Technical Specifications
High Pressure Reactor BR-1000

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-1000	High Pressure Reactor BR-1000
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: 1100, 1700 or 2300ml	Capacity reactor: 1100, 1700 or 2300ml
Capacity liner: 1000, 1500 or 2000 ml	
Max. operating temperature:230 °C (446°F)	Max. operating temperature: 300°C (572°F)
Max. operating pressure: 200 bar (2900 psi)	Max. operating pressure: 200 bar (2900 psi)
TÜV* certificate, CE	TÜV* certificate, CE
Outer diameter: 117 mm (4.6 inch)	Outer diameter: 117 mm (4.6 inch)
Interior diameter: 82 mm (3.2 inch)	Interior diameter: 90 mm (3.5 inch)
Interior depth: 180 mm (7.1 inch) with 1000ml 270 mm (10.6 inch) with 1500ml 345 mm (13.6 inch) with 2000ml	Interior depth: 185 mm (7.3 inch) with 1100ml 275 mm (10.8 inch) with 1700ml 352 mm (13.9 inch) with 2300ml
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 3 mm, fixed-mount lid-liner made of PTFE (thickness 4 mm) and a PTFE-O-seal ring. The reactor	High pressure reactor with pressure vessel made of stainless steel SS 316 TI or Hastelloy C-4 for corrosive media and a 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 with a burst pressure of 200 bar (2900 psi).

BERGHOF

is closed manually, tool-free with a quick-acting closure chain and exceeding of the maximum pressure is prevented by a rupture disc with a burst pressure of 200 bar (2900 psi).

Set of Fittings SS 316

Please select appropriate specifications according to customers reactor configuration.

Fittings are made of SS 316 and include:
Manometer (0-250 bar; 0-3626 psi)
Rupture disc made of monel 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 with 4mm)
NiCrNi-temperature probe (type K) in PFA-sheathed (thickness 0.5 mm) dip-tube made of SS 316 TI

Options:
Liquid sampling valve with PTFE rising tube (nominal with 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

Fittings are made of SS 316 and include:
Manometer (0-250 bar; 0-3626 psi)
Rupture disc made of monel 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 with 4mm)
NiCrNi-temperature probe (type K) in dip-tube made of SS 316 TI

Options:
Liquid sampling valve with SS 316 rising tube (nominal with 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 (0-250 bar; 0-3626 psi) with Hastelloy C4 pressure transmitter
Rupture disc made of monel with PFA protecting foil with rupture disc holder made of HC-4 incl. Certficate. Connection to high pressure tubing possible for safe drainage of emitted gases.
Gas valve (nominal with 2mm)
NiCrNi-temperature probe (type K) in PFA-sheathed (thickness 0.5 mm) dip-tube made of SS 316 TI

Options:
Liquid sampling valve with PTFE rising tube (nominal with 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)

Fittings are made of Hastelloy C4 and include:
Manometer (0-250 bar; 0-3626 psi) with Hastelloy C4 pressure transmitter
Rupture disc made of monel 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 with 2 mm)
NiCrNi-temperature probe (type K) in dip-tube made of HC-4

Options:
Liquid sampling valve with HC-4 rising tube (nominal with 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 a thermally insulated, electrical heating jacket (heating output: 2000W, 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.

Agitation

Note:

PTFE-lining knocks-out all competitors.

Clandless agitation consists of
a. completely PTFE-sheathed (thickness 1 mm), removable shaft and blades - standard are anchor blades;
b. removeable 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.

Torque (magn. Clutch)	Max. viscosity	Torque (motor)	speed	power
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
90 Ncm	4000mPas at 10 litre	200 Ncm	14-530rpm	230 or 115V

Clandless agitation consists of
d. removable shaft and blades - standard are anchor blades- made of SS 316TI or Hastelloy C-4;
e. removable magnetic clutch made of SS 316 TI or Hastelloy C-22 with contactless sensor for rotational speed and PTFE/carbon bearings;
f. an external motor mounted on a stand.

Torque (magn. Clutch)	Max. viscosity	Torque (motor)	speed	power
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
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