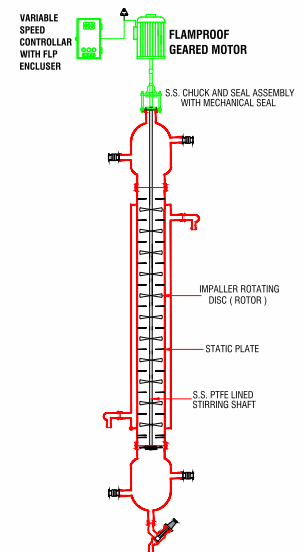
### Wiped Film Evaporator



### Falling Film Evaporator



### Extractors



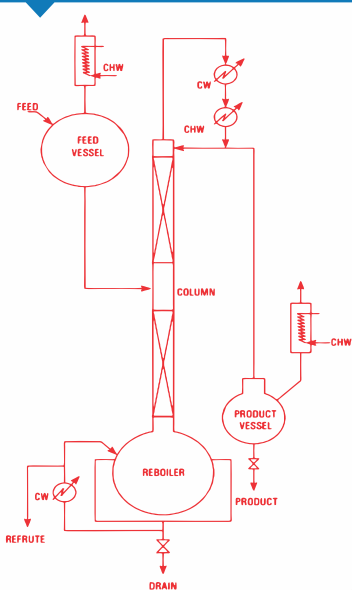
## Bench Scale Reaction Unit (with Hand Lift)



## Bench Scale Reaction Unit + Filter + Hand Lift



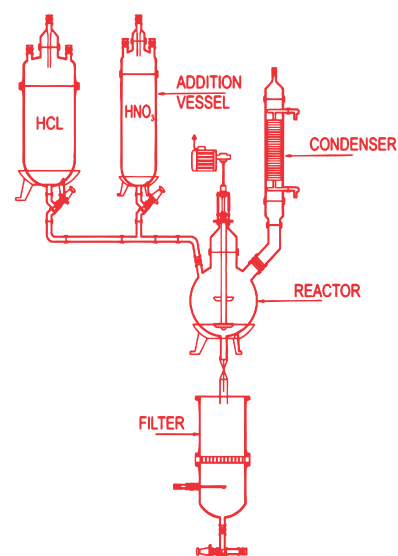
## Solvent Recovery



## Glass Nutsche Filter with Distillation Setup



## Precious Metal Refining



Glass Mixer Settler

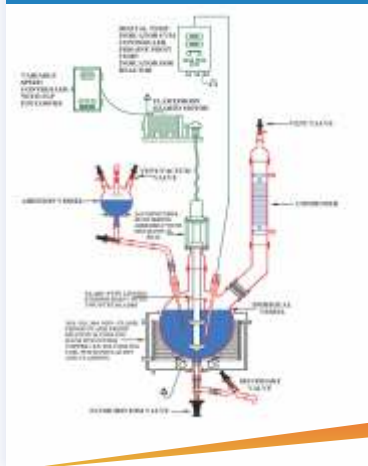


Heating Cooling System

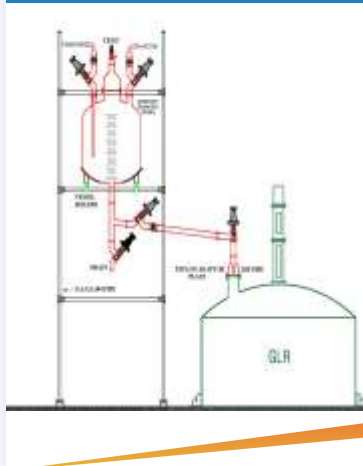


Innovation lies at the core of all Garg Sci-Tech's products. Besides manufacturing our Standard Glass Assemblies, we also have expertise in producing Borosilicate Glass Assemblies as per customer's requirement. For any Components/Assemblies which are not in scope of our Standard Production, we can fabricate the same as per required Sketch or Sample. These are exclusively tailor made as per client's process needs with valuable inputs from our highly efficient technical and production team.

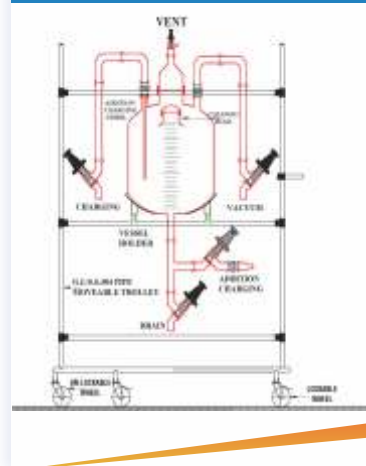
Reaction Unit with Reflux Arrangement with Spherical / Cylindrical Vessel



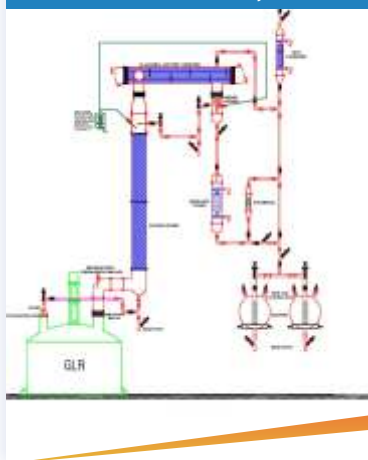
Cylindrical / Spherical Graduated Addition Vessel Assembly Mounted on GLR



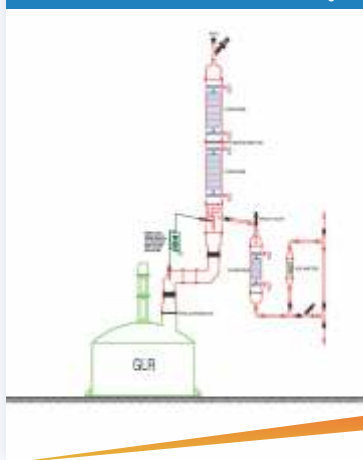
Cylindrical / Spherical Graduated Moveable Addition Vessel Assembly



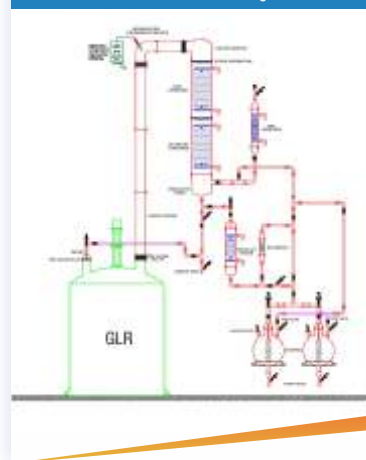
GLR Overhead Rectification Distillation Assembly



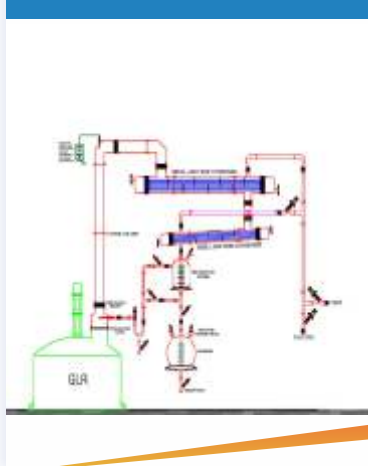
GLR Overhead Assembly Boiling Under Reflux & Distillation with Coil Heat Exchanger



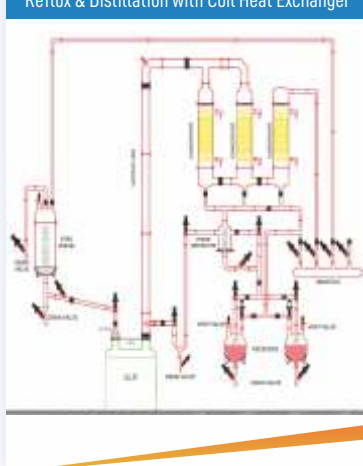
GLR Overhead Vacuum Distillation Assembly with Coil Heat Exchanger



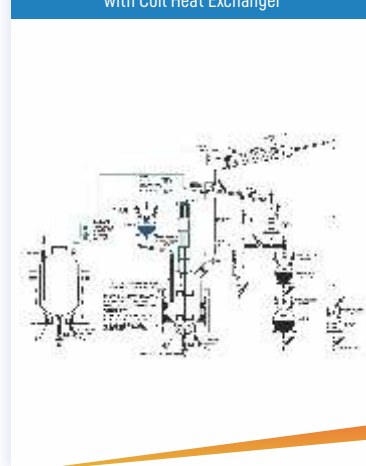
GLR Overhead Glass Multipurpose Assembly



GLR Overhead Assembly Boiling Under Reflux & Distillation with Coil Heat Exchanger



GLR Overhead Vacuum Distillation Assembly with Coil Heat Exchanger





## 1) Engineering & Design of Plants:

- We will guide your company to the successful completion of engineering design projects. Our experienced and professional employees can provide solutions adapted to your needs.
- A thorough study of drawing is carried out and Bill of material is verified before commencing the installation activity.
- Our Engineers can work alone or alongside your plant engineering staff. This can help in reducing time, cost & assist knowledge transfer.
- Critical inspections are carried out progressive stages to ensure compliance with client's requirements.

## 2) Installation & Inspection:

- Use of Superior quality raw material, good manufacturing practices & performance testing of individual components is done at our end to ensure minimum problems during commissioning at site of the customer. Our team of experienced personnel ensure hassle free installations of plants at site and deliver running trials to the satisfaction of the customer.
- Training to the technical staff at the customer's plant is imparted to ensure that smooth operations of the plants or systems can start with immediate effect.
- We have a well-versed and experienced team to carry out a large installation and commissioning works.
- We carry out installation and commissioning at Manufacturing Sectors, Chemical Plants, Pharmaceutical, Food & Beverage Industries, etc.
- We have an exclusive facility to provide and manufacture spares that are not standard or not easily available in the market.



## 3) Upgrades & Modernization:

- Technology and customer needs are changing rapidly. Equipment that was state-of-the-art twenty years ago will no longer be optimal. Our modernization services help you get the most out of technical progress by upgrading your existing plants and machines to improve both productivity and product quality.
- We will be providing consulting support and carry out modernization projects, including capacity calculations, plant simulations, new treatment processes and rinses, and automation system upgrades.



## 4) Assembly Testing of Pilot Plants:

- Garg Sci-Tech maintains a full-fledged Assembly Testing Facility for Standard Pressure/ Vacuum & Agitators. We offer a state-of-art setup for mechanical seal and testing and also provide lab scale and pilot scale system for product trails and scale up.



## 5) Onsite Maintenance & After Sales Service:

- Even after a project is completed, we provide a variety of after-sales services to ensure trouble-free, safe and efficient operation of the Process Plants and Kilo Labs Systems which we deliver. Our Team is always available to offer Technical Support and Services to our customers to ensure that their plant runs smoothly.

## 6) Custom Glass Blowing:

- We manufacture a wide range of glass blowing products including Interchangeable Glassware, Laboratory and Industrial Glassware. We specialize in the design and manufacture of custom glassware to customer specifications.





*Your Concept Our Creation*





*Tested & Trusted Partner For All Your Glass Assemblies*



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 भारत गणराज्य Government of India कर्माचार्य और उद्योग विभाग MINISTRY OF COMMERCE AND INDUSTRY O/o Additional Director General of Foreign Trade संपूर्ण आयात-रिपोर्टिंग विभाग Import-Reporting and (I&R) in Foreign Trade CERTIFICATE OF IMPORTER-EXPORTER CODE (IEC) (This is computer generated certificate. The authenticity of this document may be verified by clicking on "View Your IEC" link on the web site of DIPP i.e. <a href="http://dipr.gov.in">http://dipr.gov.in</a> )	
1. नाम/Owner Name	GARG SCI-TECH GLASS (INDIA) PRIVATE LIMITED
2. पता/Address	GALA NO. 6, UNIT NO. 4, SURVEY NO. 23 ED STATE, SAPPADA ROAD  VASAI EAST THANE MHARASHTRA-401208
3. उक्त पत्रक पर नाम, पदनाम/Name and Designation of the signatory applicant	ANIL KUMAR GARG DIRECTOR
4. शाखा/एनपी के पता को तै/Address of the Branch/Div./Unit if any	Branches Nil
5. आईईसी संख्या/IEC Number	0311061300
6. जारी करने की तारीख/Date of Issue	06.03.2012
7. आईईसी जारी सं. (पैन)/PAN	BAACGL370Q
स्थान /Place: VASAI EAST तारीख /Date : 15.09.2018	
System generated IEC certificate	

(Issued from file No. /03/04/131/33895/XM10/7 के जारी तारीख dated 15.09.2018)  
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 UNICHEM LABORATORIES LTD.	 UNITED PHOSPHORUS LIMITED	 USV Private Limited	 Watson	 WOCKHARDT



## GARG SCI – TECH GLASS (INDIA) PVT. LTD.

### Administrative Office & Work

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