KRIVALIS™

METALLIC REACTORS - RANGE & SPECIFICATIONS

High Pressure Laboratory Reactors

Metallic stirred and non-stirred reactors from 100 mL to 100 L, to 350 bar and 500 C, in SS316L, Hastelloy, Inconel and titanium - configured to your chemistry.

2026-27 EDITION | KRIVA LAB INSTRUMENTS

350 bar	500 C	100 mL-100 L
DESIGN PRESSURE	DESIGN TEMPERATURE	CAPACITY

Capacities, specifications, heating, accessories, control options and applications for hydrogenation, catalysis, synthesis and materials research.

Metallic high-pressure reactors

The metallic range runs from 100 mL bench reactors to 100 L floor-mounted systems. Every capacity is available stirred or non-stirred, in 100, 200 or 350 bar design pressure and 300 C or 500 C design temperature, in SS316L, SS310, Hastelloy C-276, Inconel 625, Inconel 718, titanium or another alloy on request.

METALLIC HIGH-PRESSURE REACTOR RANGE

CAPACITY	STIRRED	NON-STIRRED	PRESSURE OPTIONS	TEMPERATURE OPTIONS
100 mL	Available	Available	100 / 200 / 350 bar	300 / 500 C
200 mL	Available	Available	100 / 200 / 350 bar	300 / 500 C
300 mL	Available	Available	100 / 200 / 350 bar	300 / 500 C
500 mL	Available	Available	100 / 200 / 350 bar	300 / 500 C
1 L	Available	Available	100 / 200 / 350 bar	300 / 500 C
2 L	Available	Available	100 / 200 / 350 bar	300 / 500 C
5 L	Available	Available	100 / 200 / 350 bar	300 / 500 C
10 L	Available	Available	100 / 200 / 350 bar	300 / 500 C
20 L	Available	Available	100 / 200 / 350 bar	300 / 500 C
50 L	Available	Available	100 / 200 / 350 bar	300 / 500 C
100 L	Available	Available	100 / 200 / 350 bar	300 / 500 C

All combinations are customizable and subject to engineering feasibility, material selection, geometry and design conditions.

METALLIC REACTOR SPECIFICATIONS

Standard build parameters. Materials, closure type, impeller and instrumentation are selected against the reaction, the solvent and the operating conditions.

PARAMETER	SPECIFICATION / OPTIONS
Reactor type	Stirred / Non-stirred / Batch reactor
Capacity	100 mL to 100 L
Design pressure	100 / 200 / 350 bar
Design temperature	Up to 300 C / Up to 500 C
Wetted materials	SS316L / SS310 / Hastelloy C-276 / Inconel 625 / Inconel 718 / Titanium / other alloys on request
Reactor closure	Clamp closure / Bolted closure / Custom high-pressure sealing arrangement
Stirring	Top-entry
Drive system	Magnetic coupling drive; variable-speed motor
Impellers	Propeller / Turbine / Gas-induction / Anchor / Ribbon / Helical / Custom
Heating	Electrical ceramic heater / SS heating jacket
Cooling	Internal cooling coil / External cooling jacket where applicable
Temperature measurement	Thermocouple / RTD as specified
Pressure measurement	Pressure gauge / Optional digital pressure transmitter
Pressure protection	Rupture disc / Safety relief arrangement as per design
Gas handling	Gas inlet / Vent / Pressure regulation system
Sampling	High-pressure sampling arrangement
Control	Analog panel / Digital panel / Touchscreen PLC-HMI
Mounting	Bench-top / Trolley mounted / Floor-mounted / Custom skid-mounted
Power supply	220 VAC / 415 VAC / Customized

Heating, accessories and options

METALLIC REACTOR HEATING OPTIONS

HEATING OPTION	DESCRIPTION
Electrical ceramic heater	External electrical heating; configurable wattage; PID temperature control; insulation and safety cut-outs; design-dependent up to 300 C or 500 C.
SS heating jacket	Jacketed construction for thermal-fluid heating/cooling; thermal oil or compatible fluid; external circulator integration; custom connections.

STANDARD ACCESSORIES - METALLIC REACTORS

ACCESSORY	FUNCTION / DESCRIPTION
Safety rupture disc	Overpressure protection, selected and sized for design conditions
Thermocouple	Reactor temperature measurement
Vent valve	Controlled venting / depressurization
Gas inlet valve	Gas charging and pressurization
Sampling valve	Controlled process sampling
Internal cooling coil	Internal heat removal using cooling medium
Magnetic drive	Included for stirred configurations
Stirring motor	Variable-speed motor for stirred reactors
Heater	Ceramic heater or selected heating system
Control panel	Temperature, heater and stirring control
Pressure gauge	Reactor pressure monitoring
High-pressure fittings	Process and instrumentation connections
Reactor stand	Support frame or mounting arrangement
Electrical safety	Emergency stop, over-temperature protection and safety interlocks

OPTIONAL ACCESSORIES & CUSTOMISATION

Gas delivery, feeding, 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 across chemical, pharmaceutical, energy and materials research.

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

Pressure and temperature combinations, material compatibility and accessory ratings are subject to engineering review. Do not assume every capacity/material combination can operate simultaneously at the maximum listed pressure and temperature.

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/high-pressure-lab-reactors
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/high-pressure-lab-reactors - 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 glass / sapphire range - full vacuum to 200 bar at up to 250 C - is documented in the separate Stirred Glass Reactors brochure. Ask for it, or see both ranges at www.krivalis.com.