

# BEADBLASTER™ 96

BALL-MILL HOMOGENIZER FOR PLATES, TUBES AND JARS

For all your high  
throughput sample  
preparation needs



**Benchmark**   
INDUSTRIAL Products



# BEADBLASTER™ 96

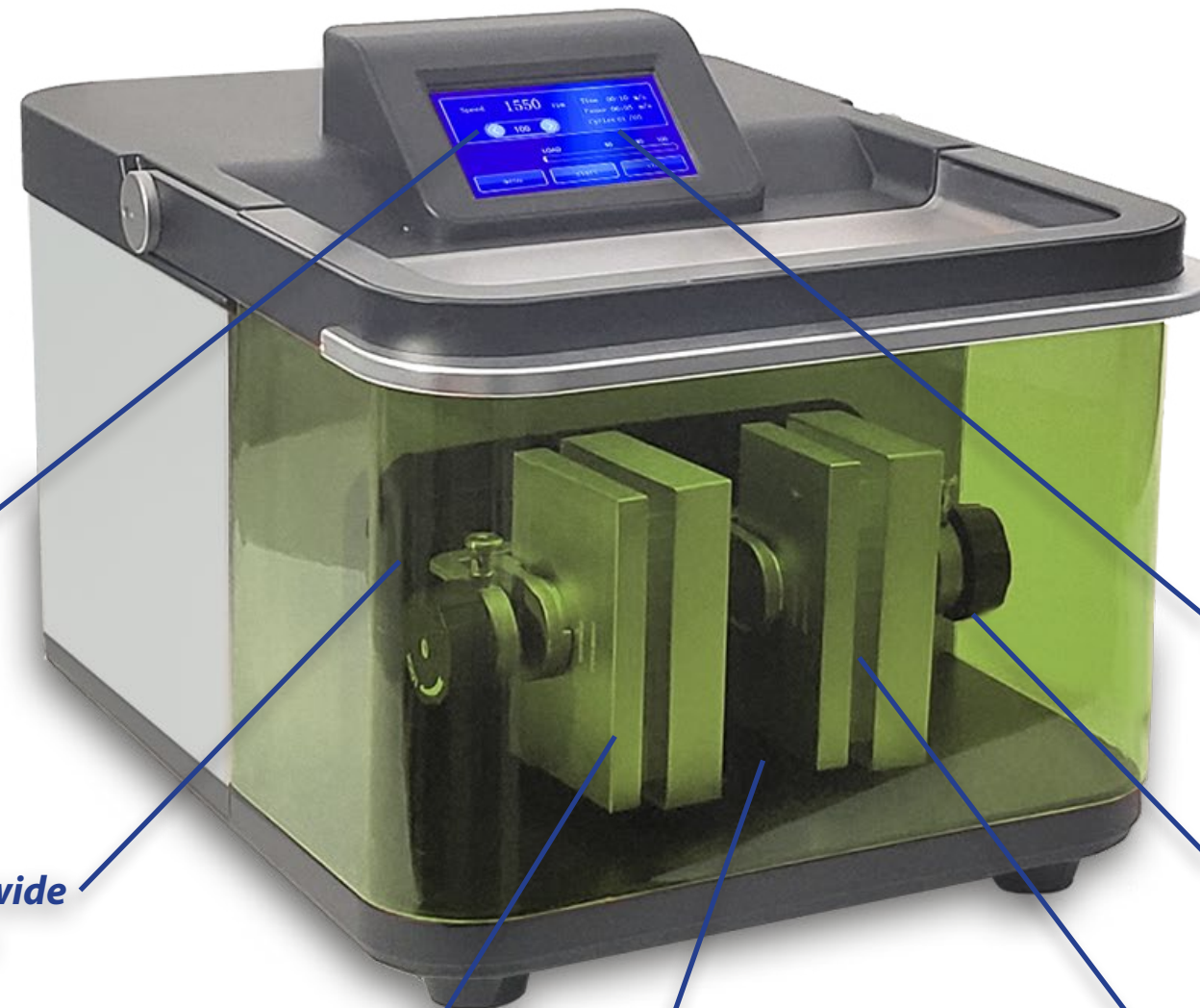
BALL-MILL HOMOGENIZER FOR PLATES, TUBES AND JARS

## Life Science, Environmental Science, Food, Cannabis, and Forensics Applications

- ✚ Rapid cell lysis for extraction of DNA, RNA and proteins in plates and microtubes
- ✚ Ideal for standardization of QuEChERS - increasing recovery and reproducibility
- ✚ 50ml tube adapters for larger bacterial and yeast cultures
- ✚ Fine grinding of cannabis/hemp samples
- ✚ Able to homogenize bone, teeth and other hard samples

## Materials Science, Geology, Mechanochemistry, Pharmaceutical and other Analytical Applications

- ✚ Perfect for sample prep for extraction, digestion, filtration and spectroscopy
- ✚ Homogenize/blend powders and suspensions
- ✚ Mix powder samples and binder for XRF
- ✚ Variety of jar materials available to prevent contamination in heavy metal analysis



Large, touchscreen control panel

Powerful brushless motor and wide arcing motion for quick results

Accepts deepwell plates and tubes from 0.2ml to 50ml (adapters and jars sold separately)

See-through safety lid

Precise, digital control for reproducible results

Easy to use - no complicated training

Cryogrinding accessories available



The BeadBlaster 96 is an extremely versatile ball mill homogenizer that has applications in both research and analytical laboratories. Microplates and tubes up to 50ml are accepted in adapters. Jars and balls in a variety of materials can also be used to grind samples.

**Easy to Use**

The BeadBlaster 96 requires no special training or installation. Jars and adapters are easily loaded into the locking sample holders. Setting operating parameters is simple thanks to the touch screen command center.

**Large touch screen**

The control center for all operations is the unit's large touch screen. Speed, run time, pause time and number of cycles are all set and controlled digitally. Nine programs can be stored and recalled from memory.



**Powerful Motor**

Inside the BeadBlaster 96's housing is a powerful, brushless motor. This motor drives the arced shaking motion that quickly grinds and homogenizes samples at speeds up to 1800rpm. The motor is quiet, maintenance free, and will provide a long service life.

**Safety first**

The heavy-duty safety cover opens upward for easy access. The see through, wrap around design allows for visualization of the samples, while the thick acrylic helps to reduce noise levels. The BeadBlaster 96 will not operate without the cover properly in place. Percent of allowable load is shown on the display and a safety switch stops operation of the unit in the case of an overload.

**Any sample - wet, dry or cryogrind**

Sample prep is the first step of many applications, whether they be research or analytical. Nearly any type of sample can be processed in the BeadBlaster 96. Biological samples can be homogenized in buffer using disposable containers from microplates to 50ml tubes. QuEChERS tubes can be processed eight at a time. Environmental samples, plants, insects, forensic samples, minerals, ores and many others can be processed dry in jars with large grinding beads. Cryogrinding in jars expands the use of the BeadBlaster 96 to extra hard, fibrous or sticky samples that are easier to break down when frozen.



**Microplates**

Samples can be homogenized to recover nucleic acids, proteins and metabolites in 96 well plates. Two deep well plates can be processed at one time for a total sample capacity of 192. Benchmark offers plates prefilled with one 4mm stainless steel ball in each well as well as empty 2ml deep well plates, EVA mat caps and additional sizes of stainless steel balls. Ball droppers (2.8, 4 and 5mm sizes) make filling plates easy. Homogenization in microplates requires the microplate adapter.



**Microtubes and Vials**

Like the microtube homogenizers in the Benchmark line, the BeadBlaster 96 can process various types of samples in 2ml tubes. Prefilled tubes and bulk grinding media are available for homogenizing microorganisms to animal and plant tissues and small insects. The larger 40 place tube holder can be precooled and used to keep samples cold during homogenization. Maximum 2ml tube capacity is 80.

4ml polyethylene and polycarbonate vials can also be processed in the BeadBlaster 96. These vials allow for subambient and cryogrinding of smaller samples. Total capacity for 4ml vials is 48.



**15ml and 50ml Tubes**

The 15/50ml tube adapter expands the use of the BeadBlaster 96 to larger samples and cultures that cannot be processed in a microtube homogenizer. This adapter is also useful for QuEChERS, taking the place of hand-shaking samples. Ceramic homogenizers can be added to QuEChERS tubes to keep samples evenly mixed. The 15ml and 50 ml tubes can also be used with ceramic homogenizers to break down plant samples, such as cannabis/hemp, or mash fruit and vegetable samples. Eight tubes can be processed in the BeadBlaster 96 at one time.





**Grinding Jars and Balls**

Different materials have different grinding requirements. Very hard samples require a jar and grinding balls that are just as hard or harder for effective sample preparation. Some samples are easily contaminated and require metal-free or inert grinding materials. Benchmark offers a variety of jars and balls to meet these differing needs. All of the jars feature threaded closures for leakproof performance with both solids and liquids.

**Stainless Steel Jars**

Stainless steel is a very hard material, and when combined with the stainless steel balls, provides for grinding of hard samples such as minerals, ores, polymers and circuit boards. Cryogrinding can also be performed with stainless steel jars and balls. These jars are available in 25ml and 50ml volumes with 10mm and 25mm grinding balls.

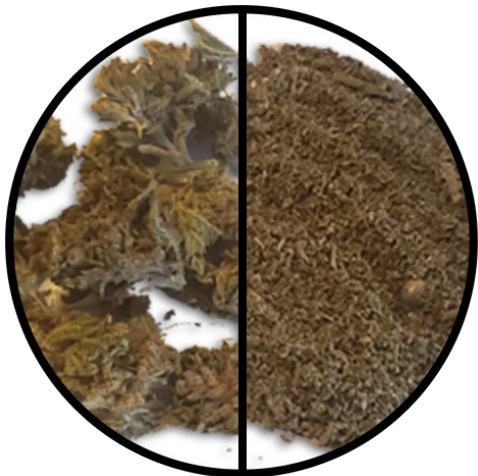


**Tungsten Carbide Jars**

Tungsten carbide is an exceptionally hard ceramic material. It is useful for grinding materials where the presence of trace metals may be a concern. Applications include preparation of samples for XRF and particle reduction of ores, minerals, metal oxides and cement clinkers. These jars are extremely durable and offer a long service life. 10mm tungsten carbide grinding balls and 25ml jars are available.



Rocks



Hemp



Wood



Candy Corn



Corn



QuEChERS

Before and after images of samples processed in the BeadBlaster 96

**Zirconium Oxide Jars**

Zirconium oxide is a chemically inert ceramic material. Not as hard as and less expensive than tungsten carbide, it is used for softer samples where trace metals from stainless steel may be a concern. These jars are ideal for grinding biological samples, plants, bones, teeth, soils and sludges. Jars are offered in a 35ml volume with 15mm zirconium oxide grinding balls.



**PTFE (Teflon®) Jars**

PTFE is the least hard of the materials used in the jars and is chosen for its inert properties. PTFE jars are metal-free and non-stick. They are highly temperature resistant, expanding their use to cryogrinding. PTFE jars are used for applications in the pharmaceutical field as well as for plants and other biological samples. The 15mm PTFE grinding balls have steel cores for a higher energy input. The jars are supplied as a 35ml volume.



**Cryogrinding Kit**

Cryogrinding requires jars to be submerged in liquid nitrogen for a period of time. Benchmark's cryogrinding kit includes an insulated container for the liquid nitrogen, tongs for handling the jars and gloves and goggles to protect the user.



# Specifications and Ordering Information

## Technical Data

Speed/Increments	180 to 1800rpm/100rpm	Feed size	<10mm
Ambient operating temp.	4°C to 40°C	Final fineness*	<5µm
Cycle duration	1 sec to 59 min: 59 sec	Dimensions (WxDxH)	335 x 500 x 365mm
Pause	1 sec to 59 min: 59 sec	Weight	64 kg
Number of cycles	99	Electrical	120V, 60Hz or 220V, 50Hz
Number of programs	9		200W, 6A
		Warranty	2 years

\*Dependent on sample material and grinding configuration

## Ordering Information

### IPD9600\* **BeadBlaster 96 Ball Mill Homogenizer for plates, tubes and jars**

All accessories ordered separately. See below.

\*120V. For 220V, add-E to catalog number

### Accessories

#### Microplates

IPD9600-96	Adapter for microplates, set of 2
IPD1196-40	96 well plate, 2ml, prefilled w/4mm balls, with sealing mat, 10/pk
IPD1196-MP	96 well plate, 2ml, square well, 10/pk
IPD1196-CM	EVA cap mat for above plate, 10/pk
IPD9600-BD28	96 well ball dropper for 2.8mm balls
IPD9600-BD4	96 well ball dropper for 4mm balls
IPD9600-BD5	96 well ball dropper for 5mm balls
D1133-28	2.8mm stainless steel balls, 1000/pk
IPD9600-4M	4mm stainless steel balls, 5000/pk
D1133-50	5mm stainless steel balls, 1000/pk

#### Microtubes and Vials

IPD9600-1520	Adapter for 40x2ml tubes, aluminum, set of 2, requires use of IPD9600-96 (above)
IPD9600-96A2	Rack for 20x2ml tubes, set of 2, requires use of IPD9600-96 (above)
IPD9600-4B	Adapter for 24x4ml PC or PE vials, aluminum, set of 2, requires use of IPD9600-96 (above)
IPD9600-4PE	4ml polyethylene vial with lined cap, pack of 240, for use with 3/8" SS grinding ball
IPD9600-4PC	4ml polycarbonate vial, pack of 240, for use with 3/8" SS grinding ball
IPD9600-38S	3/8" (9.5mm) stainless steel grinding balls, pack of 1000
D1032-SK	TriplePure™ Prefilled Bead Tube Starter Kit, 10 tubes each, prefilled with 0.1, 0.5, 1.0, 1.5 and 3.0mm diameter beads, certified nuclease and protease free

#### 15/50ml Tubes

IPD9600-50T	Adapter for 4x15/50ml tubes, set of 2
IPD9600-3858-1	Ceramic homogenizers w/angled ends, 3/8" x 5/8", pk of 100
IPD9600-3878-1	Ceramic homogenizers w/angled ends, 3/8" x 7/8", pk of 100

#### Grinding Jars and Balls

IPD9600-25S	Stainless steel jar, 25ml, set of 2
IPD9600-10BS	Stainless steel grinding ball, 10mm, 500g
IPD9600-50S	Stainless steel jar, 50ml, set of 2
IPD9600-25BS	Stainless steel grinding ball, 25mm, each
PD9600-25TC	Tungsten carbide jar, 25ml, set of 2
IPD9600-10TCB	Tungsten carbide grinding ball, 10mm, each
IPD9600-35ZO	Zirconium oxide jar, 35ml, set of 2
IPD9600-15ZOB	Zirconium oxide grinding ball, 15mm, each
IPD9600-35PTFE	PTFE grinding jar, 35ml, set of 2
IPD9600-15PTFB	PTFE grinding ball, steel core, 15mm, each
IPD9600-CK	Cryo Kit, includes bucket, gloves, goggles and tongs, for use with liquid nitrogen

Additional prefilled tubes available. Visit our website for details.

Don't see an adapter for your tubes? Contact us for custom adapters.

**Benchmark**   
**INDUSTRIAL Products**

**PO Box 709 - Edison, NJ 08818**  
**Phone: 908-769-5555 - Fax: 732-313-7007**  
**Web: [www.BenchmarkScientific.com](http://www.BenchmarkScientific.com)**  
**Email: [Info@BenchmarkScientific.com](mailto:Info@BenchmarkScientific.com)**