



INDUSTRIAL & LAB ASSEMBLIES



INTRODUCTION

Goel Glass Inc. manufactures pre-engineered, modular Standard Distillation and Reaction Units designed for research institutions, pilot plants, and chemical manufacturing facilities. Fabricated from premium Borosilicate Glass 3.3 (DIN ISO 3585 / ASTM E438 Type I, Class A), these standard assemblies provide complete visibility, exceptional corrosion resistance, and operational flexibility across synthetic and purification workflows.



CONTENTS

- Glass Reactor With Metal Jacket
- Simple Distillation Unit
- Reaction Unit
- Fraction Distillation Unit
- Reaction Distillation Unit
- Liquid-Liquid Extraction Unit
- Solid-Liquid Extraction Unit
- Gas Scrubber
- Multi Purpose Unit
- Mobile Mixing System
- Agitated Glass Nutsche Filter, Peptide Synthesizer
- Lab Glass Reactor NEW

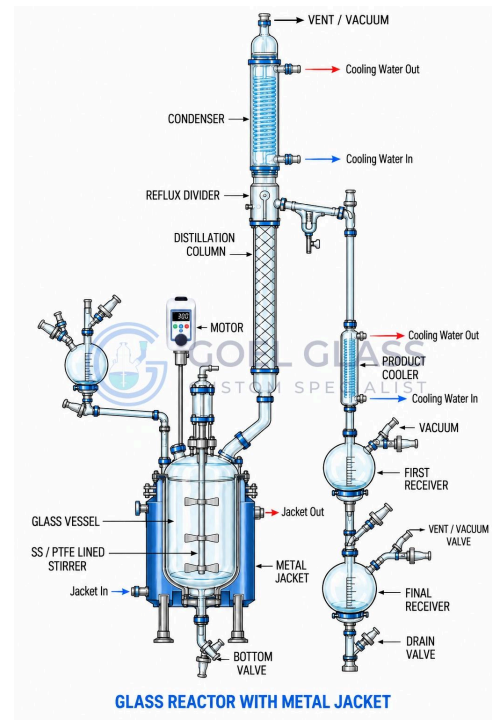
GLASS REACTOR WITH METAL JACKET

Goel Glass Metal Jacketed Glass Reactors combine Borosilicate 3.3 glass with a robust metal jacket for efficient heating, cooling, and thermal protection. Available from 5 to 100 Litres, they are ideal for chemical synthesis, pharmaceutical manufacturing, and process scale-up, with operating temperatures from -50°C to +200°C.

Glass Metal jacketed Reactor: 5 L to 100 L
Jacket Operating Pressure: up to 1 Bar
Operating Temperature: -50°C to +200°C
Material: Borosilicate glass 3.3 / PTFE / SS 316.

KEY FEATURES:

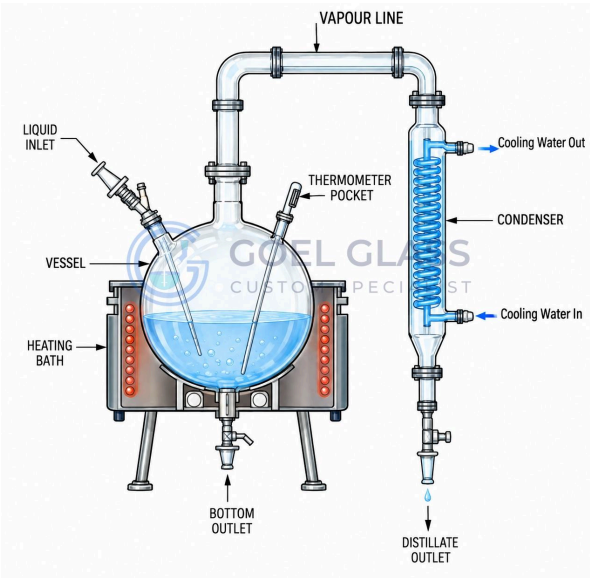
- Ergonomic Reactor Lift Mechanism: Smooth motorized or counterbalanced manual lift simplifies vessel opening, bottom clearance, and thorough CIP cleaning.
- Precise Multi-Point Temperature Monitoring: Integrated Pt-100 thermo-wells inside vessel and jacket for real-time cascade temperature control.
- Inert Acid & Solvent Wetted Path: Process media contacts only medical-grade Borosilicate 3.3 glass and pure virgin PTFE for zero metal ion contamination.
- Cryogenic to High-Temp Capability: Thermal stress-relieved expansion joints safely absorb expansion across -50°C to +200°C cycles.



SIMPLE DISTILLATION UNIT

Goel Glass Simple Distillation Units are designed for efficient batch evaporation, solvent stripping, and thermal concentration in laboratory, pilot, and production facilities. Featuring Borosilicate 3.3 vessels, high-efficiency condensers, and graduated receivers, they provide reliable operation under atmospheric pressure and vacuum conditions.

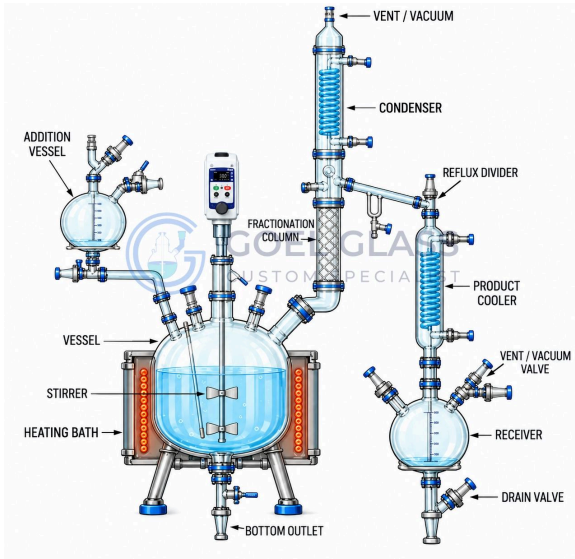
Unit Cat.Ref.	Reactor Capacity	Bath KW	Vapour Line	Condenser M²
SDU20	20 L	4.0	80 DN	0.35
SDU50	50 L	6.0	100 DN	0.50
SDU100	100 L	9.0	150 DN	1.50



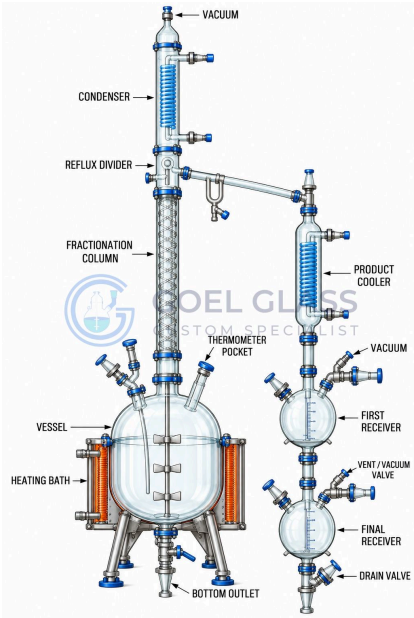
REACTION UNIT

Goel Glass Borosilicate 3.3 Reaction Units are designed for chemical synthesis, controlled reagent addition, and reflux distillation. Featuring precision stirring, PTFE sealing, efficient heating, and high-performance condensation, they provide reliable operation for pilot plant and production processes.

Unit Cat.Ref	Reactor Capacity	Bath KW	Addition Vessel	Vapour Line	Condenser HTA M²	Cooler HTA M²	Receiver Size
RDU20	20 L	4.0	2 L	80 DN	0.35	0.10	5 L
RDU50	50 L	6.0	5 L	100 DN	0.50	0.20	10 L
RDU100	100 L	9.0	10 L	150 DN	1.50	0.35	20 L



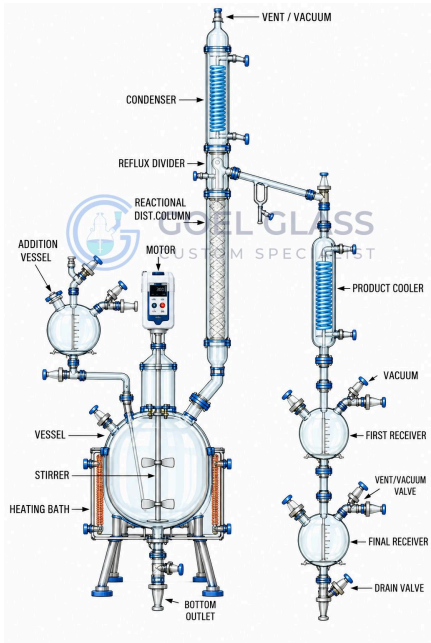
FRACTIONAL DISTILLATION UNIT



Goel Glass Fractional Distillation Units are designed for efficient multi-component separation, solvent fractionation, and high-purity chemical purification. Featuring Borosilicate 3.3 vessels, packed columns, reflux control, and graduated receivers, they provide precise separation and reliable operation under vacuum or atmospheric conditions.

Unit Cat.Ref	Reactor Capacity	Bath KW	Vapour Line	Condenser HTA M²	Cooler HTA M²	Receiver Size
FDU20	20 L	4.0	80 DN	0.35	0.10	2L, 5L
FDU50	50 L	6.0	100 DN	0.50	0.20	5L, 10L
FDU100	100 L	9.0	150 DN	1.50	0.35	10L, 20L

REACTION DISTILLATION UNIT



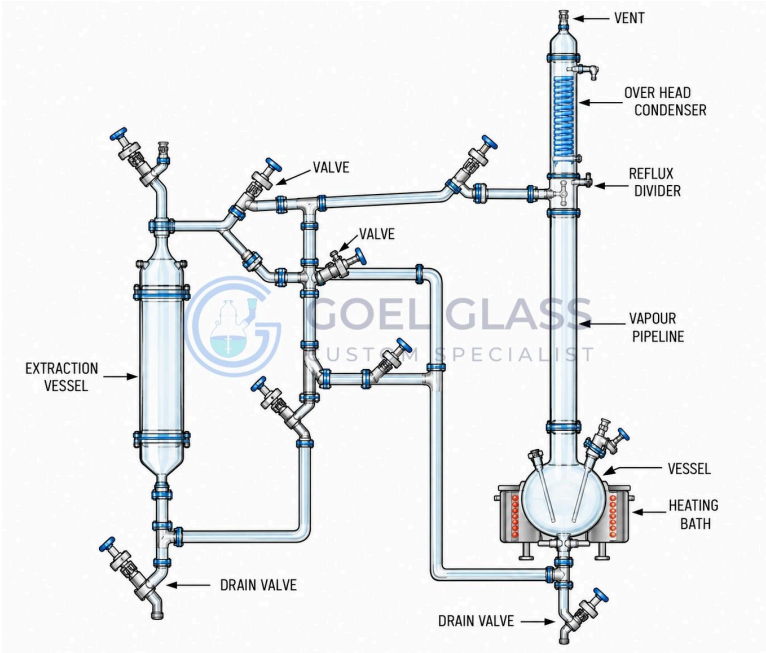
Goel Glass Reaction Distillation Units combine stirred reactor and fractional distillation capabilities for efficient chemical synthesis and separation. Built with Borosilicate 3.3 glass and PTFE seals, they offer flexible operation for reflux reactions, vacuum distillation, and continuous reactive distillation processes.

Unit Cat.Ref	Reactor Capacity	Bath KW	Addition Vessel	Vapour Line	Condenser HTA M²	Cooler HTA M²	Receiver Size
FRU20	20 L	4.0	2 L	80 DN	0.35	0.10	2L, 5L
FRU50	50 L	6.0	5 L	100 DN	0.50	0.20	5L, 10L
FRU100	100 L	9.0	10 L	150 DN	1.50	0.35	10L, 20L

SOLVENT EXTRACTION UNIT

Goel Glass Liquid-Liquid Extraction Units are designed for selective separation and recovery of chemical components from aqueous or organic solutions. Constructed from Borosilicate 3.3 glass and chemically inert PTFE, these systems provide excellent chemical resistance and complete process visibility.

The units enable efficient solvent circulation and counter-current phase contact, with flexible solvent introduction from the top or bottom. Integrated condensers, reflux control, and PTFE bottom outlets allow effective extraction, solvent recovery, and independent drainage of the concentrated product and recovered solvent.



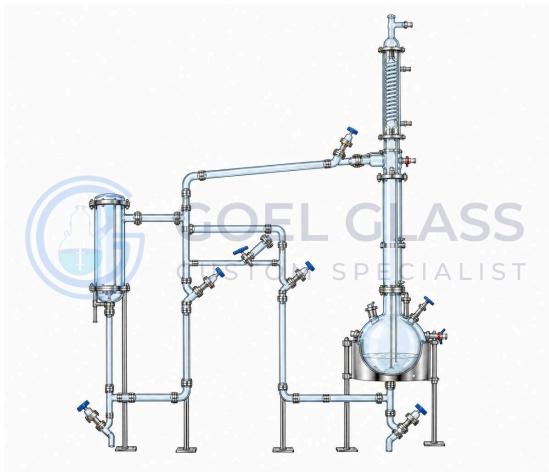
Unit Cat.Ref.	Reactor Capacity	Bath KW	Vapour Line	Extraction Vessel	Condenser M2
LLU10	10 L	3.00	40mmx1m	10 L	0.35
LLU20	20 L	4.00	50mmx1m	20 L	0.50
LLU50	50 L	6.00	80mmx1m	50 L	1.50
LLU100	100 L	9.00	100mmx1m	100 L	1.50

SOLID-LIQUID EXTRACTION UNIT

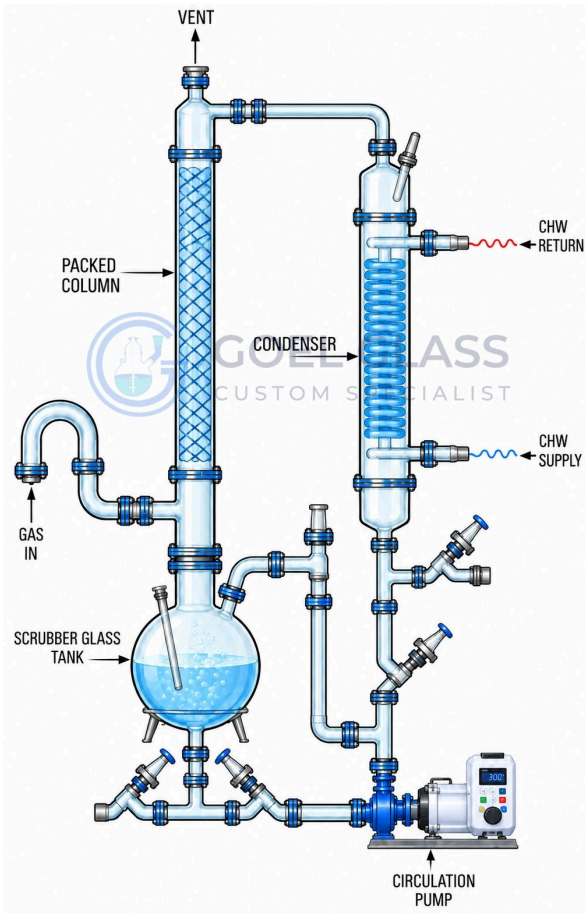
Goel Glass Solid-Liquid Extraction Units operate on the classic Soxhlet percolation principle engineered on an industrial pilot scale. The system preferentially extracts and concentrates soluble compounds, bioactive molecules, or natural products from solid materials using a continuously recycled pure solvent loop.

The solid feedstock is loaded inside a high-porosity glass fiber thimble bag or porous basket within the extraction vessel. Solvent charged in the reboiler is steadily vaporized and delivered to the overhead condenser. The distilled, chilled solvent flows through a reflux divider into the extraction chamber, submerging the solid bed in freshly distilled solvent

Unit Cat.Ref.	Reactor Capacity	Bath KW	Vapour Line	Extraction Vessel	Condenser M2
SLU10	10 L	3.00	40mmx1m	10 L	0.35
SLU20	20 L	4.00	50mmx1m	20 L	0.50
SLU50	50 L	6.00	80mmx1m	50 L	1.50
SLU100	100 L	9.00	100mmx1m	100 L	1.50



GAS SCRUBBER

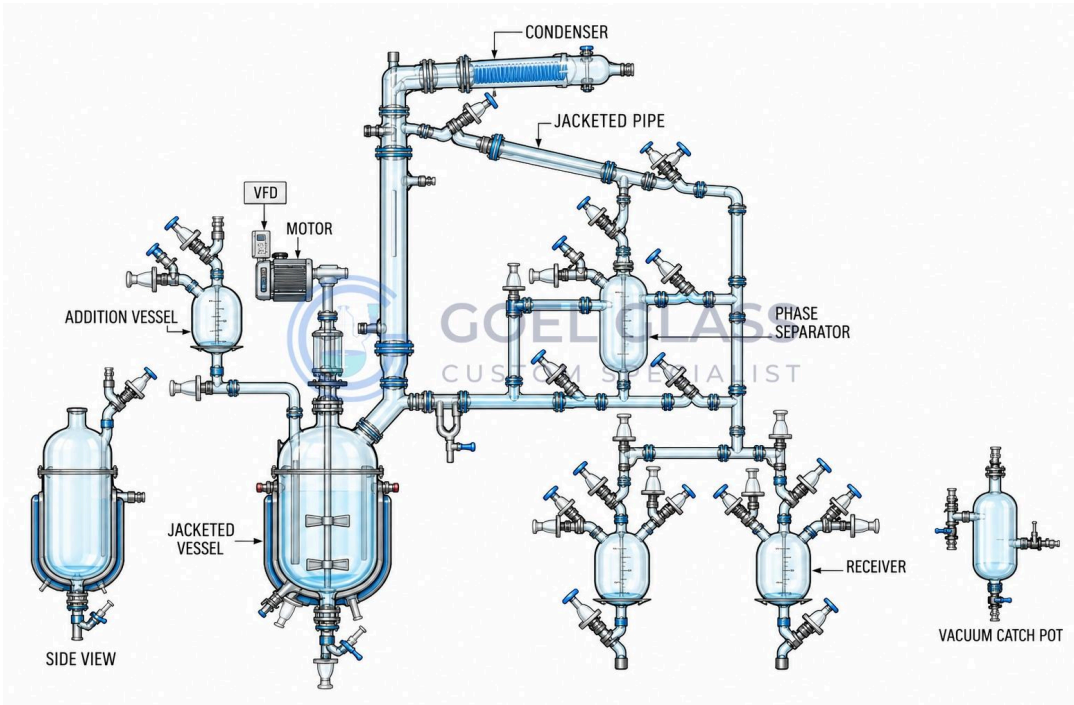


Goel Glass Inc. engineers and manufactures industrial and pilot-plant Borosilicate Glass gas scrubbing systems designed for the safe capture, absorption, and neutralization of toxic, acidic, and hazardous gas emissions. Fabricated in full compliance with DIN ISO 3585 and BS EN 1595 standards, our glass scrubbers provide complete visual process monitoring, zero metallic corrosion, and long service life across aggressive chemical processing applications.

Each scrubbing unit features a vertical counter-current packed column packed with high-efficiency Borosilicate glass Raschig rings or PTFE saddles, providing maximum interfacial contact area with minimal pressure drop. A magnetic-drive fluoropolymer circulation pump continuously circulates neutralizing media from the bottom spherical reservoir vessel through an integrated glass coil cooler to remove exothermic heat of neutralization. The system includes an overhead mist eliminator / demister pad to prevent liquid droplet carryover into discharge vents.

Cat.Ref.	Size	Vessel	Condenser (M²)
PGS3	80DN	20L	0.5
PGS4	100DN	50L	1.5
PGS6	150DN	100L	2.5

MULTI PURPOSE UNIT



- Goel Glass manufactures turnkey Multipurpose Glass Pilot Plant Units engineered specifically for pharmaceutical R&D, biotechnology laboratories, and specialty chemical manufacturers. Designed for versatile operational scale-up, kinetic simulation, and cGMP kilo-lab production, these modular units empower chemists and chemical engineers to perform complex synthesis, liquid dosing, multi-stage chemical reactions, atmospheric or vacuum distillation, phase separation, and solvent recovery within a single skid-mounted envelope.

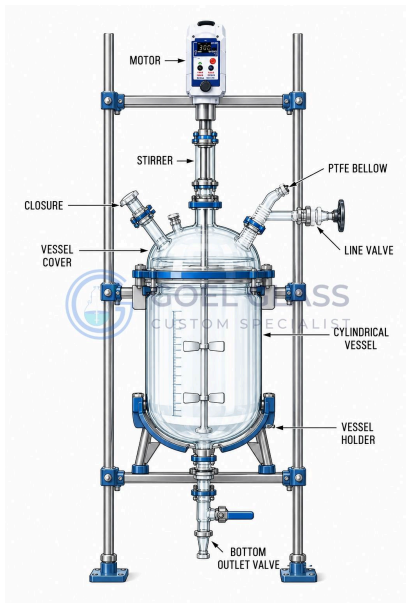
System Capabilities & Features

- Jacketed full glass reactor, cylindrical vessel with heating bath, or spherical flask options
- Multipurpose glass overhead assembly with reflux divider, primary condenser, and sub-cooler
- Rigid stainless steel (SS304/SS316) or powder-coated tubular support structure
- ATEX / Flameproof or Non-flameproof electrical drives with variable speed control
- Full vacuum operation down to 1 mbar and operational thermal range from -50°C to +200°C
- Integrated PT-100 temperature sensors with digital indication and automated PID control
- Multi-port glass cover for solid charging, nitrogen inerting, liquid feed, and sampling
- Corrosion-resistant PTFE bottom flush-outlet drain valve with zero dead volume
- Dual calibrated receiver flasks for continuous fraction collection without breaking vacuum

Unit Cat. Ref.	Reaction Capacity	Bath KW	Addition Vessel	Vapour Line	Condenser HTA (M²)	Cooler HTA (M²)	Receiver Size
MPU 20	20 L	4.0	2 L	80 DN	0.35	0.10	2L, 5L
MPU 50	50 L	6.0	5 L	100 DN	0.50	0.20	5L, 10L
MPU 100	100 L	9.0	10 L	150 DN	1.50	0.35	10L, 20L



MOBILE MIXING SYSTEM



Goel Glass manufactures mobile Borosilicate Glass Mixing Reactor Systems engineered for dynamic multi-purpose pilot plant campaigns, pharmaceutical formulation, and batch crystallization. Mounted on sturdy stainless steel mobility skids with anti-static locking castors, these agile systems eliminate the capital expense and floor footprint of dedicated static installations while enabling seamless transit between production suites and utility hookups.

The cylindrical reactor body is constructed from thermal-stress-annealed Borosilicate Glass 3.3, delivering full optical transparency for visual monitoring of slurry suspensions, dissolving rates, and emulsion boundaries

Cat.Ref.	Vessel Ref.	Nominal Cap.(l)
CGR 20	VZ 20/12	20
CGR 50	VZ 50/16	50
CGR 100	VZ 100/18	100

JACKETED MIXING REACTOR

Goel Glass Jacketed Mobile Mixing Reactors incorporate an integrated borosilicate thermal fluid jacket surrounding the inner process vessel. This enables recirculating thermoregulation (heating and cooling fluids from -50°C to +200°C) for precise temperature control during highly exothermic reactions or cold-temperature crystallizations.

- Stirrer Drive: Non-Flameproof or ATEX/UL-certified Explosion-Proof drive motors with precision digital variable frequency speed regulators.
- Shaft Material & Impellers: Glass-coated or pure virgin PTFE-sheathed shafts featuring anchor, pitch-blade, paddle, or vortex turbine geometries.
- Seal Integrity: Gas-tight double PTFE bellow seals or high-vacuum mechanical face seals rated down to 1 mbar.
- Mobile Support Framework: Stainless Steel 304/316 tubular framework mounted on heavy-duty lockable anti-static swivel wheels.
- Discharge Valve: Flush zero-dead-space bottom outlet valve (BOV) preventing unmixed pocket accumulation

Cat.Ref.	Vessel Ref.	Nominal Cap.(l)
JGR 5	VZD 5/6	5
JGR 10	VZD 10/9	10
JGR 20	VZD 20/12	20
JGR 30	VZD 30/12	30
JGR 50	VZD 50/16	50

AGITATED GLASS NUTSCHE FILTER/ PEPTIDE SYNTHESIZER



The Agitated Glass Nutsche Filter (ANFD) by Goel Glass is an engineered, hermetically sealed filtration system designed for batch-wise solid-liquid separation, displacement washing, re-slurrying, and vacuum convection drying in a single contained envelope. Fabricated from premium Borosilicate Glass 3.3 and virgin PTFE wetted components, the ANFD provides unmatched chemical resistance against corrosive mineral acids, harsh solvents, and reactive intermediates while allowing continuous visual monitoring of crystallization, cake formation, and solvent breakthrough.

CONSTRUCTION & TECHNICAL ARCHITECTURE

The filtration unit comprises a heavy-wall Borosilicate 3.3 process cylinder equipped with single or double jackets for thermal control, allowing crystallization cooling or heated convection drying of wet cakes. A precision-machined PTFE perforated support plate secures composite mesh or woven filter cloths with multi-point bolting rings for rapid filter medium replacement.

ADVANTAGES OF GLASS NUTSCHE FILTER

- Unobstructed 360° Visual Monitoring: Real-time clarity into slurry dynamics, cake cracking, liquid clarity, and filtration kinetics.
- Near-Universal Corrosion Resistance: Pure Borosilicate 3.3 and FDA-compliant PTFE wetted parts withstand aggressive acids, halogens, and organics without metallic leaching.
- Hermetic Containment: Zero VOC release, full containment of hazardous substances, and operator safety under inert closed conditions.
- Flexible Turnkey Configurations: Available in nominal volumes from 10 L to 200 L with heating jackets, hydraulic bottom lowering, explosion-proof motor drives, and instrumentation packages.

Goel offer Glass ANF from 2 L to 50 L for Kilo Lab Operations with and without jacket , with and without stirrer.

Cat. Ref.	Working Vol (ltr)	Filter area (m2)	Vessel Dia	Vessel height	Moter Capacity HP
ANFD10	10	0.03	225	300	0.25/0.5
ANFD20	20	0.06	360	325	0.5
ANFD50	50	0.12	400	450	0.5

CONTACT US

CONTACT

+1-416-912-1530
canada@goelglass.com

USA

109 Boxcar Wy SE, Smyrna, GA 30080, United States

CANADA

69 Yardley Crescent, Brampton ON. L6X5L7 Toronto Canada