



TECHNOLOGIES

Pilot Plants*Process Engineering Systems*Technical Teaching Equipment

Glass Reactors

UD Technologies offer Glass Reactors for Kilo Lab,pilot plants which helps to scale up reactions Glass Reactors can be divided in categories like batch reactor and Continuous reactor and type of Reactions

The standard glass reactors are available in two variants –Spherical and cylindrical in sizes from 1 liter to 500 liter and from 1 liter to 700 Liter respectively

The designs of these reactors can be further modified as per client's requirements such as-

- Addition of baffles
- Addition of jacket in cylindrical reactors (Jacket MOC – Glass / SS / MS)
- Addition of stirring system arrangement (Glass Stirrers / PTFE Sleeved Stirrers)
- Type of Stirrer –Paddle-Pitched Blade turbine-Anchor-Propellor-Special Customised Impellor Design
- Providing heating and cooling baths and mantles where temperature control is required
- Instrumentation and Automation .We can offer completed system with SCADA .If required ,SCADA can be supplied US FDA Approved
- GMP/Non GMP

We have expertise to design, engineer and manufacture specialized types of reactors such as

Continuous Reactors:

In Continuous Process;Reactants continuously enters,reacted and converted into product and exit from reactor. i.e. Reactant Flow /hr in Reactor volume is reaction time or residence time

Continuous reactors has advantage of Consistent quality, Better Process Parameter control, Easier Automation and smaller Foot print.

We also offer pilot plants for continuous pretreatment stage as Liquid and Solid Addition,preheater ,cooler and post treatment stages like Extraction, Filtration,Distillation,Absorption,Adsorption,Evaporation and concentration

➤ **Continuous Stirred Tank Reactors (CSTR)**

CSTR are the most basic type of continuous reactors having wide application in various types of chemical process industries.

Continuous stirred-tank reactors (CSTRs) are open systems, where material is free to enter or exit the system that operates on a steady-state basis, where the conditions in the reactor don't change with time. Reactants are continuously introduced into the reactor, while products are continuously removed. CSTR is Mixed Flow reactor where Reactants are mixed ,get reacted and converted into product either Gas or Liquid .Temperature and pressure is controlled as per reactor. For more Residence time and controlled reaction ,No. of reactors Reactors can be arranged in Series .Other changes can be added as per type of reaction .

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CSTRs are very well mixed, so the contents have relatively uniform properties such as temperature, density, etc. throughout. Also, conditions in the reactor's exit stream are the same as those inside the tank.

➤ **Continuous Plug Flow Reactor(PFR)**

PFR is used in Chemicals ,Pharma Intermediates, Bioreactors and Photo Bioreactor .

We offer Plug flow Reactor in Double Pipe,Shell and Tube ,*Falling Film* and Packed Bed .

PTFE Static mixer is also offered to induce internal mixing and to reduce residence time

➤ **Ultra Violet Reactors (UV Reactors)**

These are special type of reactors where the chemical reactions take place in presence of ultra violet light rays. The capacity and design of reactors can be tailor made as per client requirements.

We can offer Batch and Continuous type reactors and can customize.

➤ **Triple Walled Reactors**

These types of reactors are also known as double jacketed reactors. The outer jacket is vacuum sealed and hence temperature conditions and other parameters are maintained in reactor throughout the reaction process.Triple walled reactors are especially used for Sub zero temperatures .Vacuum Jacket avoids icing and helps to visualize reaction

Standard Combination reactors are also available as Filter Reactor.

Universal Reactor with Lifting and Lowering arrangement which enables cylindrical vessel to clean also available

All the above reactors are available in - GMP/ Non-GMP and Flame Proof/ Non-Flameproof versions along with complete automation as well

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