QUICK START GUIDE

Bead Ruptor™ 96+

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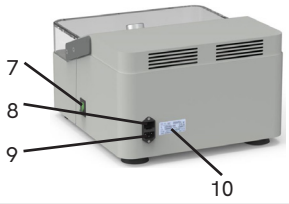
For research only. Not for use in diagnostic procedures

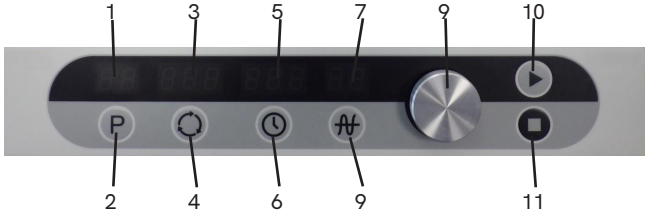
General Description

The Bead Ruptor 96+ is a laboratory device, which is intended for milling and homogenizing soft, fibrous, hard and brittle materials in the dry and wet state. It is used for fast, super fine milling of two or more samples simultaneously. The closed milling system guarantees complete recovery of the samples. Owing to the extremely short milling time and the high final fineness of the milled material, the Bead Ruptor 96+ is also ideally suitable for sample preparation for all spectral analyses. Final finenesses of down to 1 µm can be achieved, depending on the milling time and the specific properties of the sample material. The optimum milling jar filling is as a rule 1/3 of the milling jar volume. Exceptions to this are voluminous materials, such as wool, leaves, grasses and such like. In these cases a filling level of 70-80% is necessary.

The sample quantity should not be less than 25% of the milling jar volume. The milling balls may otherwise damage the milling jars.
The milling jar materials and milling ball materials must always be identical or compatible. The milling balls may otherwise damage the milling jars.

Instructions for Use





Position	Description	Function
1	Lid	Closes the milling chamber.
2	Lid handle	For opening and closing of the lid.
3	Control panel with display	Setting of vibrational frequency, time, cycler, programs and starting/ stopping the instrument.
4	Milling jar holder - left	Holds the milling jar.
5	Milling jar holder - right	Holds the milling jar.
6	Warning symbols	They indicate potential risks and hazards.
7	Main switch	For switching the Bead Ruptor 96+ on and off.
8	Fuse compartment	Contains two fuses.
9	Mains socket	Connection for power cord to the instrument.
10	Name label	Instrument data.

Position	Description	Function
1	Program display	Displays programs.
2	PROGRAM key	For setting and selecting the programs.
3	Cycler display	Displays cycles.
4	CYCLER key	For setting and selecting the cycler.
5	Time display	Displays run time.
6	TIME key	For setting the run time.
7	Vibrational frequency display	Displays vibrational frequency.
8	FREQUENCY key	For setting the vibrational frequency.
9	Knob	For changing and confirming the values of parameters.
10	START key	For starting the run of the instrument.
11	STOP key	For stopping the run of the instrument and canceling the setting.

Starting and Stopping the Instrument - Before starting the instrument, turn on the main switch, open the lid, insert the milling jars, close the lid and set the operation parameters or select a suitable program or cycler program.

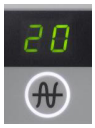
By pressing the START key, you start the run of the instrument. The key lights up and thus indicates that the instrument is running. The instrument counts down the time from set value. You can't change the time during the operation of the instrument. If continuous operation "HLd" is set, the instrument is running until you stop it manually by pressing the STOP key. After the expiration of set run time or after manual stopping, the instrument stops. The next run is possible when the instrument stops completely.

By pressing the STOP key, you stop the run of the instrument. The key lights up and thus indicates that the instrument is stopping. Until the instrument stops completely, START key is lit, thus indicating that the instrument hasn't stopped yet, and message "End" is displayed on time display.

When the instrument stops, only STOP key is lit and the last used values for time and frequency are automatically set.

Operational Controls

Setting Homogenization Frequency

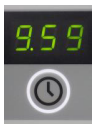


By pressing the FREQUENCY button, you can set the homogenization frequency. The button lights up. Set new frequency by rotating the knob and confirm it by pressing on the knob. The button light will then turn off.
NOTE: After 5 seconds of inactivity, the setting is automatically canceled.

You can set the frequency from 3.0 to 30 Hz.
Frequency setting from 3.0 to 9.9 Hz is possible in 0.1 Hz steps.
Between 10 and 30 Hz the setting is possible in 1 Hz steps.

NOTE: You can change the homogenization frequency during the operation of the instrument, which starts to work with the new frequency after that. After 5 seconds of inactivity, the setting is automatically canceled.

Setting the Run Time

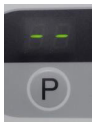


By pressing the TIME button, you can set the run time. The button lights up.
Set new time by rotating the knob and confirm it by pressing on the knob. The button light will then turn off.
NOTE: After 5 seconds of inactivity, the setting is automatically canceled.
You can set the time from 10 seconds (0.10) to 99 minutes 50 seconds (99.5).
Time setting from 0.10 to 9.59 minutes is possible in 1 second steps.
Between 10.0 and 99.5 minutes the setting is possible in 10 second steps.
NOTE: 0.10 = 10 s, 9.59 = 9 min 59 s, 10.0 = 10 min, 99.5 = 99 min 50 s

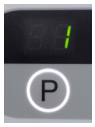
By rotating the knob clockwise after 99.5 is displayed, or counterclockwise after 0.10 is displayed, you can set continuous operation (HLd on display).

NOTE: The time can't be changed during operation. You can only check the set time by pressing the TIME button. By pressing on the knob, you return to current time. This also happens automatically after 5 seconds.

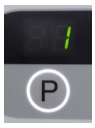
Program Setting



You can save 99 programs, with different operational parameters, in the instrument memory. If you select two lines (--), it means that no program is set. By entering the program setting, the cycler turns off automatically, if it was set (see next chapter).
NOTE: You can cancel the procedure for program setting by pressing the STOP button and return to stand-by mode without confirming the data. Operation parameters are reset to the last used values before using the program.



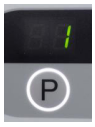
If you want to use the existing program:- By pressing the PROGRAM button, you can set the programs. The button lights up. Select a program by rotating the knob and confirm it by pressing on the knob. The button light will then turn off. Operation parameters set in selected program will be displayed



I**f you want to change the existing program:-** By pressing the PROGRAM button, you can set the programs. The button lights up. Select the program that you want to change, by rotating the knob. While the PROGRAM button is lit, set the values of individual operational parameters (homogenization frequency and run time), using the procedures described in the previous chapters (5.9 and 5.10). You can't use cycler in the programs. If you want to change another program, select it by rotating the knob, and set the values of individual operation parameters for this program. Otherwise skip this step.
By rotating the knob, select a program that you want to use and confirm it by pressing on the knob. The light for the PROGRAM button will then turn off. Operation parameters set in selected program will be displayed.

Cycler Setting

You can save 9 cycler programs, with different operational parameters, in the instrument memory.
If you select three lines (-.--), it means that no cycler program is set.
By entering the cycler setting, the program turns off automatically, if it was set .
NOTE: You can cancel the procedure for cycler setting by pressing the STOP button and return to stand-by mode without confirming the data. Operation parameters are reset to the last used values before using the cycler.



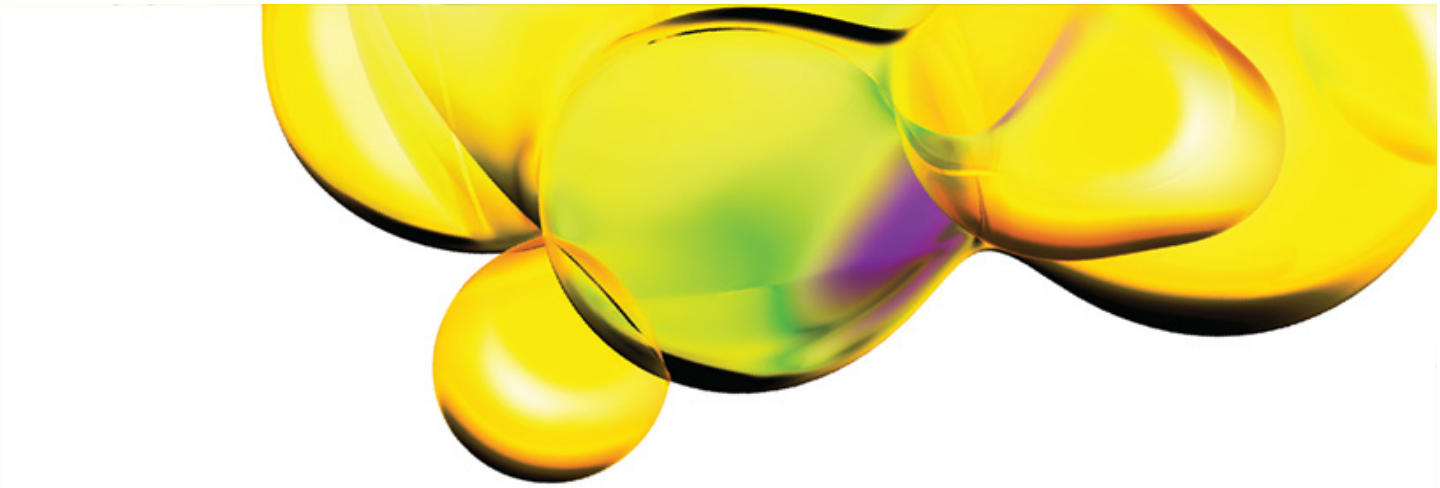
If you want to use the existing cycler program:- Press the CYCLER button, you can set the cycler. The button lights up. Select a cycler program (dot after first number) by rotating the knob and confirm it by pressing on the knob. The button light will then turn off. Operation parameters set in selected cycler program are displayed on display.
If you want to change the existing program:- Press the CYCLER button, you can set the cycler. The button lights up. Select a cycler program you wish to change (dot after first number) by rotating the knob.

By pressing the CYCLER button select the number of repetitions of the cycles (dot after second number). By rotating the knob set the number of repetitions from 1 to 9.

By pressing the CYCLER button select cycles (dot after third number). By rotating the knob select cycles from 1 to 9. You must set the cycles in consecutive numbers from 1 forward. Select cycle 1 and set the values of individual operation parameters (homogenization frequency and run time) for cycle 1, using the procedures described previously.

Then select cycle 2 by rotating the knob and set the values of individual operation parameters (homogenization frequency and run time) for cycle 2. **NOTE:** In cycles you can set homogenization frequency also to 0 Hz, which is useful for pause between cycles for cooling.

Repeat the procedure from above paragraph for cycles you want to set.
If you want to reduce the number of cycles, set the values of individual operation parameters to lines (homogenization frequency (--), run time (---)).



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