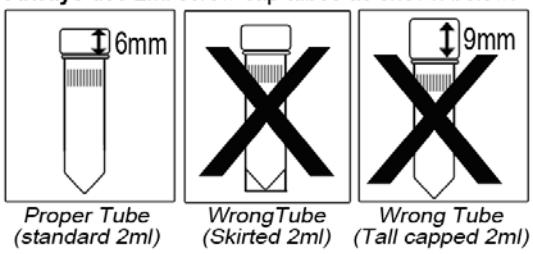
BeadBug™ Mini Homogenizer
Model D1030 (E) Instruction Manual

The BeadBug™ is a mini sized homogenizer ideal for the disruption of samples in 2.0ml screw cap microtubes. The unique design of the tube holder allows for three tubes to be inserted per mixing cycle.

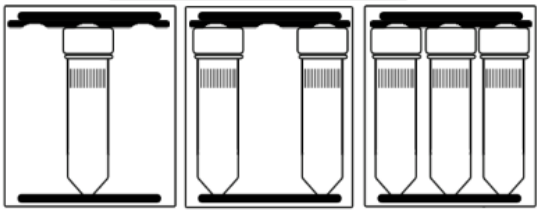
CAUTION: The BeadBug is intended for use with non-skirted 2ml screw cap tubes (Benchmark item: D1031 or equivalent.)

To avoid risk of personal injury, always follow the loading instructions below. ***Tubes should be placed so that the cap side is against the nylon gasket***. Modifying the tube holder or failing to use this instrument as described below will void the warranty.

Always use 2ml screw cap tubes as shown below:



Always Load Tubes:
- In a balanced configuration.
- With the **cap contacting the plastic side** of the holder:



I. Product Specifications:

Speed / Control:	User settable 2800 to 4000 rpm
Timer:	3 seconds to 3 minutes
Max. Capacity:	3 x 2.0ml
Dimensions (wxdxh):	175x210x135mm, Weight: 2.2kg, 5lb
Electrical:	115VAC, 60Hz, 230VAC, 50Hz, (Model D1030-E) **CE** compliant
Operating environment:	4˚ C to 65˚ C;
Warranty:	2 years

II. Product Set-Up:

CAUTION: For safe transport during shipping, the motor has been secured with two transport screws located on the base of the instrument. Before operating the mixer, **Remove The 2 RED Wing Nut Screws** from the base of the instrument. Failure to remove the screws may damage the operating mechanism of this unit.

Place the mixer on a clean, flat, stable surface. Ensure that the power switch is in the OFF position and plug the mixer into a properly grounded outlet. Open the lid and locate the end of the tube holder *without* a nylon gasket. Insert your 2.0ml screw cap tubes in the tube holder by placing the conical point through the hole in the tube holder on the non-gasketed end and forcing the top of the tube into place against the gasket. **CAUTION**: Always follow proper loading and balancing instructions.

III. Product Operation:

Using the up and down arrows, select the desired speed and time. Ensure that tubes are fully inserted within the groove of the tube holder and close the lid. Once the lid has been closed,

press the “Start/Stop” key to begin the mixing cycle. At the end of the desired run time, open the lid and remove your sample tubes.

It is important to select the proper size and material of bead for your sample type. Refer to the following chart or contact Benchmark technical support for assistance.

Cat. No.	Size/material	Application
Triple-Pure (certified free of nucleases, proteases and stray DNA), Prefilled tubes, pk/50		
D1032-01	0.1mm zirconium	Bacterial lysis (gram+/-), small yeasts
D1032-05	0.5mm zirconium	Yeast, algae, spores
D1032-10	1.0mm zirconium	Larger yeasts, algae, fungi
D1032-15	1.5mm zirconium	Soft tissues, liver, brain, adipose, spleen
D1032-30	3.0mm zirconium	Tougher tissues, heart, muscle, leaves
D1032-SK	Starter kit, 10 of each above	See above
D1032-0105	0.1/0.5mm zirconium mixed	Bacterial lysis, yeast, algae, spores
D1032-60	1x6mm zirconium satellite	Dry grinding hard samples, seeds, bone, hair
D1032-RF-60	As above, reinforced tube	Dry grinding hard samples, seeds, bone, hair
Other materials,	Prefilled tubes, pk/50	
D1031-01	0.1mm silica/glass	Bacterial lysis (gram +/-)
D1031-05	0.5mm silica/glass	Yeast, algae spores
D1031-10	1.0mm silica/glass	Larger yeasts, algae, fungi
D1033-28	2.8mm stainless steel	Hard samples, insects, tough plants
D1033-30G	Garnet shards, 1x6mm zirconium	Skin, highly fibrous samples
D1034-MX	0.1, 4mm glass, 1.5mm zirconium	Feces, environmental samples

Beads and empty tubes are also available in bulk. Ask for details.

Tips for setting up and homogenizing samples:

1. Start with everything cold – samples, beads, buffer. Do not freeze the bead tubes. Polypropylene is brittle when frozen and can crack from the impact of the beads. If tubes are frozen with samples in them, allow to come to at least 4º before homogenizing.

2. Do not overload the tubes. For the most efficient homogenization, keep the total volume of beads, buffer and samples to ½ the total volume of the tube or less. When possible to pick the size and shape of the sample, remember that a long thin piece will homogenize more efficiently than a short square one.

3. Process at maximum speed in bursts of 20-30 seconds with a 30 second rest in between. After 2 cycles, check the sample. If there are still large pieces left, continue processing in short bursts until completely homogenized. When working with samples that contain a large amount of collagen or extra cellular matrix, there may be some small particles that do not completely homogenize. This is normal - proteins and nucleic acids will have been released from the cells. What is left is the collagen and ECM.

4. After processing, spin the tubes briefly to bring the beads and any debris to the bottom and pipette off the lysate for downstream processing.

IV. Care and Maintenance:

No routine maintenance is required other that to keep the unit clean and to wipe up and spillage that may occur.