



**Tensil Labglass**  
Shaping Solutions

**PROCESS SYSTEMS**





**Tensil Labglass**  

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**Shaping Solutions**



# Tensil Labglass

Shaping Solutions

## ABOUT THE COMPANY

Tensil Labglass - Precision in Every Piece, Excellence in Every Lab

With over 45 years of industry expertise, Tensil Labglass is a trusted name in high-quality scientific laboratory glassware. Renowned for our commitment to precision, durability, and international standards, our products are relied upon by leading research institutions, universities, and pharmaceutical laboratories across the globe.

From borosilicate beakers to complex process systems, we offer a comprehensive portfolio of high-performance glassware engineered to meet the evolving demands of modern science. Our state-of-the-art manufacturing facility is equipped with advanced precision machinery and powered by a skilled, passionate team, ensuring excellence in everything we craft.

We specialize in both standard and custom solutions, with the flexibility to cater to large-scale production and custom design laboratory requirements. Every product undergoes rigorous quality checks and is crafted with meticulous attention to detail, from ground glass joints to intricate assemblies.

At Tensil Labglass, we believe in more than just making glassware, we build trust, reliability, and lasting partnerships.

## OUR VISION

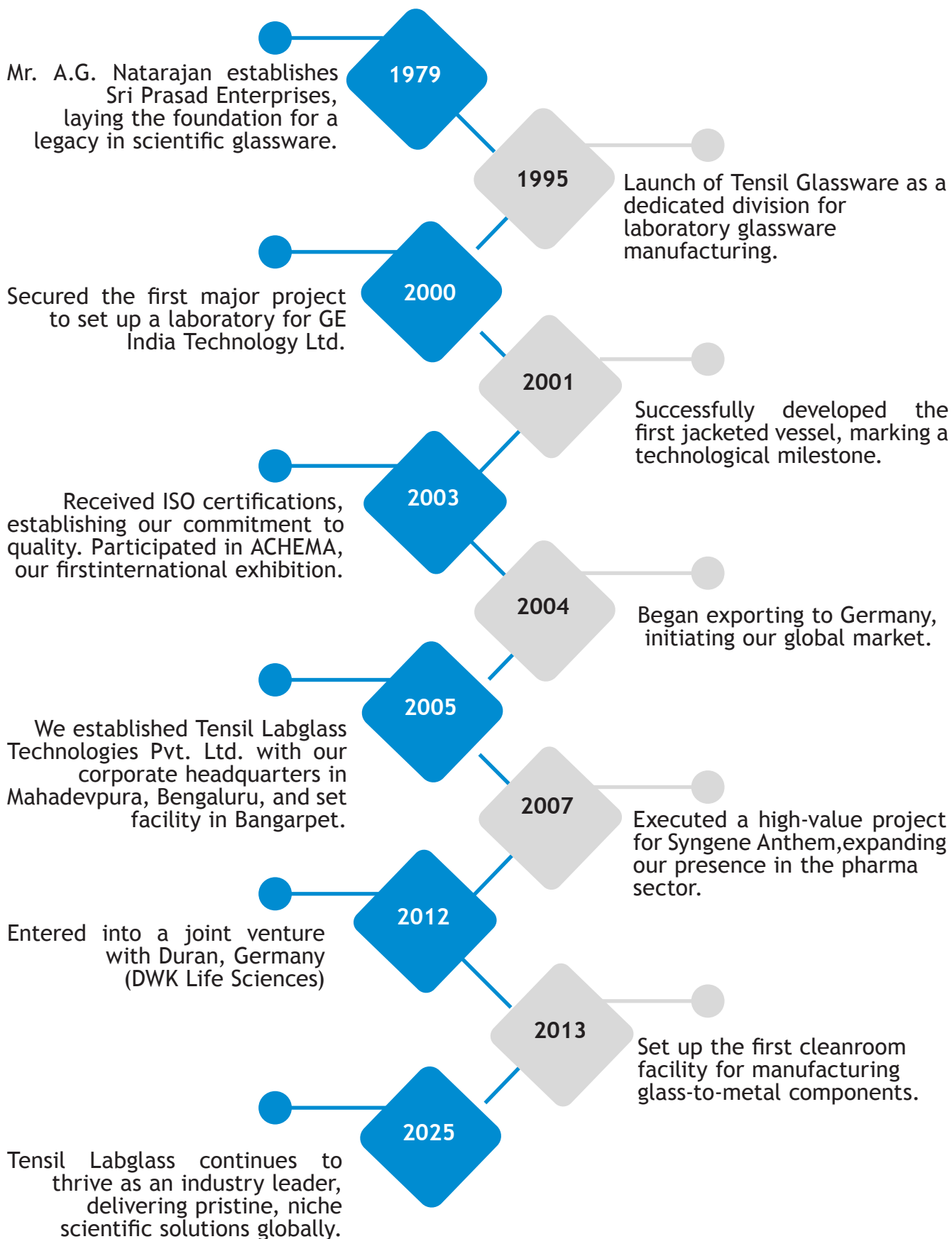
To be the global benchmark in scientific glassware, empowering laboratories and research institutions with uncompromising precision, innovation, and reliability.

## OUR MISSION

Our mission is to manufacture world-class laboratory glassware that adheres to the highest international standards of quality and performance. We are driven by a commitment to continuous innovation, advancing our designs, materials, and manufacturing processes to support the frontiers of scientific discovery. We strive to build long-term partnerships by delivering customized, durable, and dependable solutions tailored to every laboratory's needs. Through every stage, from concept to delivery and beyond, we uphold a culture rooted in craftsmanship, accountability, and unwavering customer satisfaction.

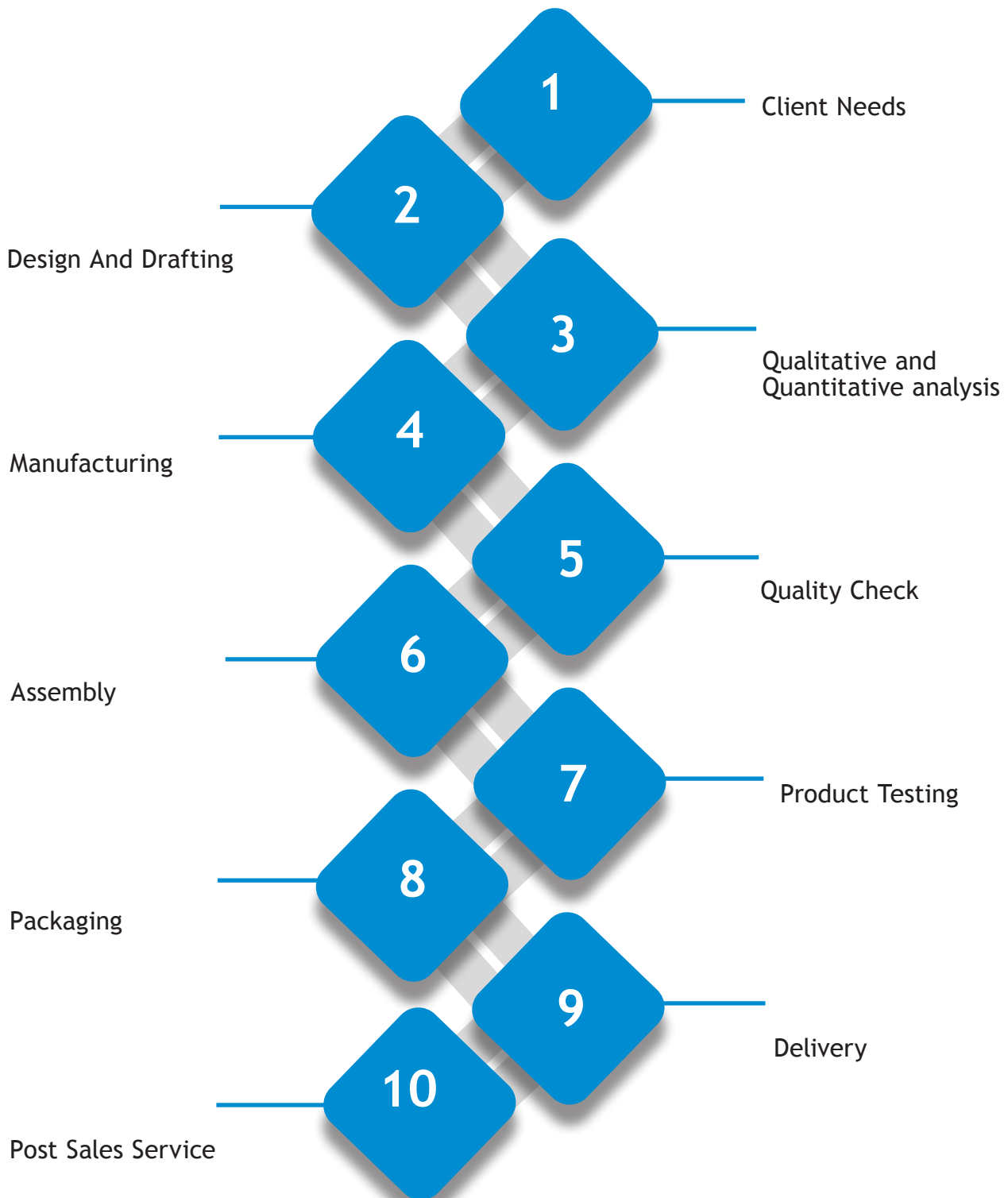


# OUR JOURNEY





# CONCEPT TO CUSTOMER WORKFLOW





# CERTIFICATE

This is to Certify that the Management System of

**TENSIL LABGLASS TECHNOLOGIES PVT LTD**

C-23, NGEF ANCILLARY, ENTRY TO INDUSTRIAL ESTATE, MAHADEVAPURA,  
BENGALURU, KARNATAKA 560048, INDIA.

Has been assessed and found to be in compliance with the  
requirements of the standard

## ISO 9001:2015

### Quality Management System

This certificate is valid for the following products or service range

MANUFACTURE & TRADING OF SCIENTIFIC LABORATORY  
& INDUSTRIAL GLASS, METAL & RUBBER.

The validity of certificate is subject to regular surveillance audit on or before below mentioned dates  
and it's only valid after successful surveillance with continuation letter issued by UCSPL

Initial Date of Certification : 17/07/2024

Current Date of Certification : 17/07/2024

Date of Expiry :  
16/07/2027

1st Surveillance Audit  
16 July 2025

Certification Number :  
UCSPL8024I011120

2nd Surveillance Audit  
16 July 2026



Authorised Signatory



KAB-QC-80

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**Tensil Labglass**

Specializing in the production of high quality glass and stainless steel laboratory equipment for the pharmaceutical, chemical and biotechnology industries.





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# 01 Reactors Series

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# BENCHTOP REACTORS

## About The Benchtop Reactors

Precision-engineered for lab-scale synthesis and processing, these benchtop jacketed glass reactors are constructed from high-quality borosilicate 3.3 low expansion glass, offering exceptional chemical and thermal resistance. Ideal for pharmaceutical, chemical, and research applications, they are available in single, double, or triple jacketed variants, providing enhanced thermal insulation, control, and visibility.

## Working Principle

- The inner vessel holds the reaction medium.
- The outer jacket allows for circulation of heating or cooling fluids (-80°C to +200°C).
- Optional vacuum jacket minimizes thermal losses and prevents frosting during cryogenic reactions.
- Overhead stirring system ensures uniform mixing; operates under vacuum (05 Mbar) for improved distillation and evaporation.
- Vapors condense in the reflux system and either return to the kettle or are discharged.

## Features

- Triple jacket option ensures visibility and thermal efficiency.
- PTFE mechanical seals offer excellent vacuum tightness and chemical resistance.
- Quick-release clamps for fast assembly/disassembly.
- Customizable stirrers: anchor, propeller, etc.
- High-speed variable stirring (typically 50-1100 rpm).
- Explosion-proof options available.
- Modular design enables interchangeable vessels
- Stainless steel/PTFE-coated stands for corrosion protection and easy maintenance.
- Integrated drain valves for safe and complete drainage.

## Uses

- Synthesis of APIs and intermediates
- Crystallization and phase separation
- Vacuum distillation, reflux, azeotropic separation
- Resin and polymer synthesis
- Electronic chemicals and cosmetic emulsions
- R&D processes



## Benchtop Reactors



Double Wall Reactor

Catalog No.	2W025060	2W050100	2W1L100	2W2L120	2W3L120	2W5L150
Volume(L)	0.25	0.5	1	2	3	5
Jacket Volume (L)	0.1	0.2	0.3	0.6	0.9	1.5
Stirring Speed (rpm)	50-100	50-100	50-100	50-100	50-100	50-100
Temp Range (°C)	-20 to +180	-20 to +180	-20 to +180	-20 to +180	-20 to +180	-20 to +180
Vacuum (Mbar)	5	5	5	5	5	5
Funnel Volume (L)	0.1	0.15	0.25	0.25	0.5	0.5
Cond. Area (m <sup>2</sup> )	0.05	0.05	0.05	0.1	0.1	0.2
Dimensions (cm)	35×48×135	35×48×135	35×48×135	35×48×135	40×50×150	40×50×150

**Note:** An overhead motor can be provided upon request and will be quoted separately. We also offer customized options for larger volumes, alternative flanges, valve bores, and connector types to suit your specific requirements.

## Benchtop Reactors



### Triple Wall Reactor

Catalog No.	3W025060	3W050100	3W1L100	3W2L120	3W3L120	3W5L150
Volume(L)	0.25	0.5	1	2	3	5
Jacket Volume (L)	0.1	0.2	0.3	0.6	0.9	1.5
Stirring Speed (rpm)	50-100	50-100	50-100	50-100	50-100	50-100
Temp Range (°C)	-80 to +200	-80 to +200	-80 to +200	-80 to +200	-80 to +200	-80 to +200
Vacuum (Mbar)	5	5	5	5	5	5
Funnel Volume (L)	0.1	0.15	0.25	0.25	0.5	0.5
Cond. Area (m <sup>2</sup> )	0.05	0.05	0.05	0.1	0.1	0.2
Dimensions (cm)	35×48×135	35×48×135	35×48×135	35×48×135	40×50×150	40×50×150

**Note: An overhead motor can be provided upon request and will be quoted separately. We also offer customized options for larger volumes, alternative flanges, valve bores, and connector types to suit your specific requirements.**



# STANDALONE REACTORS

## About The Standalone Reactors

Precision-engineered for lab-scale synthesis and processing, these benchtop jacketed glass reactors are constructed from high-quality borosilicate 3.3 low expansion glass, offering exceptional chemical and thermal resistance. Ideal for pharmaceutical, chemical, and research applications, they are available in single, double, or triple jacketed variants, providing enhanced thermal insulation, control, and visibility.

## Working Principle

- The inner vessel holds the reaction medium.
- The outer jacket allows for circulation of heating or cooling fluids (-80°C to +200°C).
- Optional vacuum jacket minimizes thermal losses and prevents frosting during cryogenic reactions.
- Overhead stirring system ensures uniform mixing; operates under vacuum (05 Mbar) for improved distillation and evaporation.
- Vapors condense in the reflux system and either return to the kettle or are discharged.

## Features

- Triple jacket option ensures visibility and thermal efficiency.
- PTFE mechanical seals offer excellent vacuum tightness and chemical resistance.
- Quick-release clamps for fast assembly/disassembly.
- Customizable stirrers: anchor, propeller, etc.
- High-speed variable stirring (typically 50-1100 rpm).
- Explosion-proof options available.
- Modular design enables interchangeable vessels
- Stainless steel/PTFE-coated stands for corrosion protection and easy maintenance.
- Integrated drain valves for safe and complete drainage.

## Uses

- Synthesis of APIs and intermediates
- Crystallization and phase separation
- Vacuum distillation, reflux, azeotropic separation
- Resin and polymer synthesis
- Electronic chemicals and cosmetic emulsions
- R&D processes





## Standalone Reactors

### Double Wall Specifications

Catalog No.	2W5L150	2W10L150	2W20L200	2W30L200	2W50L200
Volume(L)	5	10	20	30	50
Jacket Volume (L)	1.5	3	6	9	15
Stirring Speed (rpm)	50-100	50-100	50-100	50-100	50-100
Temp Range (°C)	-20 to +180	-20 to +180	-20 to +180	-20 to +180	-20 to +180
Vacuum (Mbar)	5	5	5	5	5
Funnel Volume (L)	0.5	1.0	1.0	2.0	2.0
Cond. Area (m <sup>2</sup> )	0.2	0.3	0.4	0.5	0.6
Dimensions (cm)	40×50×150	55×65×170	60×70×180	65×80×190	75×90×200

### Triple Wall Specifications

Catalog No.	3W5L120	3W10L120	3W20L120	3W30L120	3W50L120
Volume(L)	5	10	20	30	50
Jacket Volume (L)	1.5	3	6	9	15
Stirring Speed (rpm)	50-100	50-100	50-100	50-100	50-100
Temp Range (°C)	-80 to +200	-80 to +200	-80 to +200	-80 to +200	-80 to +200
Vacuum (Mbar)	5	5	5	5	5
Funnel Volume (L)	0.5	1.0	1.0	2.0	2.0
Cond. Area (m <sup>2</sup> )	0.2	0.3	0.4	0.5	0.6
Dimensions (cm)	40×50×150	55×65×170	60×70×180	65×80×190	75×90×200

**Note:** An overhead motor can be provided upon request and will be quoted separately. We also offer customized options for larger volumes, alternative flanges, valve bores, and connector types to suit your specific requirements.



# PILOT SCALE REACTORS

## About The Pilot Scale Reactors

Engineered for pilot-scale synthesis, scale-up, and process development, these versatile reactors support vessel interchangeability ranging from 5L to 100L, making them ideal for multi-stage operations. Available in single, double, or vacuum jacketed configurations, they closely mimic plant-scale reactors with a 1.25:1 height-to-diameter ratio (process reactors). Constructed from high-grade borosilicate 3.3 low expansion glass, they ensure excellent thermal and chemical durability for demanding laboratory and industrial applications.

## Working Principle

- Inner vessel performs the reaction; outer jacket circulates thermal fluid (-80°C to +300°C).
- Optional vacuum jacket provides insulation and clear process visibility.
- Overhead mechanical stirring ensures uniform mixing.
- System supports vacuum operations (5 Mbar) for improved distillation and evaporation.
- Condenser + reflux head enables solvent recovery or return.

## Features

- Quick-release clamps and modular frame enable fast vessel swaps.
- Self-lubricating PTFE mechanical seals ensure tight vacuum performance.
- Explosion-proof options, digital displays, and safety-certified components.
- Multiple ports (stirring, feeding, temp, condenser, etc.) on DN200 or DN265/340 lids.
- Integrated zero dead space drain valves prevent clogging and ensure complete discharge.
- Optional lifting, tilting, or rotating frames for easy operation & cleaning.

## Uses

- Process optimization & scale-up
- Synthesis of APIs, intermediates, polymers
- Crystallization, azeotropic distillation, solvent extraction
- Thermal reaction profiling & pressure studies
- Pilot plants and kilo-labs

## Pilot Scale Reactors



### Double Wall Specifications

Catalog No.	PSR2W10L	PSR2W20L	PSR2W30L	PSR2W50L
Volume(L)	10	20	30	50
Jacket Volume (L)	5	9	11	16
Stirring Speed (rpm)	120	120	180	250
Temp Range (°C)	-20 to +180	-20 to +180	-20 to +180	-20 to +180
Funnel Volume (L)	1.0	2.0	2.0	2.0
Cond. Area (m <sup>2</sup> )	0.2	0.25	0.3	0.4
Dimensions (cm)	60×60×180	70×70×195	75×75×210	80×80×225

**Note: An overhead motor can be provided upon request and will be quoted separately. We also offer customized options for larger volumes, alternative flanges, valve bores, and connector types to suit your specific requirements.**



## Pilot Scale Reactors





## Pilot Scale Reactors

### Triple Wall Specifications

Catalog No.	PSR3W10L	PSR3W20L	PSR3W30L	PSR3W50L
Volume(L)	10	20	30	50
Jacket Volume (L)	5	9	11	16
Stirring Speed (rpm)	120	120	180	250
Temp Range (°C)	-80 to +200	-80 to +200	-80 to +200	-80 to +200
Funnel Volume (L)	1.0	2.0	2.0	2.0
Cond. Area (m <sup>2</sup> )	0.2	0.25	0.3	0.4
Dimensions (cm)	60×60×180	70×70×195	75×75×210	80×80×225

**Note:** An overhead motor can be provided upon request and will be quoted separately. We also offer customized options for larger volumes, alternative flanges, valve bores, and connector types to suit your specific requirements.



# COMBO REACTORS

## About The Combo Reactors

The Ready-to-use Lab Reactor is a highly versatile, modular glass reactor system designed for chemical synthesis, process development, and scale-up work. Built to accept multiple vessel sizes in a single universal system, it offers flexible configuration, rapid vessel changeover, and seamless integration with lab automation tools. Ideal for batch reactions, crystallization, reflux, distillation, and more.

## Working Principle

- The system allows precise control of temperature, mixing, and process parameters using a double-jacketed vessel.
- Reactants are stirred using interchangeable PTFE paddles.
- Jacketed vessels connect to a circulator/thermoregulator for heating/cooling.
- Reaction progress can be monitored via glassware ports and connected sensors.
- Quick-release clamps, stirrer couplings, and hose fittings ensure efficient and safe operation.

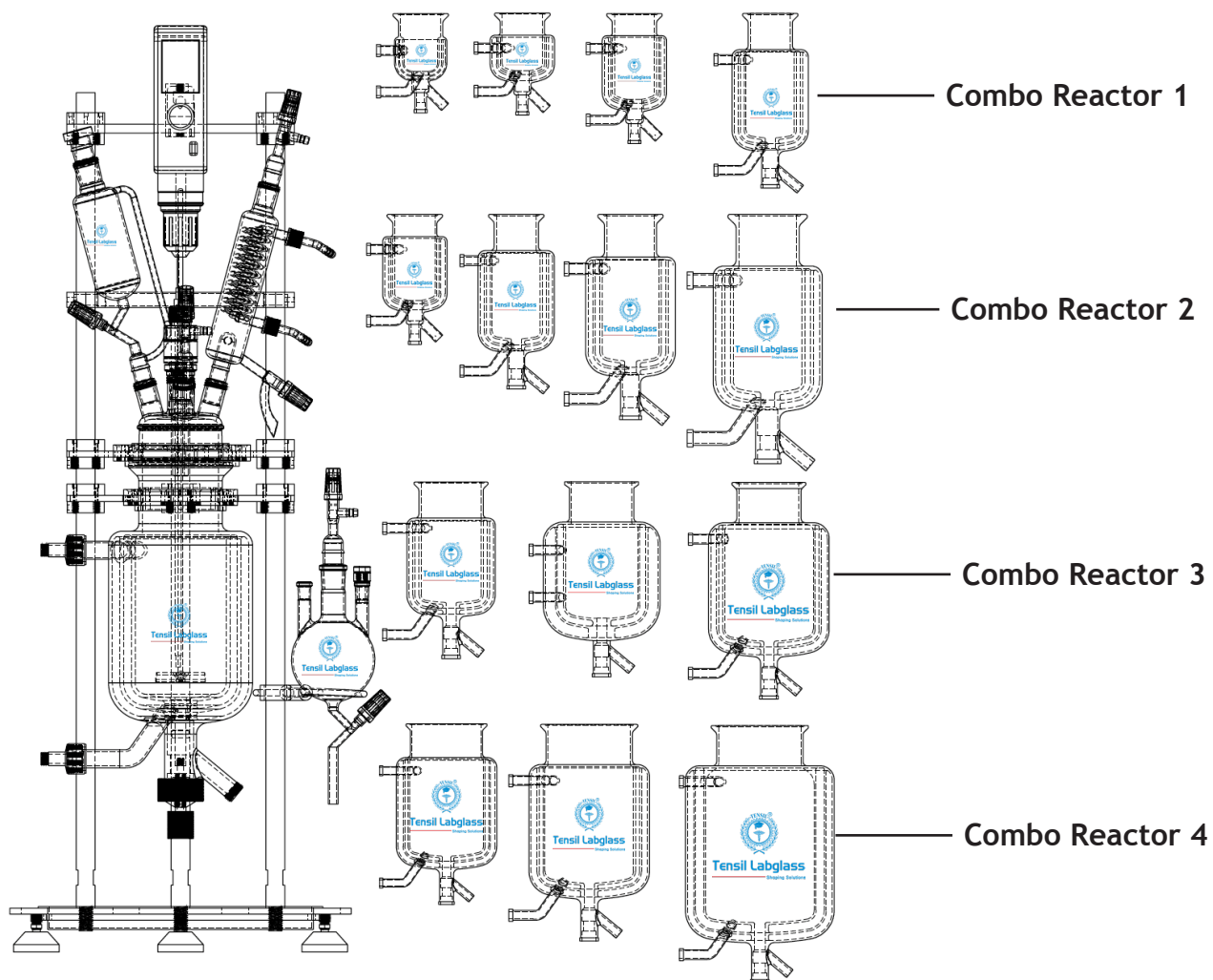
## Features

- **Universal Vessel Compatibility:** Accepts 100 mL to 5 L single or vacuum-jacketed glass vessels.
- **Quick-Change Clamp:** Self-centering & tool-free vessel swaps in minutes.
- **Patented Stirrer Coupling:** Drop-in, no-tool stirrer connection.
- **Simple Stirrer Alignment:** Slide-and-lock system ensures accurate stirrer setup.
- **PEEK Hose Couplings:** Fast-connect, chemical resistant.
- **Modular Design:** Used for dual parallel or series reactions.
- **Optional Software:** Automate logging/control of stirrers, circulators, pumps, sensors.
- **Compatibility:** Works with all leading overhead stirrers, circulators, and accessories.

## Uses

- Organic & Inorganic Synthesis
- Process Development
- Reaction Kinetics Studies
- Crystallization & Recrystallization
- Reflux, Distillation, & Phase Separation
- Small-Scale Pilot Plant Simulation
- Parallel Screening (via Duo setup)

## Combo Reactors



## Specifications

Catalog No.	COMBO1	COMBO2	COMBO3	COMBO4
Volume(L)	0.25, 0.50,1,2	1,2,3,5	3,5,10	5,10,20
Flange size	100DN	120DN	150DN	200DN
Stirring Speed (rpm)	50-100	50-100	50-100	50-100
Temp Range (°C)	-80 to +200	-80 to +200	-80 to +200	-80 to +200
Vacuum (Mbar)	5	5	5	5
Funnel Volume (L)	0.1	0.25	0.50	1.0
Cond. Area (m <sup>2</sup> )	0.05	0.05	0.1	0.1



# GLASS MIXER SETTLER

## About The Glass Mixer Settler

The glass mixer-settler is a robust liquid-liquid extraction system designed for reliable separation of immiscible phases. Precision-engineered using high-quality borosilicate glass 3.3 and PTFE, with optional stainless steel or Hastelloy components, it ensures exceptional chemical resistance, visibility, and durability. Available in single, double, or jacketed designs, these systems are widely applied in chemical, petrochemical, and pharmaceutical processes where efficient and scalable solvent extraction is required.

## Working Principle

- Two immiscible liquid phases are introduced into the mixer and thoroughly agitated to form fine droplets, maximizing interfacial surface for mass transfer.
- The mixture flows into the settler, where phases separate under gravity based on density difference.
- Adjustable overflow weirs control the heavy phase interface height, ensuring precise separation.
- Multiple units can be connected in series or counter-current mode for multistage extractions

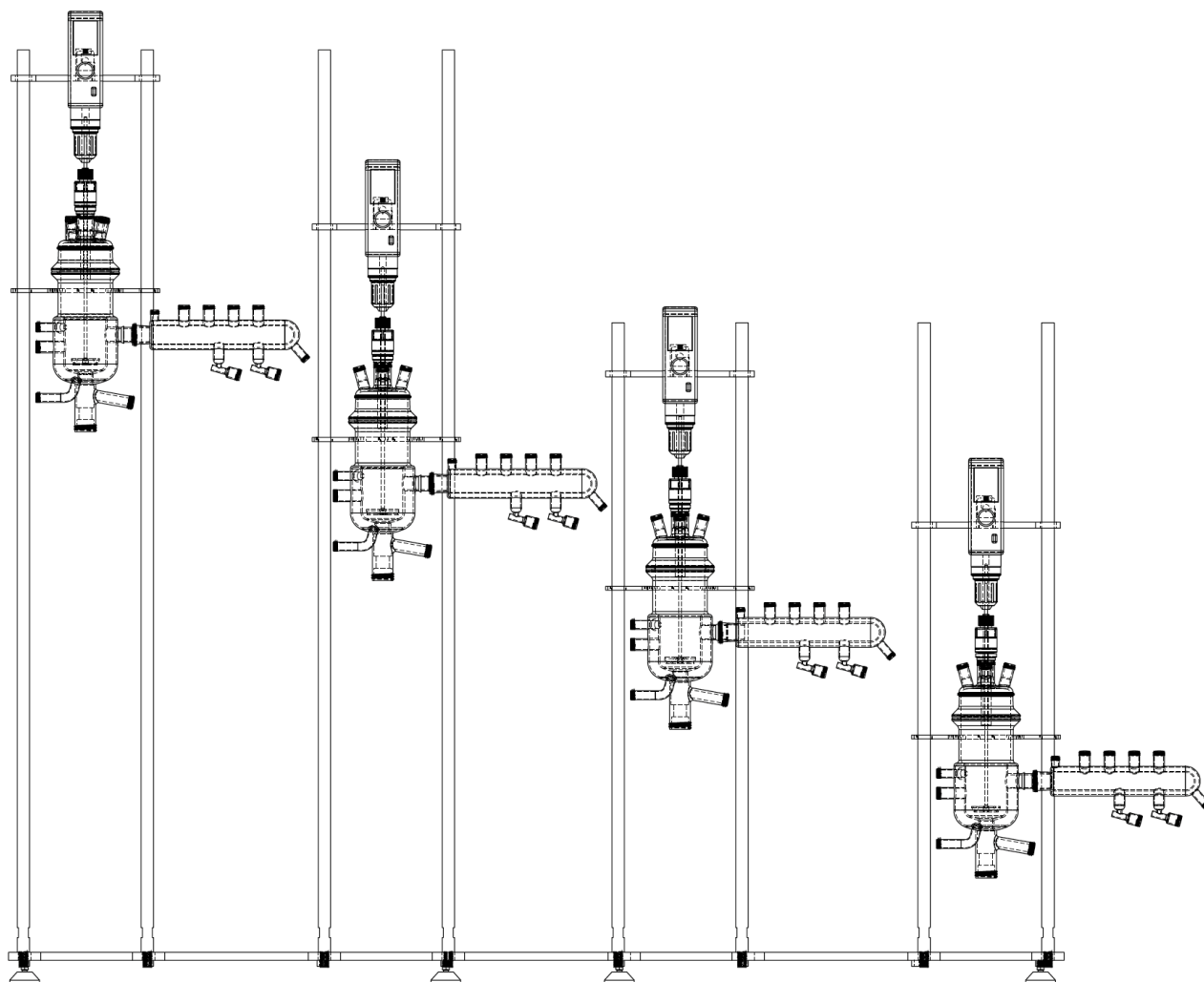
## Features

- Volume range: Mixer 100-5,000 ml; Settler 200-10,000 ml.
- Wide temperature range:  $-20\text{ }^{\circ}\text{C}$  to  $+200\text{ }^{\circ}\text{C}$  (typical  $+20\text{ }^{\circ}\text{C}$  to  $+80\text{ }^{\circ}\text{C}$ ).
- Material options: Borosilicate glass 3.3, PTFE, SS316L, Hastelloy.
- Jacketed design available for heating or cooling.
- Coating options for breakage protection and antistatic performance.
- Adjustable overflow height for optimized phase separation.
- Tolerant to suspended solids, ensuring uninterrupted operation.
- Compact, modular geometry allows easy scale-up and integration.

## Uses

- Solvent extraction in chemical and petrochemical industries.
- Purification and separation of pharmaceutical compounds.
- Hydrometallurgy (e.g., copper, uranium, rare earth element extraction).
- Phase transfer operations requiring controlled residence times.
- R&D processes involving liquid-liquid separation.

# Glass Mixer Settler





# FILTER REACTORS

## About The Filter Reactors

The Filter Reactor is a versatile, closed-system solution engineered for solid-liquid separation, efficient vacuum or pressure filtration, and post-filtration washing and drying—all within a single unit. Designed for safety and process efficiency, it is ideal for handling toxic, flammable, or sensitive materials in the chemical, pharmaceutical, and fine chemical industries.

We also offer ANFT (Additional Nutsch Filter Technology) to further enhance performance, scalability, and operational flexibility.

## Working Principle

- Feeding: The slurry is introduced into the reactor vessel.
- Filtration: A filter plate at the base retains solids while the liquid phase is drained under vacuum or pressure.
- Washing (Optional): Solvent or wash liquid is added to further purify the solids.
- Drying (Optional): Vacuum or heat is applied to remove moisture from the filtered solids.
- Discharge: The dry cake is discharged manually or via bottom outlet.

## Features

- Fully enclosed structure for toxic/corrosive material handling
- Multi-step processing (Filtration + Washing + Drying) in one system
- Precise vacuum & pressure control
- Easy cleaning (CIP/SIP support available)
- Available in glass, stainless steel, and customized materials
- Mechanical or magnetic stirring for uniform slurry
- Ideal for batch processes, especially in GMP environments

## Uses

- Crystallization and filtration of fine chemicals and APIs
- High-purity pharmaceutical intermediates
- Catalyst recovery
- Nanoparticle and pigment separation
- Pilot-scale development & toxic compound processing

# Filter Reactors





## Filter Reactors



### Filter Reactor Specifications

Catalog No.	RFR05L	RFR10L	RFR20L	RFR30L
Filter Area m <sup>2</sup>	0.05	0.10	0.20	0.30
Volume (L)	5	10	20	30
Cylinder Diameter (mm)	200	300	400	500
Filtration Accuracy (µm)	0.5-200	0.5-200	0.5-200	0.5-200
Discharge Outlet (mm)	DN25	DN25	DN40	DN50

## Filter Reactors



### Nutsche filter reactor category specifications

Catalog No.	AN-FT005L	ANFT01L	ANFT02L	AN-FT05L	AN-FT10L	AN-FT20L	AN-FT30L
Working Volume (L)	0.5	1	2	5	10	20	30
Vessel Diameter (mm)	100	150	200	200	300	400	500
Filter Area (m <sup>2</sup> )	0.008	0.018	0.031	0.05	0.10	0.20	0.30
Heating Area (m <sup>2</sup> )	0.2 - 1.0	0.5 - 2.0	1.0-5.0	0.28	0.42	0.60	0.85
Working Pressure (MPa)	-0.1 ~ 0.25	-0.1 ~ 0.25	-0.1 ~ 0.25	-0.1 ~ 0.3	-0.1 ~ 0.3	-0.1 ~ 0.3	-0.1 ~ 0.3
Stirring Speed (rpm)	0 ~ 400	0 ~ 400	0 ~ 400	0 ~ 400	0 ~ 400	0 ~ 400	0 ~ 400



# FRACTIONAL DISTILLATION UNIT

## About The Fractional Distillation unit

Fractional distillation columns are high-efficiency separation systems used for purifying chemical mixtures based on differences in boiling points. These systems are widely used in research labs, pilot plants, and production facilities for fine chemicals, solvents, and essential oils. They integrate boiling, vaporization, condensation, and fractional condensation stages in a single setup with precise thermal control, making them ideal for complex separation tasks.

## Working Principle

- The mixture is heated in a boiling flask or reactor.
- Vapors rise through the fractionating column packed with structured packing or trays.
- Fractional condensation occurs as vapors ascend—components with higher boiling points condense and fall back, while lower boiling fractions continue rising.
- Condensed distillate is collected via condenser and receiver flasks.
- Multiple condensers, reflux dividers, and vacuum systems enhance separation efficiency.

## Features

- High Purity Separation of multi-component systems
- Packing Options: Glass beads, structured packing, sieve trays
- Temperature & Vacuum Control: Compatible with chillers, heaters, and vacuum pumps
- Modular Design: Easy assembly and cleaning
- Material Options: Borosilicate 3.3 glass or stainless steel SS316L
- Observation Advantage: Transparent glass enables visual monitoring
- Safety Features: Ground joints, PTFE valves, and sealed systems for hazardous material handling

## Uses

- Separation and purification of organic solvents
- Recovery of high-value chemicals or by-products
- Fine chemical and pharmaceutical process optimization
- Essential oil and plant extract refinement
- Research, academic, and industrial distillation tasks



# Fractional Distillation Unit





# STAINLESS STEEL REACTORS

## About The Stainless Steel Reactors

Stainless steel reactors are versatile vessels designed for chemical reactions involving heating, cooling, mixing, gas absorption, and high-efficiency stirring. These systems are widely used from lab-scale to industrial-scale applications across chemical, pharmaceutical, petroleum, and related sectors.

## Working Principle

- Reactor Vessel System: Comprises an inner container with external jacket for heating/cooling.
- Stirring System: Mechanically sealed with inverter-controlled motors for uniform agitation.
- Temperature & Pressure Control: Operates under vacuum or pressure, with jacketed heat exchange.
- Condensation/Distillation Support: Optional condensers and vacuum systems for complete processing.

## Features

- Mechanical Sealing ensures leak-free stirring.
- Rapid Heating & High Temp Resistance (up to 300°C).
- Vacuum Compatibility (up to 5 Mbar).
- Reflux Condensers available for efficient cooling.
- Custom Feed Ports for continuous material addition.
- Low Temp & High Temp Pumps integration.
- Corrosion Resistance via S30408 / SS304 construction.
- Anti-Grinding Sealing Design reduces particle contamination.

## Uses

- Hydrolysis, neutralization, polymerization
- Crystallization, distillation, evaporation
- Pilot and industrial-scale chemical synthesis
- Suitable for viscous, particulate, or high-purity processes



## Stainless Steel Reactors

Catalog No.	SSJR005L	SSJR010L	SSJR020L	SSJR030L	SSJR050L
Volume(L)	5	10	20	30	50
Material (Wetted Parts)	SS316L	SS316L	SS316L	SS316L	SS316L
Sealing Type	Mechanical seal	Mechanical seal	Mechanical seal	Mechanical seal	Mechanical seal
Stirring Speed (rpm)	80 - 460	80 - 460	80 - 460	80 - 460	80 - 460
Reactor Pressure (MPa)	-0.1 ~ 0.6	-0.1 ~ 0.6	-0.1 ~ 0.6	-0.1 ~ 0.6	-0.1 ~ 0.6
Temperature Range (°C)	-20 ~ +200	-20 ~ +200	-20 ~ +200	-20 ~ +200	-20 ~ +200
Temperature Precision (°C)	±1	±1	±1	±1	±1
Reflux Condenser Area (m <sup>2</sup> )	0.2	0.2	0.3	0.3	0.5
Reflux Condenser Material	SS304	SS304	SS304	SS304	SS304
Frame Material	SS304	SS304	SS304	SS304	SS304
Power Supply	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz
Dimensions (mm)	550×750×1600	550×750×1600	620×760×1600	650×800×1700	850×920×1900

Catalog No.	SSJR005L	SSJR010L	SSJR020L	SSJR030L	SSJR050L
Volume(L)	5	10	20	30	50
Reactor Lead Openings	One Temperature measure port, installed thermometer, TC50.5*DN20				
	One Powder Addition Port DN50			One Powder Addition Port DN80	
	One Liquid feeding port, TC50.5*DN20, with one ball valve One sight Glass, DN50 One Gas inlet port, TC50.5*DN20, with one ball valve				
Filter Plate Material	SUS316L				
Filter Plate pore Size	10um				
Discharge Port	TC50.5*DN38				



## 02 Gas Scrubbers

Protect your laboratory environment with our Gas Scrubber, engineered to safely remove harmful or undesirable gases from process streams. Utilizing packed bed or spray tower designs, these systems ensure effective neutralization or absorption of corrosive or toxic vapors. Constructed from chemically resistant materials, they deliver robust performance and compliance with safety standards in research and industrial settings.



# GAS SCURBBERS

## About The Gas Scrubber

The Gas Treatment Plant is a laboratory-scale absorption system designed for gas-liquid reactions and tail gas treatment across a wide range of chemical and industrial research applications. Built with modular components, it handles various gases through efficient absorption mechanisms and is available in multiple sizes to suit everything from benchtop experiments to pilot-scale setups.

## Working Principle

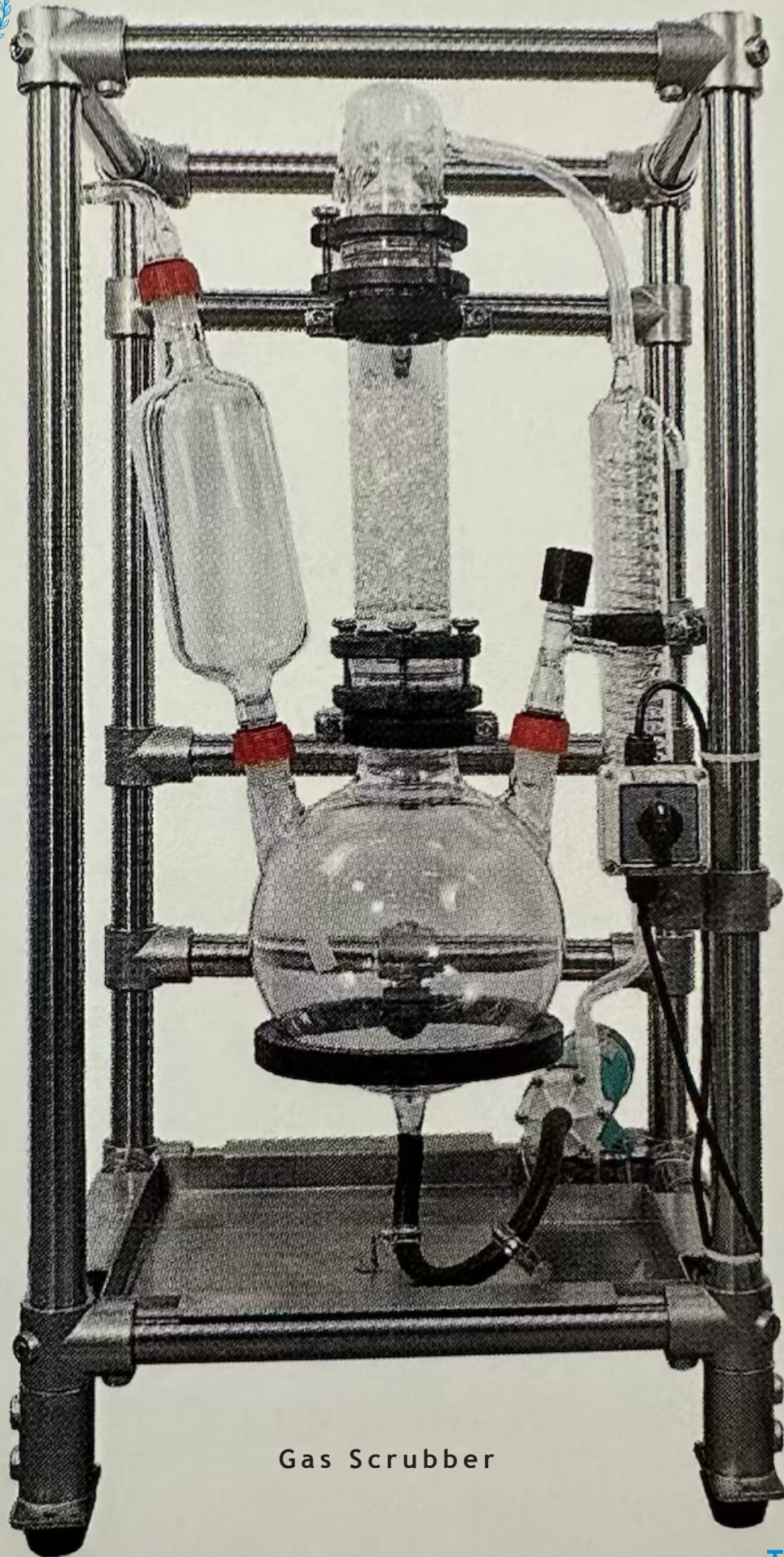
- The system works on gas-liquid absorption using a main tank filled with packing material (glass tubes).
- As exhaust or reactive gases are introduced, they are passed through packing columns and absorption towers, maximizing surface area for gas-liquid contact.
- A circulation pump moves liquid continuously through the system.
- A cooling device and spray cap enhance absorption efficiency.
- Tail gases are neutralized or absorbed before discharge, reducing lab emissions.

## Features

- Available in 3L-100L capacities for various experimental scales.
- Modular design allows for integration with fume hoods, lab tables, or standalone setups.
- Explosion-proof option (QYWQ-30) for hazardous gas handling.
- Constructed with 304 stainless steel for corrosion resistance.
- PTFE flange gaskets ensure leak-proof operation.
- Glass tube packing enhances absorption surface area.
- CE certified for quality and safety compliance.
- Power input customizable for regional voltage standards.

## Uses

- Tail gas scrubbing from chemical syntheses
- Laboratory fume treatment and neutralization
- Industrial gas absorption R&D
- Pilot-scale gas emission testing
- Acid/base gas capture in lab environments



Gas Scrubber



## Gas Scrubber

Catalog No.	GASS5L	GASS10L	GASS20L	GASS30L	GASS50L
Capacity of the Drexel bottle	5L	10L	20L	30L	50L
Quick release flange	304 stainless steel	304 stainless steel	304 stainless steel	304 stainless steel	304 stainless steel
Packing method	Glass tube packing	Glass tube packing	Glass tube packing	Glass tube packing	Glass tube packing
Flange gasket	PTFE	PTFE	PTFE	PTFE	PTFE
Condenser	Standard configuration	Standard configuration	Standard configuration	Standard configuration	Standard configuration
Power supply	220V 50/60Hz (Voltage can be customized according to customer requirements)	220V 50/60Hz (Voltage can be customized according to customer requirements)	220V 50/60Hz (Voltage can be customized according to customer requirements)	220V 50/60Hz (Voltage can be customized according to customer requirements)	220V 50/60Hz (Voltage can be customized according to customer requirements)
Certification standard	CE certification	CE certification	CE certification	CE certification	CE certification



# 03 Thin Film Evaporator series

Wiping film Evaporator

30

Short Path Distillation Unit

33



# WIPING FILM EVAPORATOR

## About The Wiping Film Evaporator

The Thin Film Evaporator is a highly efficient device used for the continuous separation of thermally sensitive or high-boiling materials under vacuum. It achieves rapid evaporation by forming a thin, turbulent film along the inner wall of a vertical heat-exchange cylinder, maximizing heat and mass transfer efficiency.

## Working Principle

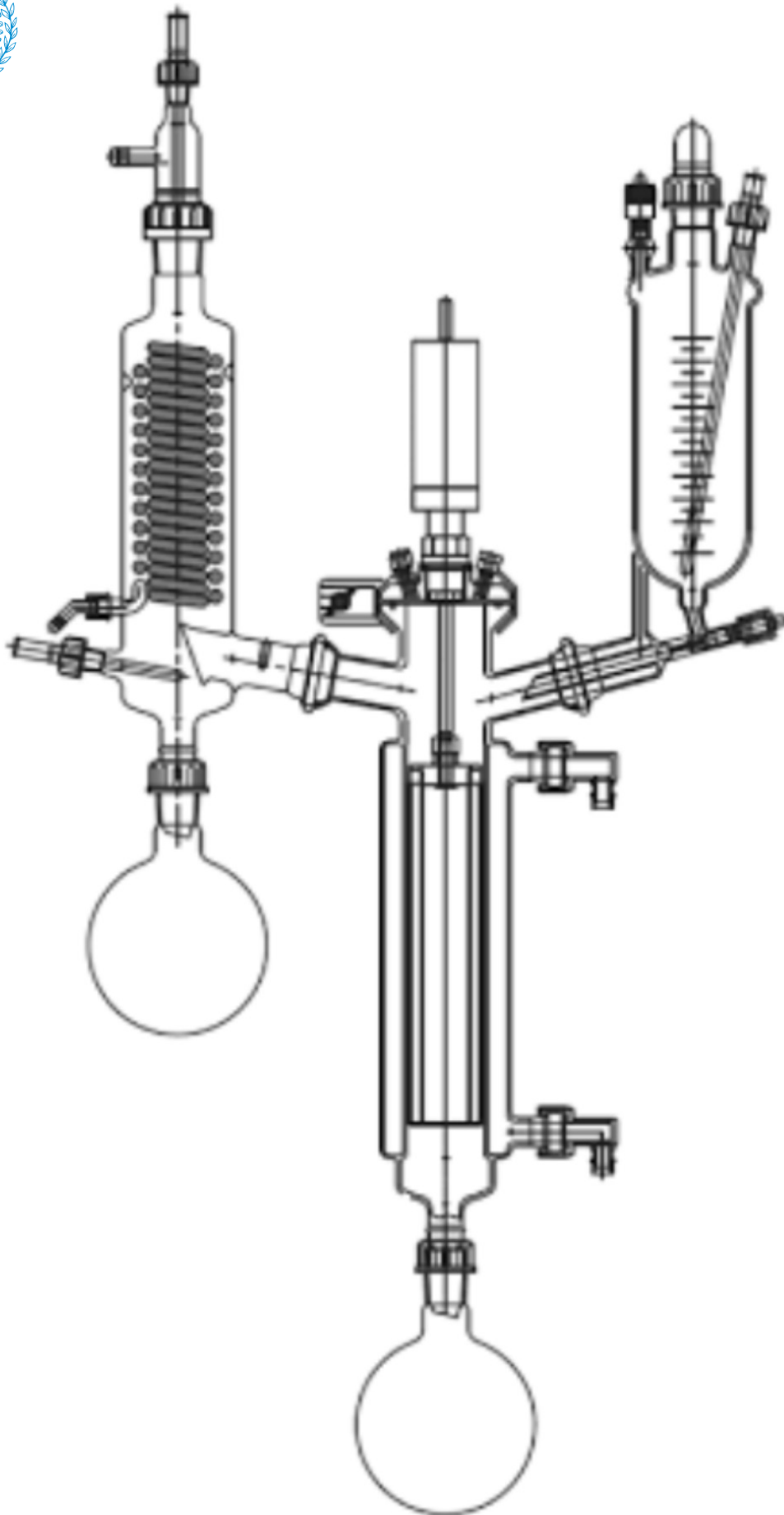
- Feed Material Entry: Liquid is fed into the top of the evaporator.
- Film Formation: A wiper or roller system spreads the feed into a thin film on the inner wall of the heated cylindrical body.
- Rapid Evaporation: Heat energy causes volatile components to evaporate instantly while minimizing thermal decomposition.
- Separation: Vaporized material is condensed and collected separately; residue flows downward to a different outlet.
- High Vacuum Conditions: Maintains low boiling points, improving separation and protecting sensitive compounds.

## Features

- Continuous Operation with fast mass transfer and short residence time.
- Wiper Design: Mechanically driven blades for uniform film thickness.
- Vacuum Distillation for temperature-sensitive or high-viscosity materials.
- Corrosion-resistant glass/stainless steel build for chemical compatibility.
- Modular Setup: Easy cleaning, customization, and maintenance.
- Condensation Systems: Efficient vapor recovery and separation.
- Ideal for high-purity distillation, solvent recovery, and molecular separation.

## Uses

- Pharmaceutical intermediate purification
- Solvent recovery and resin stripping
- Heat-sensitive natural products like plant extracts and vitamins
- Petrochemical and fine chemical industries
- Molecular distillation & essential oil extraction



Wiping Film Evaporator



## Wiping Film Evaporator

### Specifications

Catalog No.	WFE60.01	WFE100.03	WFE120.05	WFE150.08	WFE200.12
Evaporator Diameter (mm)	60	100	120	150	200
Evaporating Area (m <sup>2</sup> )	0.1	0.3	0.5	0.8	1.2
Condenser Area (m <sup>2</sup> )	0.1	0.3	0.5	0.8	1.2
Feeding Rate (kg/h)	0.5-2	2-10	5-20	10-50	20-100
Evaporation Rate (kg/h)	0.3-1	1-6	2-12	5-30	10-60
Operating Pressure (mbar)	0.1-50	0.1-50	0.1-50	0.1-50	0.1-50
Temperature Range (°C)	RT-200	RT-200	RT-200	RT-200	RT-200
Material Contact	Borosilicate glass 3.3 / PTFE / SS316L	Borosilicate glass 3.3 / PTFE / SS316L	Borosilicate glass 3.3 / PTFE / SS316L	Borosilicate glass 3.3 / PTFE / SS316L	Borosilicate glass 3.3 / PTFE / SS316L
Wiper Type	PTFE blades or roller wipers	PTFE blades or roller wipers	PTFE blades or roller wipers	PTFE blades or roller wipers	PTFE blades or roller wipers
Motor Drive	Magnetic or mechanical seal available	Magnetic or mechanical seal available	Magnetic or mechanical seal available	Magnetic or mechanical seal available	Magnetic or mechanical seal available
Control System	Digital display with temperature, vacuum, and rotation control	Digital display with temperature, vacuum, and rotation control	Digital display with temperature, vacuum, and rotation control	Digital display with temperature, vacuum, and rotation control	Digital display with temperature, vacuum, and rotation control
Distillation Method	Short-path / Molecular distillation optional	Short-path / Molecular distillation optional	Short-path / Molecular distillation optional	Short-path / Molecular distillation optional	Short-path / Molecular distillation optional
Frame Material	Stainless steel with casters	Stainless steel with casters	Stainless steel with casters	Stainless steel with casters	Stainless steel with casters



# SHORT PATH DISTILLATION UNIT

## About The Short Path Distillation Unit

Molecular distillation is a high-precision separation process designed to operate under ultra-high vacuum. It enables separation of thermally sensitive and high-boiling compounds at significantly lower temperatures than conventional distillation. The system is mainly composed of an evaporator body, internal condenser, feeding and receiving systems, heating units, vacuum pump set, and control interface.

## Working Principle

- A thin film of feed material is continuously distributed on the inner wall of a heated cylindrical evaporator.
- Under high vacuum (up to 0.001 mbar), volatile compounds evaporate and are immediately condensed on an internal condenser.
- The short residence time and low operating temperature protect product quality and prevent degradation.

## Features

- Ultra-short residence time & low thermal stress
- Operates under high vacuum (up to  $1 \times 10^{-3}$  mbar)
- High distillation efficiency with excellent product purity
- Modular design for easy maintenance and scaling
- Corrosion-resistant borosilicate glass or stainless steel options
- Multiple condenser configurations (internal, external)
- Continuous feeding and collection for pilot and industrial scale

## Uses

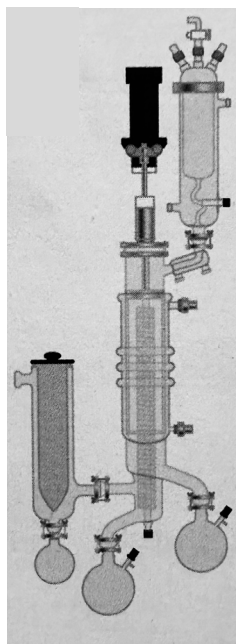
- Purification of plant extracts, vitamins, and essential oils
- Separation of cannabinoids, esters, and other bioactives
- Fine chemical, pharmaceutical, and food industries
- Heat-sensitive compound refinement

# Short Path Distillation Unit

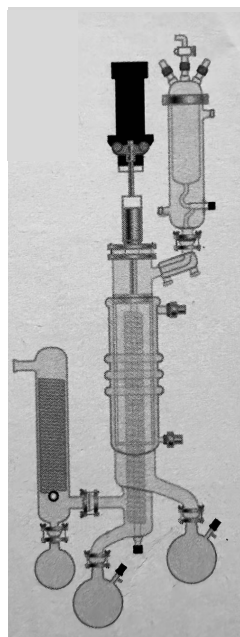




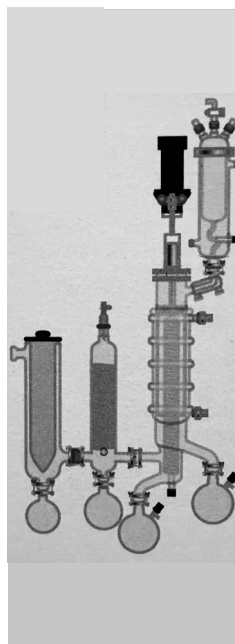
## Short Path Distillation Unit



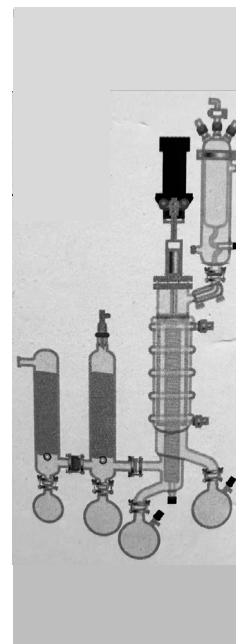
Type A



Type B



Type C



Type D

### Specifications

Catalog No.	SPD060	SPD100	SPD120	SPD150	SPD200
Feeding rate(L/h)	0.05-2	0.05-3	0.1-5	0.2-10	0.5-15
Effective evaporation area(m <sup>2</sup> )	0.06	0.1	0.15	0.25	0.35
Feeding flask volume(L)	0.5	1	1	2	1.0-5.0
Distillate receiving flask(L)	0.5	1	2	5	3
Residue receiving flask(L)	0.5	1	2	5	5
Rotation speed(rpm)	50~460	50~460	50~460	50~460	50~460
Vacuum level(mbar)	≤0.001	≤0.001	≤0.001	≤0.001	≤0.001
Operation temperature(°C)	<300	<300	<300	<300	<300
Power supply	220V/50Hz,1P	220V/50Hz,1P	220V/50Hz,1P	220V/50Hz,1P	220V/50Hz,1P
Dimensions(mm)	1540×580×1680	1540×580×1880	1540×580×1980	1740×580×2320	1740×580×2320



# 04 Custom Design Products

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# LIFTING/ ROTATION HYDRAULIC GLASS REACTOR SYSTEM

## About The LIFT System

A multifunctional, advanced jacketed glass reactor system designed for pilot to mid-scale chemical processing. It combines heating/cooling, vacuum compatibility, mechanical agitation, and rotating/lifting features, making it ideal for reaction, distillation, crystallization, and process development. Available in 10L to 100L+ capacities, it delivers precise temperature control, high chemical resistance, and operator-friendly features in one compact unit.

## Working Principle

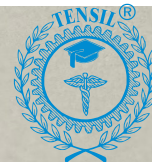
- Inner Vessel: High-grade borosilicate glass 3.3 holds the reaction mixture.
- Jacket Layer: Circulates heating/cooling fluid to maintain process temperatures from  $-80^{\circ}\text{C}$  to  $+200^{\circ}\text{C}$ .
- Stirring System: Overhead stirrer (50-400 rpm) with PTFE and ceramic sealing, supporting vacuum operation (5 Mbar) and explosion-proof configurations.
- Condensation Loop: Optional reflux condenser with return/discharge pathways for distillation.
- Lid Assembly: Modular design with multiple DN265/DN340 ports for feeding, sampling, solids addition, temperature sensing, and pressure control.

## Features

- SS304 frame with Teflon coating for corrosion resistance and cleanroom compatibility
- Motorized lift & manual tilt ( $150^{\circ}$ ) for safe access, discharge, and cleaning
- Vacuum-compatible Borosilicate Glass 3.3 with excellent chemical and thermal resistance
- 6-port modular lid for feeding, sampling, pressure/vacuum control, and additions
- PTFE + ceramic seal ensures vacuum integrity and solvent compatibility
- Mobile, stable design with lockable wheels and anti-tip frame
- Integrated drain, funnel, and sampling ports for efficient handling

## Uses

- Pilot-scale organic synthesis and intermediate production
- Vacuum distillation and recrystallization of temperature sensitive compounds
- Polymer research and material science studies
- Fine chemical and API process development
- Scale-up trials prior to industrial manufacturing



# Lifting/ Rotation Hydraulic Glass Reactor





# DUAL REACTOR SYSTEM

## About The Dual Reactor System

A compact, dual-reactor platform designed for parallel synthesis, two-stage reactions, and process optimization. Accommodates two jacketed vessels (100 mL to 5 L)—either identical or different in volume—on a single, modular frame. Ideal for R&D labs demanding flexibility, independent control, and fast vessel swaps.

## Working Principle

- Each vessel connects to independent stirrer shafts and thermoregulator circuits
- Supports vacuum or pressure operation via sealed glass lids
- Designed for independent, simultaneous, or interlinked (multi-step) reaction modes
- Optional automated liquid transfer enables continuous or staged processes

## Features

- Heavy-duty baseplate ensures stability during dual-vessel operation
- Tool-free clamps and couplings enable fast vessel changeover
- Stainless steel support rods, stirrer guides, and vessel collars for secure suspension
- Integrated HDPE drip tray catches spills and simplifies cleaning
- Locking bosses prevent tipping or misalignment during stirring
- Independent Temperature Control: Compatible with one or two thermoregulators using manifold kits
- Fast Vessel Change: Quick-clamp and hose fittings require no tools
- Flexible Stirring System: Independent shafts with patented drop-in couplings
- Vacuum Jacket Compatibility: Supports both standard and vacuum-jacketed vessels
- PEEK Hose Connectors: Chemically resistant and easy to connect/disconnect
- Optional Software Integration: Automates fluid transfer between vessels for multistep syntheses

## Uses

- Parallel Reactions: Run two experiments with different conditions
- Two-Stage Synthesis: Use one reactor for preheating, the other for reaction
- Reaction Optimization: Compare parameters like temp, RPM, or concentration
- Scale-Up Evaluation: Test various volumes under uniform control

# Dual Reactor System





# CONTINUOUS STIRRING-TANK REACTOR (CSTR)

## About The CSTR

A Continuous Stirred-Tank Reactor (CSTR) is ideal for homogeneous liquid-phase reactions under steady-state, continuous feed/discharge operation. This glass CSTR setup is optimized for reaction kinetics, catalyst testing, polymerization, and biochemical processes in laboratory environments.

## Working Principle

- Reactants are continuously introduced into the jacketed glass reactor.
- A mechanical stirrer maintains homogeneity of temperature and concentration.
- Product stream exits at the same rate, maintaining constant volume inside.
- Jacketed design enables precise thermal control using an external heater/chiller.
- Supports vacuum or atmospheric operation for better volatility control.

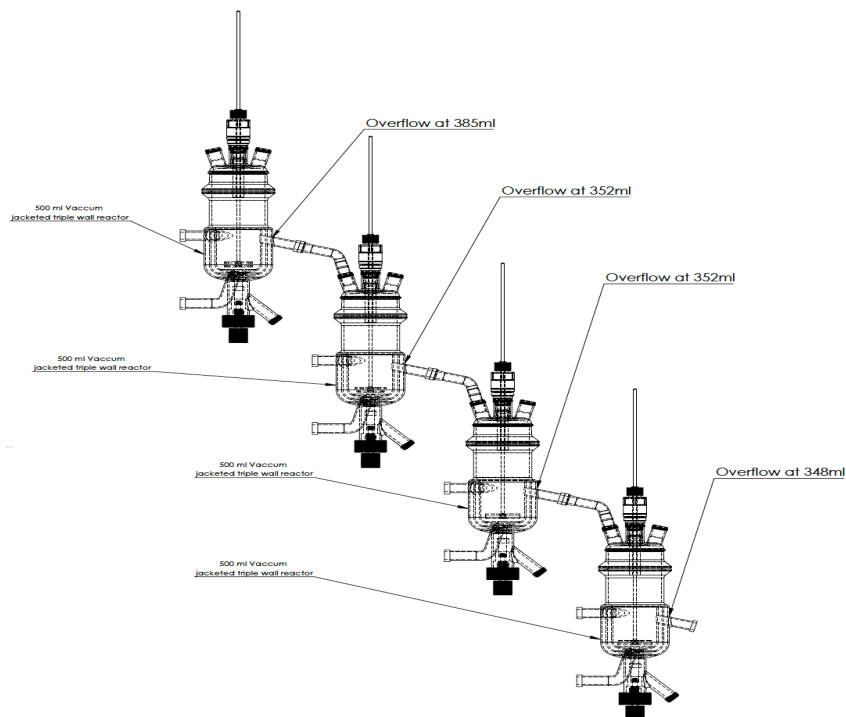
## Features

- High-quality Borosilicate Glass 3.3 with excellent chemical and thermal resistance
- PTFE mechanical seal for leak-free, vacuum-compatible stirring
- Overhead stirring system with variable-speed motor
- Multi-port reactor lid for feed, sampling, sensors, or gas inlet
- Jacketed design for circulating heat transfer fluid
- Modular skid-mounted frame with SS304 supports and caster wheels
- Continuous Processing: Suitable for time-dependent or scale-sensitive reactions
- Excellent Visibility: Transparent glass allows real-time process monitoring
- Vacuum & Low Pressure Compatible: Operates safely down to -0.098 MPa
- Precision Control: Compatible with digital RPM, temperature, and vacuum controllers
- Easy Sampling & Product Removal: Multiple drain and port options
- Modular & Scalable: Can be used in series or parallel for multi-stage reaction trains

## Uses

- Polymer synthesis and emulsions
- Biochemical reactions (fermentation, enzyme catalysis)
- Catalyst screening and residence time studies
- API intermediate processing in flow setups
- Organic synthesis under mild continuous flow

## Continuous Stirring-Tank Reactor(CSTR)



### Specifications

Catalog No.	CSTR005L	CSTR01L	CSTR02L	CSTR05L
Volume (L)	0.5	1	2	5
Jacket Volume (L)	0.25	0.5	0.7	2.0
Stirrer Motor (W)	40	40	40	90
Temp. Range (°C)	-80 ~ +200	-80 ~ +200	-80 ~ +200	-80 ~ +200
Pressure Range	5Mbar	5Mbar	5Mbar	5Mbar
Material	Borosilicate 3.3 low expansion	Borosilicate 3.3 low expansion	Borosilicate 3.3 low expansion	Borosilicate 3.3 low expansion



# BAFFLE REACTOR

## About The Baffle Reactor

The Baffle Double Wall Jacketed Reactor is a high-performance glass reaction vessel designed to improve mixing efficiency, temperature uniformity, and process control. Integrated baffles within the inner vessel disrupt vortex formation and increase turbulence—ideal for scale-sensitive chemical synthesis, crystallization, and reaction kinetics studies.

## Working Principle

- Enables efficient mixing and precise thermal control for lab-scale reactions.
- Internal baffles enhance turbulence and prevent vortexing for uniform mixing.
- Double-wall jacket allows heating/cooling fluid circulation for accurate temperature regulation.
- Compatible with both vacuum and pressure, supporting a wide range of chemical processes.
- Valve bore enables safe sampling, reagent addition, and draining during/after reactions.
- Ideal for controlled synthesis, crystallization, and distillation under varied conditions.

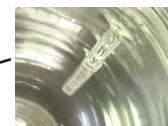
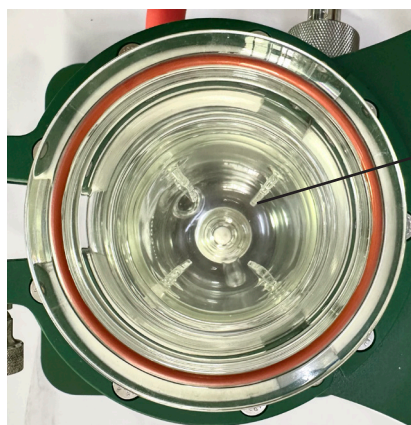
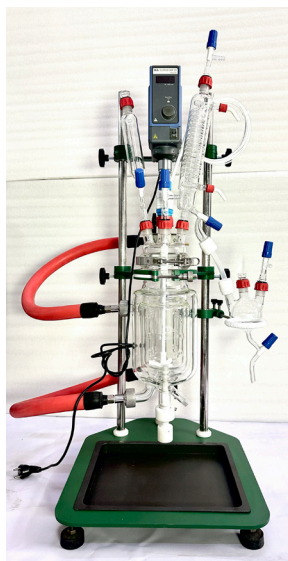
## Features

- Baffle-Enhanced Mixing: Improves turbulence, prevents vortexing - ideal for viscous/multi-phase reactions.
- Double-Wall Jacket: Enables precise temperature control (-80°C to +200°C).
- Borosilicate Glass 3.3: High thermal shock resistance and chemical durability.
- Modular Compatibility: Integrates with standard stirrers, condensers, and control units.
- Scalable Range: Available from 100 mL to 20 L for R&D to pilot-scale needs.
- Vacuum/Pressure Compatible: Operates under full vacuum or light positive pressure.
- KF Connections: Standard KF15/KF25 ports for leak-tight vacuum sealing.

## Uses

- Homogeneous and heterogeneous reaction studies
- Heat-sensitive compound synthesis
- Crystallization and suspension reactions
- Solvent recovery, reflux, and distillation processes
- Biochemical and pharmaceutical process development

## Baffle Reactor



Glass Baffle

### Double Wall Baffle Reactor Specifications

Catalog No.	2WB 01060	2WB 02560	2WB 050100	2WB 1L100	2WB 2L120	2WB 3L120	2WB 4L150	2WB 5L150	2WB 10L150	2WB 20L150
Capacity (L)	0.1	0.3	0.5	1.0	2.0	3.0	4.0	5.0	10.0	20.0
Flange DN	60	60	100	100	120	150	150	150	200	200
Valve Bore (mm)	10	10	10	16	16	15	16	16	20	20
Connectors	KF15	KF15	KF15	KF15	KF15	KF15	KF25	KF25	KF25	KF25

### Triple Wall Baffle Reactor Specifications

Catalog No.	3WB 01060	3WB 02560	3WB 050100	3WB 1L100	3WB 2L120	3WB 3L120	3WB 4L150	3WB 5L150	3WB 10L150	3WB 20L150
Capacity (L)	0.1	0.3	0.5	1.0	2.0	3.0	4.0	5.0	10.0	20.0
Flange DN	60	60	100	100	120	150	150	150	200	200
Valve Bore (mm)	10	10	10	16	16	15	16	16	20	20
Connectors	KF15	KF15	KF15	KF15	KF15	KF15	KF25	KF25	KF25	KF25

**Note:** An overhead motor can be provided upon request and will be quoted separately. We also offer customized options for larger volumes, alternative flanges, valve bores, and connector types to suit your specific requirements.



# PRESSURE REACTOR

## About The Pressure Reactor

The Pressure Reactor is a high-performance, sealed reaction vessel designed for conducting chemical reactions under elevated pressure and temperature conditions. Built for safety, flexibility, and efficiency, it features a jacketed, stirrable vessel with internal baffles, allowing precise control of reaction parameters. Available in both borosilicate glass for visual observation and stainless steel (SS316) for heavy-duty operations, this reactor is ideal for laboratory research, scale-up studies, and pilot plant processes.

## Working Principle

- Functions as a closed stirred tank reactor under vacuum or pressure.
- Agitation via overhead stirrer or magnetic drive ensures uniform mixing.
- Baffles improve turbulence, enhance heat transfer, and prevent vortexing.
- Pressure is introduced using compressed gases or reactants, accelerating kinetic rates.
- Suitable for multi-phase reactions: gas-liquid, liquid-liquid, or solid-liquid.

## Features

- Designed for high-pressure operation (up to 100 bar available).
- Made from Borosilicate 3.3 glass or SS316/SS304 - chemical resistant and durable.
- Jacketed vessel for precise temperature control via external circulators.
- Baffles ensure superior mixing and reaction homogeneity.
- Fitted with safety valve, pressure gauge, sampling port, and rupture disc.
- Speed-variable stirrer motor, optional magnetic drive for leak-free sealing.
- Modular configuration with options for condensers, dosing lines, thermowells, and pressure regulators.

## Uses

- Hydrogenation, oxidation, sulfonation, nitration, polymerization
- Catalytic and multiphase reactions requiring pressurization
- Synthesis of active pharmaceutical ingredients (APIs)
- Pilot-scale studies, kilo-lab trials, R&D and process optimization
- Widely used in pharmaceuticals, chemicals, biotech, agrochemicals, and materials science

## Pressure Reactor



Glass Pressure Reactor

(Stainless Steel Pressure Reactor also available)



# GLASS SEPARATOR

## About The Glass Separator

The FY Series Glass Separator is engineered for precise liquid-liquid extraction, phase separation, and mixing in laboratory and pilot-scale environments. Built with high-grade borosilicate glass and supported by a corrosion-resistant SS frame, this system ensures safe and visible processing of immiscible liquids. Ideal for pharmaceutical, chemical, food, and biotechnological applications requiring gentle yet effective separation and purification steps.

## Working Principle

- Uses variable-speed overhead stirring to mix two immiscible liquids for optimal extraction.
- After agitation, the system allows settling and separation based on density differences.
- A PTFE bottom valve enables clean layer-wise discharge without cross-contamination.
- Uniform temperature control is achievable through external heating/cooling (jacketed versions).
- Transparent glass body offers full reaction visibility and thermal resistance.

## Features

- SS304 frame with wheels and locking brakes
- Compact vertical design with easy access
- Secure ring clamp for stable mounting
- Corrosion-resistant, cleanroom-suitable build
- 800 rpm variable stirring with digital control
- PTFE discharge valve for inert, smooth flow
- Durable ceramic bearings + mechanical seal
- Borosilicate 3.3 glass vessel: clear and shock-resistant
- Optional jacket for temperature control
- Modular ports for sensors, condensers, and feeding

## Uses

- Solvent extraction and immiscible phase separation
- Crystallization and sedimentation processes
- Purification of reaction mixtures via liquid-liquid partition
- Intermediate compound recovery and pre-purification
- Solid/liquid separation with optional filtration base

# Glass Separator





**Tensil Labglass Technologies Pvt. Ltd.**  
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