

Bead One R
Benchtop
fusion instrument



Semi-automatic fusion device

The Bead One R combines highly repeatable and accurate analysis results with easy-to-use interfaces and maximum safety measures. Precisely controlled temperature and fusion parameters as well as the optional automatic magazine makes the Bead One R your future-proof instrument for analytical excellence.



Bead One R with an automatic magazine for unmanned preparation of up to nine samples. The magazine can be added to the basic machine at any time.

Analytical Flexibility

The Bead One R prepares glass beads for XRF analysis or borate or peroxide solutions for AA and ICP analysis. The fusion process can be exactly controlled by the parameters temperature, duration, heating rate and crucible rocking speed.

After the melting process the material can be either discharged into the casting dish or remain in the crucible until solid. Alternatively, the melt can be poured into acid solution cup which is positioned on a magnetic stirring device.

The Bead One R is prepared to perform different sample preparation processes in an inert gas or oxygen atmosphere.

Heating Chamber

The tube furnace with a maximum operating temperature of 1350°C is made from high-quality components. The well-dimensioned high-grade SiC rods with heating from two sides guarantee uniform temperature distribution and high energy efficiency.

The persistent PtRh-Pt thermocouple is located within the working tube for immediate temperature measurement. Wear-free and noiseless thyristors are used for very precise temperature control.

The multilayer furnace insulation consists of high-purity aluminum oxide sheets and allows for high temperature shock resistance. The working tube is designed for protection of machine components from aggressive vapors and is easily exchangeable.



The benchtop fusion device with resistance heating -

The compact and intelligent solution for your high analytical requirements

At a Glance

- Benchtop fusion instrument (resistance heating technology) for preparation of glass disks for XRF as well as borate and peroxide solutions for AA and ICP analysis.
- Highly accurate and precise analysis results for a wide range of different applications.
- High-quality furnace (max. operating temperature 1350°C) with optimized design and high-precision control for excellent fusion conditions.
- Optional magazine for automatic and completely unmanned processing of up to nine samples. This releases the operator's workforce for more efficient and responsible tasks.
- Maximum safety measures including safety door locking and cold-to-cold operation for Bead One R and the magazine.

User Interface

The clearly laid out HMI touchscreen provides you with a quick overview about operation mode and process parameters. The software comes with a set of 10 defined preparation methods. New recipes can be easily programmed, added and stored.

For more efficient time utilization timers can be set for preheating and switch-off.

TCP/IP and USB Interfaces allow the potential remote access to the instrument and data export for further analytical usage.

Safety

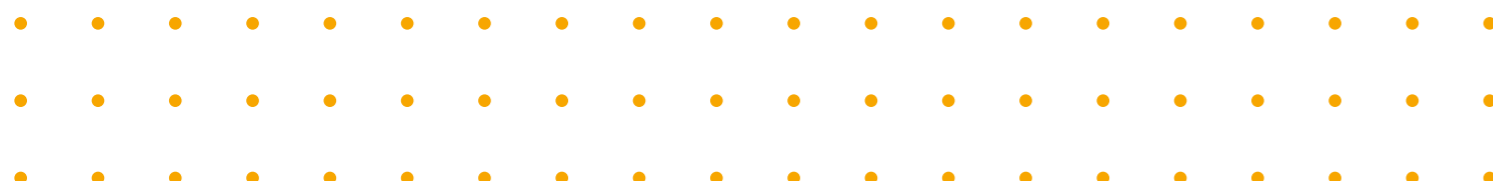
The safety door is locked during the entire fusion and cooling process. Pouring is fully-automatically without need for intervention. Therefore, the operator never comes into contact with hot vessels.

The machine is certified according to CE and CSA. The furnace complies with EN 746 (industrial thermoprocessing equipment) and ZH 1/498 (safety rules for industrial furnaces).



Advantages

- Ergonomic machine operation
- Precise sample preparation
- Powerful handling system
- HMI panel
- Efficient magazine management



Magazine

As an option, the Bead One R can be combined with a fully automatic magazine that can be easily retrofitted at a later date.

The magazine has a capacity of up to nine crucibles and corresponding casting dishes. Samples are registered in desired order on the HMI of the Bead One R – no additional panel or control unit is needed. The handling system within the magazine automatically transports crucible and casting dish to the Bead One.

After fusion, pouring and solidification of the melt crucible and casting dish are transferred to an extra cooling position and the Bead One is ready to accept a new sample from the magazine. When the vessels are completely cooled down they are transported to their magazine positions and can be removed by the operator for the analysis.

The magazine software enables an easy sample registration process with setting of sample order and fusion parameters. It provides the operator with an overview of the magazine status and excludes mix-up of samples.

The Bead One R magazine is designed for maximum safety. The safety door prevents operator's interference with the magazine handling device. The covered extra cooling position guarantees a cool-to-cool operation.



Efficient magazine management



Bead One R

The Bead One R offers precise, semi-automatic fusion with a high-quality furnace and user-friendly controls. Its optional magazine enables unmanned processing of up to nine samples for enhanced efficiency and accuracy.

Efficiency and Precision

The Bead One R combines ergonomic machine operation with highly precise sample preparation, ensuring repeatable and accurate analytical results. Designed for ease of use, its intuitive interface and automated handling system streamline workflows while reducing operator workload.



Precise sample preparation

The advanced resistance heating technology provides uniform temperature distribution for consistent fusion quality. With safety features such as a locking door and cold-to-cold operation, the Bead One R enhances both efficiency and reliability, making it an ideal solution for high-precision laboratory environments.

Technical Data

Model

Bead One R

Color: RAL 5007 / 7035 / 7005

Dimension and Weight

Dimensions

874 x 670 x 790 mm (LxWxH, Approximate)

Weight

125 kg (Approximate)

Power Supply and Consumption

Voltage

1 x 230 V, 50 Hz 1/N/PE

Power Consumption

2 kVA (Approximate)

Oven

Power Consumption

1.5 kW

- High-quality SiC heating elements equally fitted in heat chamber
- 3x PtRh - Pt - thermocouples for temperature control

Control System

Beckhoff Panel

PLC 7"

Language

German / English

Cable Connection at the Machine

Terminal

Compressed Air

Not required

Connection for Exhaust

Top of machine

Ø 80 mm

Sample Dimensions and Cooling

Cooling Type

Electrical Fan

Options

- **Magazine**
 - Capacity Up to 9 samples
 - Dimensions 357 x 627 x 608 mm (LxWxH, Approximate)
 - Weight 40 kg (Approximate)
- **Casting Options**
 - Into Pt-dish (various diameters available)
 - Or into acid + stirring

The machine complies with the European CE-directives.



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