

Technical specifications

BRC - Berghof Reactor Controller



Intuitive Control – Auto-Tuning – Plant Control

Everything under control with one controller

Our BRC controller gives you quick access to all important parameters, such as pressure and temperature values as well as stirring speed. You also have the option of switching electric valves directly from the controller. The auto-tuning function allows you to determine PID control values specifically for your system. This reduces fluctuations in the target temperature by over 80 %, resulting in better reproducibility and fewer unwanted by-products.

The BRC can also be individually adapted to your needs with modular extensions.

| Technische Details | |
|------------------------------------|---|
| Power | 230 V ± 10%, 50/60Hz, 16 A |
| Maximal power consumption | 3.600 W |
| Heating power | 3000 W max. |
| Temperature sensor | PT100, 2-/4-Leiter |
| Displayed temperature range | 0 – 400°C / 32 – 752 °F, ± 0,1°C |
| Displayed speed range | 0-2000 rpm |
| Motor compatibility | BRM-1, BRM-2, BRM-3 |
| Displayed pressure range | -1 – 300 bar, depending on the sensor |
| Pressure sensor | Electronical pressure sensor, digital manometer |
| Display | 7" Touchscreen with swipe function |
| Weight | 2,6 kg |
| Dimensions | 260 x 260 x 140 mm (W x D x H) |
| Languages | German, English, Italian |

| Connections | | | |
|-------------|---|----|--|
| 1 | X-1: Connection Valve1/ext. Heating | 8 | X-3: Connection cooling valve |
| 2 | X-2: Connection Valve2/BLH-650 Heating plate | 9 | T-R: Connection PT-100 reactor |
| 3 | Power: Mains switch | 10 | T-3: Connection PT-100 (e.g., additions) |
| 4 | Stirrer: Connection stirrer motor BRM-1/-2 | 11 | T-M: Connection PT-100 heating jacket |
| 5 | Heating (Berghof only): Connection BHM heating jacket | 12 | P-1: Connection pressure sensor 1 |
| 6 | Power Input: Mains connection | 13 | P-2: Connection pressure sensor 2 |
| 7 | USB (PC): Connection Mini-USB (to a computer) | 14 | COM: Connection RS422/RS232 |



- Intuitive operation**
 - 4 operating modes with all functions and parameters
 - Preset parameter sets for all reactor configurations
 - 10 individual recipe memories
 - PC software logs curves of temperature, pressure, heating power, speed and motor current

- Auto-Tuning**
 - Faster heating rates and lower overshoots
 - Preset, already optimized PID values
 - Optimization to actual filling quantity, reagents used and temperature range possible
 - Storage of up to 3 parameter sets per recipe

- Plant Control**
 - Small systems with up to two electric valves can be switched manually or time-controlled

- Operation modes**
 - **Manual**
 - Manual start and stop
 - Programming of a set temperature and pressure limit
 - Agitation with constant set speed

 - **Ramp**
 - Pre-heating function
 - Programming of heating, holding, and cooling phase
 - Agitation with constant set speed

 - **Sequence**
 - Programming of complex temperature programs
 - Each ramp can be individualized with set speed and pressure limit

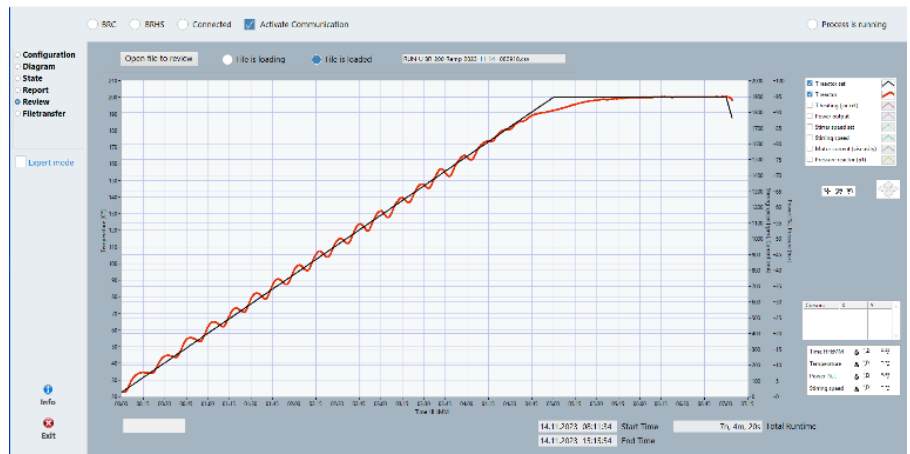
 - **Auto-Tuning**
 - Determination of temperature control parameters for each individually configured reactor system
 - Customizable with and without PTFE insert

- Data logging**

By connecting an external PC via USB, the BRC process controller can also be used as a data logger to document the temperature and pressure curves or other standard signals. Using the PC software supplied, the temperature, pressure, heating power, speed and motor current curves can be recorded via the BRC.

- Rights hierarchy**
 - Separation between User, Admin and System-Admin prohibit unauthorized changes on the system

- PC-Software**
 - PC-Software BRVI for data logging during the experiment



| Controller Software packages | Basic | Comfort | Professional |
|------------------------------|--|--|--|
| | <ul style="list-style-type: none"> - Manual and Ramp mode | <ul style="list-style-type: none"> - All basic features | <ul style="list-style-type: none"> - All comfort features |
| | <ul style="list-style-type: none"> - 10 memory slots for individual settings | <ul style="list-style-type: none"> - Auto-tuning - Sequence mode | <ul style="list-style-type: none"> - Protected settings via right hierarchy |
| | <ul style="list-style-type: none"> - Soft start/stop - function for stirrer drive | <ul style="list-style-type: none"> - Valve control | <ul style="list-style-type: none"> - Indicator for viscosity |
| | <ul style="list-style-type: none"> - Data logging via PC-Software / USB-Stick | | |

Exemplary assembly of a complete system



Further information can be found at:

<https://www.berghof-instruments.com/en/products/berghof-reactor-controller/>