KRIVALIS™

GLASS REACTORS - FULL VACUUM & HIGH PRESSURE

Stirred Glass Reactors

Stirred glass and sapphire reactors for full vacuum and high pressure, 100 mL to 100 L, to 200 bar and 250 C - borosilicate, quartz and sapphire.

2026-27 EDITION | KRIVA LAB INSTRUMENTS

200 bar	250 C	100 mL-100 L
SAPPHIRE PRESSURE	OPERATING TEMP.	CAPACITY

Capacities, specifications, heating, accessories, control options and applications where visibility, corrosion resistance or optical access matters.

Glass & optical reactors

Glass and sapphire reactors make the reaction visible and resist aggressive chemistry. Borosilicate covers ambient-pressure and full-vacuum work and up to 4 bar; quartz extends to 100 bar and sapphire to 200 bar where the optics and the process allow. All configurations run to 250 C.

GLASS / OPTICAL HIGH-PRESSURE REACTOR RANGE

CAPACITY	STIRRED	NON-STIRRED	GLASS MATERIAL	PRESSURE OPTIONS	TEMPERATURE
100 mL	Available	Available	Borosilicate / Quartz / Sapphire	4 / 100 / 200 bar*	Up to 250 C
200 mL	Available	Available	Borosilicate / Quartz / Sapphire	4 / 100 / 200 bar*	Up to 250 C
300 mL	Available	Available	Borosilicate / Quartz / Sapphire	4 / 100 / 200 bar*	Up to 250 C
500 mL	Available	Available	Borosilicate / Quartz / Sapphire	4 / 100 / 200 bar*	Up to 250 C
1 L	Available	Available	Borosilicate / Quartz / Sapphire	4 / 100 / 200 bar*	Up to 250 C
2 L	Available	Available	Borosilicate / Quartz / Sapphire	4 / 100 / 200 bar*	Up to 250 C
5 L	Available	Available	Borosilicate / Quartz / Sapphire	4 / 100 / 200 bar*	Up to 250 C
10 L	Available	Available	Borosilicate / Quartz / Sapphire	4 / 100 / 200 bar*	Up to 250 C
20 L	Custom	Custom	Quartz / Sapphire (subject to design)	Design dependent*	Up to 250 C
50 L	Custom	Custom	Quartz / Sapphire (subject to design)	Design dependent*	Up to 250 C
100 L	Custom	Custom	Quartz / Sapphire (subject to design)	Design dependent*	Up to 250 C

*Ratings are target product-family limits only. Actual pressure - and whether the vessel is suitable for full vacuum - depends on glass type, dimensions, vessel geometry, temperature, support structure, seals and engineering validation. Larger capacities and high-pressure configurations require individual design review.

GLASS REACTOR SPECIFICATIONS

Standard build parameters. Glass type, support frame, seals and heating are selected against the chemistry, the pressure and vacuum duty, and the operating temperature.

PARAMETER	SPECIFICATION / OPTIONS
Reactor type	Glass stirred / Glass non-stirred pressure reactor
Capacity	100 mL to 100 L, depending on configuration
Glass materials	Borosilicate / Quartz / Sapphire
Maximum pressure (family targets)	Borosilicate: up to 4 bar / Quartz: up to 100 bar / Sapphire: up to 200 bar
Vacuum service	Full vacuum operation where the glass, seals and support design allow
Operating temperature	Up to 250 C
Stirring	Top stirring / Bottom stirring
Drive	Magnetic drive and motor for stirred versions
Heating	Aluminium heater block / Glass heating jacket
Heating medium	Electrical heating / External thermal circulator
Cooling	Internal cooling coil / External glass jacket circulation
Temperature measurement	Thermocouple
Pressure measurement	Pressure gauge / Optional transmitter
Pressure protection	Pressure relief valve

PARAMETER	SPECIFICATION / OPTIONS
Gas handling	Gas inlet valve / Vent valve
Sampling	Sampling valve
Control	Analog panel / Digital panel / Touchscreen
Sealing materials	PTFE / PEEK / Other compatible materials as specified
Mounting	Metal support frame / Custom structure

Heating, accessories and options

GLASS REACTOR HEATING OPTIONS

HEATING OPTION	DESCRIPTION
Aluminium heater block	Electrical heating using custom-machined block; PID control; thermal contact and uniformity designed for reactor configuration.
Glass heating jacket	Glass jacket connected to external circulator; heating and cooling via compatible thermal fluid; custom circulation connections.

STANDARD ACCESSORIES - GLASS REACTORS

ACCESSORY	FUNCTION / DESCRIPTION
Pressure relief valve	Overpressure protection
Thermocouple	Temperature monitoring
Vent valve	Controlled depressurization
Gas inlet valve	Gas charging
Sampling valve	Process sampling
Internal cooling coil	Cooling arrangement within reactor
Magnetic drive	Stirring drive for stirred configurations
Stirring motor	Variable-speed motor
Heater	Aluminium block or glass-jacket heating system
Control panel	Temperature and stirring control
Pressure gauge	Pressure monitoring
Reactor support frame	Structural mounting
Safety shield	Optional operator protection for glass pressure equipment

OPTIONAL ACCESSORIES & CUSTOMISATION

Vacuum pumps and gauges, gas delivery, liquid feed, reflux, cooling and automation can be supplied as one integrated, factory-tested skid.

OPTIONAL ACCESSORY	DESCRIPTION / APPLICATION
Condenser	Reflux, vapor condensation and solvent recovery
Charging vessel / Feed vessel	Controlled addition of liquid, slurry or solid reactants
Catch pot	Collection of condensate, discharge or product
Pressure regulator	Gas supply pressure regulation
Back-pressure regulator (BPR)	Maintaining controlled reactor pressure
Solenoid valves	Automated gas, liquid and vent control
Automatic cooling chiller	Process cooling and temperature control
Heating circulator	External heating-fluid circulation
Cooling circulator	External cooling-fluid circulation
Gas mass flow controller	Precise gas flow control
Gas flow meter	Gas flow measurement
Liquid metering pump	Controlled liquid feed
High-pressure pump	Liquid pressurization
Gas-induction impeller	Enhanced gas-liquid mass transfer
Turbine impeller	High-intensity mixing and dispersion
Propeller impeller	General-purpose axial-flow mixing
Anchor impeller	High-viscosity mixing
Ribbon impeller	Viscous materials and polymerization
Helical impeller	High-viscosity / laminar-flow applications
Custom impellers	Application-specific mixing design

OPTIONAL ACCESSORY	DESCRIPTION / APPLICATION
View window / Optical port	Process observation, subject to design and pressure limitations
Sapphire window	High-pressure optical observation
Pressure transmitter	Digital pressure monitoring
Digital temperature controller	Temperature regulation
Touchscreen PLC control	Programmable operation and recipe control
Data logging	Recording pressure, temperature, RPM and process data
Automation package	Automated gas charging, pressure control, heating and cooling
Gas manifold	Multiple gas connections
Gas blending system	Mixing and metering multiple gases
Vacuum arrangement	Vacuum operation where design and compatibility allow
Custom skid	Integrated reactor, accessories and control system
Remote monitoring	Optional PC-based monitoring and control

CONTROL SYSTEM OPTIONS

From a manual analogue panel to recipe-driven PLC automation with data logging.

CONTROL SYSTEM	FEATURES
Analog control panel	Analog/digital temperature controller, manual RPM control and basic operation
Digital control panel	Digital temperature and RPM control with parameter display
Touchscreen HMI	Recipe operation, temperature/RPM/pressure monitoring and programmable sequences
PLC automation	Automated process sequences, gas charging, venting, temperature control and interlocks
Data logging	Recording temperature, pressure, RPM, time and other process data
Advanced control	Optional pressure control, gas flow control, automated cooling, alarms and process automation

APPLICATIONS

Typical duties where visibility, corrosion resistance or optical access matters.

APPLICATION	TYPICAL USE
Hydrogenation	High-pressure gas-liquid reactions and catalyst studies
Catalyst testing & development	Catalyst screening, activity and process development
High-pressure chemical synthesis	Batch synthesis under elevated pressure
Biomass & waste conversion	Thermal and catalytic conversion research
Supercritical fluid research	Research systems for supercritical process conditions, subject to configuration
Materials & nanomaterials synthesis	Materials synthesis and solvothermal/hydrothermal research
Polymerization	Polymer and specialty chemical development
Solvothermal synthesis	Synthesis under elevated temperature and pressure
Hydrothermal synthesis	Aqueous synthesis under elevated temperature and pressure
Gas-liquid reactions	Gas-liquid reaction and mass-transfer studies
Corrosion testing	Material compatibility and corrosion studies
Leaching & digestion	Sample processing and chemical treatment
Chemical process development	Laboratory and pilot-scale process development
Pharmaceutical R&D	Research synthesis and process development
Petrochemical research	Specialty reactions and process studies
CO2 conversion	Carbon dioxide reaction and conversion research
High-pressure extraction	Extraction research, subject to process configuration
Thermal decomposition	Thermal treatment and decomposition studies

Qualification, ordering and contact

ENGINEERING & RATING QUALIFICATION

Glass reactor ratings are model-specific and must be validated for geometry, support, seals, operating temperature and safety factors. Do not assume every capacity/material combination can operate simultaneously at the maximum listed pressure and temperature, and confirm vacuum duty with our engineers before ordering.

HOW TO SPECIFY AND ORDER

The fastest route to a usable quotation is a short, specific enquiry.

- Working pressure and temperature, with the expected hold time.
- Working volume and the largest single charge.
- Chemistry and wetted material, including trace-metal sensitivity.
- Stirring type, impeller and viscosity at operating conditions.
- Gas supply, sampling, venting and any vacuum requirement.
- Control philosophy: analogue panel, touchscreen, data logging, remote access.
- Documentation, compliance and the required delivery date.

CONTACT

Email	sales@krivalis.com
Phone	+91-74000-43303
Website	www.krivalis.com/stirred-glass-reactors-for-full-vacuum-and-high-pressure
Address	2306, T3, Runwal, LBS Marg, Kanjurmarg West, Mumbai 400078, India
Legal entity	Kriva Medical & Lab Instruments, Mumbai, India

Request a quote online at www.krivalis.com/stirred-glass-reactors-for-full-vacuum-and-high-pressure - the form reaches the reactor engineering desk directly, with the subject already set.

Specifications in this brochure are indicative of the standard build and are confirmed on the quotation and the equipment nameplate. Krivalis is a division of Kriva Medical & Lab Instruments, supplying laboratory, analytical and process equipment to 120+ countries since 2002.

The metallic range - to 350 bar and 500 C in SS316L, Hastelloy, Inconel and titanium - is documented in the separate High Pressure Lab Reactors brochure. Ask for it, or see both ranges at www.krivalis.com.