

Technical Specifications

High Pressure Reactor BR-4000

Note

Unique selling propositions and knock-out specifications are written in blue.
Notes refer to main competitors Parr Instruments, Büchi and Premex.

High Pressure Reactor BR-4000	High Pressure Reactor BR-4000
Model with PTFE-Lining	Model without PTFE-Lining
General Specifications	
Please select appropriate specifications according to customers reactor configuration	
Materials of construction: Vessel : SS 316 and PTFE Valves and fittings: SS 316 or Hastelloy	Materials of construction: Vessel : SS 316 or Hastelloy Valves and fittings: SS 316 or Hastelloy
Sealing: PTFE, FPM (Viton) or FFKM	Sealing: PTFE, FPM (Viton) or FFKM
Capacity reactor 5500ml	Capacity reactor 5500ml
Capacity liner: 4700 ml	
Max. operating temperature: 230 °C (446°F)	Max. operating temperature: 230°C (446°F)
Max. operating pressure: 150 bar (2175 psi)	Max. operating pressure: 150 bar (2175 psi)
TÜV* certificate, CE	TÜV* certificate, CE
Outer diameter: 168 mm (6.6 inch)	Outer diameter: 168 mm (6.6 inch)
Interior diameter: 126 mm (5.0 inch)	Interior diameter: 136 mm (5.4 inch)
Interior depth: 378 mm (14.9 inch)	Interior depth: 390 mm (15.4 inch)

Basic Installation

PTFE-lining knocks-out all competitors.

High pressure reactor with pressure vessel made of stainless steel SS 316 TI fully lined with PTFE for effective corrosion protection for all reactor components which come in contact with liquid medium. Lining consists of removable PTFE-insert with a wall thickness of 5 mm, fixed-mount lid-liner made of PTFE (thickness 4 mm) and a PTFE-O-seal ring. The reactor is closed manually, tool-free with a quick-acting closure chain and exceeding of the maximum pressure is prevented by a rupture disc made of SS 316TI and PFA protection foil with a

High pressure reactor with pressure vessel made of stainless steel SS 316 TI or Hastelloy C-4 for corrosive media and an O-seal ring made of PTFE, FPM or FFKM. The reactor is closed manually, tool-free with a quick-acting closure chain and exceeding of the maximum pressure is prevented by a rupture disc made of SS 316TI and PFA protection foil with a burst pressure of 150 bar (2175 psi).

burst pressure of 150 bar (2175 psi).

Set of Fittings SS 316

Please select appropriate specifications according to customers reactor configuration.

Fittings are made of SS 316 and include:

Manometer (0-160 bar; 0-2320 psi)

Rupture disc made of SS316 TI with PFA protecting foil with rupture disc holder made of SS 316 TI incl. Certificate.

Connection to high pressure tubing possible for safe drainage of emitted gases.

Gas valve (nominal width 4mm)

NiCrNi-temperature probe (type K) in PFA-sheathed (thickness 0.5 mm) dip-tube made of SS 316 TI

Fittings are made of SS 316 and include:

Manometer (0-160 bar; 0-2320 psi)

Rupture disc made of SS 316 TI with PFA protecting foil with rupture disc holder made of SS 316 TI incl. Certificate.

Connection to high pressure tubing possible for safe drainage of emitted gases.

Gas valve (nominal width 4mm)

NiCrNi-temperature probe (type K) in dip-tube made of SS 316 TI

Options:

Liquid sampling valve with PTFE rising tube (nominal width 4mm)

PTFE high pressure exhaust tubing for rupture disc (2.5m, ID 9mm, 550bar)

Digital manometer (0-250bar; 0-3626 psi)

Liquid feeding of 5-50ml under working pressure

Options:

Liquid sampling valve with SS 316 rising tube (nominal width 4mm)

PTFE high pressure exhaust tubing for rupture disc (2.5m, ID 9mm, 550bar)

Digital manometer (0-250bar; 0-3626 psi)

Liquid feeding of 5-50ml under working pressure

Option: Set of Fittings Hastelloy C4

Please select appropriate specifications according to customers reactor configuration.

Hastelloy valves and fittings knocks-out Parr, especially.

Fittings are made of Hastelloy C4 and include:

Manometer (0-160 bar; 0-2320 psi) with Hastelloy C4 pressure transmitter

Rupture disc made of SS 316 TI with PFA protecting foil with rupture disc holder made of HC-4 incl. Certificate. Connection to high pressure tubing possible for safe drainage of emitted gases. Gas valve (nominal width 2mm)

NiCrNi-temperature probe (type K) in PFA-sheathed (thickness 0.5 mm) dip-tube made of SS 316 TI

Fittings are made of Hastelloy C4 and include:

Manometer (0-160 bar; 0-2320 psi) with Hastelloy C4 pressure transmitter

Rupture disc made of SS 316 TI with PFA protecting foil with rupture disc holder made of HC-4 incl. Certificate. Connection to high pressure tubing possible for safe drainage of emitted gases. Gas valve (nominal width 2 mm)

NiCrNi-temperature probe (type K) in dip-tube made of HC-4

Options:

Liquid sampling valve with PTFE rising tube (nominal width 2mm)

PTFE high pressure exhaust tubing for rupture disc (2.5m, ID 9mm, 550bar)

Digital manometer (0-250bar; 0-3626 psi) and

Hastelloy C4 pressure transmitter (0-250bar; 0-3626 psi)

Options:

Liquid sampling valve with HC-4 rising tube (nominal width 2mm)

PTFE high pressure exhaust tubing for rupture disc (2.5m, ID 9mm, 550bar)

Digital manometer (0-250bar; 0-3626 psi) and

Hastelloy C4 pressure transmitter (0-250bar; 0-3626 psi)

Heating

Heating is performed from outside with an thermally insulated, electrical heating jacket (heating output: 2500W, integrated NiCrNi thermocouple, power supply: 230V/50Hz). Temperature is controlled based on either the inner temperature of the reactor or the temperature of the heating jacket with a freely adjustable, separate controller (PID-controller) with LED-display (power supply 95-230V; max. current 10A, 50/60Hz). Adjustable parameters are heating ramp, end point, power limitation etc. Built-in adjustable overtemperature protection (50-300°C).

Option:

Heating is performed from outside with a thermostated heating jacket. Heating is controlled by temperature of heating liquid.

Option:

Heating or cooling coil made of Aluminium sheathed

Option:

Heating or cooling coil made of SS 316 TI

with PFA (OD 8mm, ID 4mm)	(OD 6mm, ID 4mm)
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Option:

Heaters are mounted on a laboratory cart with stand and crane system to simplify reactor handling.

Agitation

Note:

PTFE-lining knocks-out all competitors.

Clandless agitation consists of					Clandless agitation consists of				
a. completely PTFE-sheathed (thickness 1 mm), removable shaft and blades - standard are anchor blades;					d. removable shaft and blades - standard are anchor blades-made of SS 316Ti or Hastelloy C-4;				
b. removable magnetic clutch made of SS 316 Ti or Hastelloy C-22 with contactless sensor for rotational speed and PTFE/carbon bearings;					e. removable magnetic clutch made of SS 316 Ti or Hastelloy C-22 with contactless sensor for rotational speed and PTFE/carbon bearings;				
c. an external motor mounted on a stand.					f. an external motor mounted on a stand.				
Torque (magn. Clutch)	Max. viscosity	Torque (motor)	speed	power	Torque (magn. Clutch)	Max. viscosity	Torque (motor)	speed	power
20 Ncm	1500mPas at 1 litre	30 Ncm	50-2000rpm	230 or 115V	20 Ncm	1500mPas at 1 litre	30 Ncm	50-2000rpm	230 or 115V
40 Ncm	2500mPas at 4 litre	60 Ncm	50-2000rpm	230 or 115V	40 Ncm	2500mPas at 4 litre	60 Ncm	50-2000rpm	230 or 115V
90 Ncm	4000mPas at 10 litre	200 Ncm	14-530rpm	230 or 115V	90 Ncm	4000mPas at 10 litre	200 Ncm	14-530rpm	230 or 115V

BTC-3000

Temperature controller with built-in data logger system with 62x42 mm LCD graphic display for real-time monitoring of temperature (0-500 °C, display accuracy 1°C) and pressure progression (display accuracy 1 bar). Heating programs are programmed and controlled in up to 6 steps comprising of warm-up time, hold time and temperature with a run time up to 17 days. PID regulation of temperature with PID parameters freely programmable.

Implemented monitoring of stirrer rotational speed (0-2000rpm) and second adjustable, overtemperature protection (30-300°C).

Control of heaters with max. 3000W power consumption.

Data logger function including PC software data monitoring of up to 4 reactor systems.

BDL-3000

Data Logger System with PC-Software to monitor, display and document pressure, temperature data of up to 2 reactors.

Provision of internal reactor temperature regulation with BLH-800 hot plate for up to 2 reactors.

Operating system: Windows 98, Windows 2000 or higher.

* An independent german testing laboratory