Operator's Manual

The Bullet Blender® Pro Series Homogenizers

Models BT24M, BT5E, and BT12LT

Congratulations!

Congratulations on your purchase of a Bullet Blender® by Next Advance, Inc., for lysing, disrupting, and homogenizing your samples.

Please read this operator's manual which explains proper operation of the Storm Pro (BT24M), the 5E Pro (BT5E), and the Lite (BT12LT). This manual is posted on our website, www.nextadvance.com. Click SUPPORT on the menu bar at the top of the page. Then select *Bullet Blender Support* from the drop down.

We're confident that your Bullet Blender will become an essential tool in your laboratory and we wish you success with your work.

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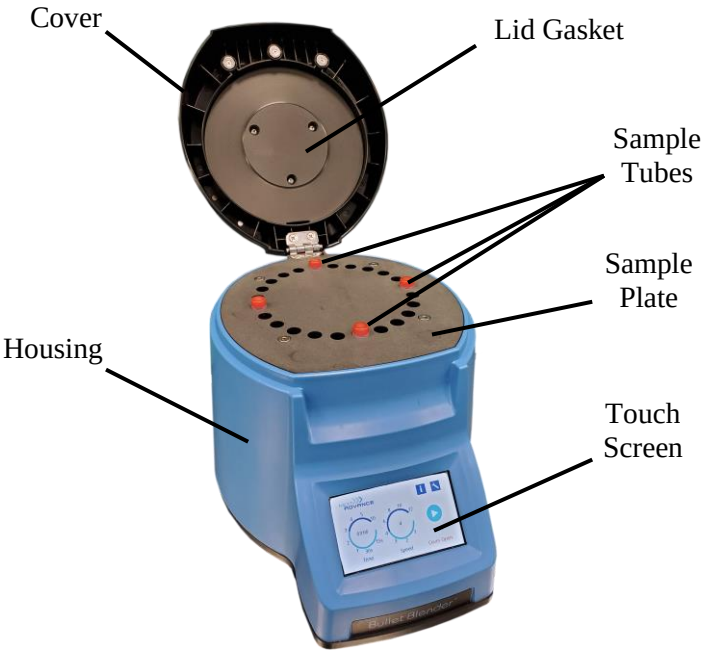
Parts of the Bullet Blender®



Picture shown above is a BT24M model: compatible with 24 1.5mL microcentrifuge tubes (front view)

SYMBOLS USED ON THE BULLET BLENDER BT SERIES MODELS

Caution: Follow the Instructions in the Operator's Manual

Indicates European Conformity (Conformité Européenne) with health, safety, and environmental protection standards.

Please dispose the test tubes and the Bullet Blender in accordance with local regulations.

INSTALLATION

Place the Bullet Blender® on a stable, level lab bench. Carry it by grasping the bottom sides. Plug the AC/DC power adapter into the 24V jack on the back of the Bullet Blender and then insert the plug into a wall outlet.

Installation Qualification: Turn on the power switch above the power jack. The display screen should light up.

OPERATION

Touch Screen Icon Functions:

	Home Menu: Displays run settings
	System Test Menu: Allows user to test motor and fan function
	Info Menu: Displays the model number, software and QR code
	Run Button: Starts a run
	Stop Button: Stops a run early
	QR Code: Scan with your phone camera to access the website

Operation Qualification: Turn on the power switch above the power jack. The display screen should light up. Click on the "System Test" icon to move to the System Test screen. Click on the Motor Test. Make sure the cover is closed. Wait 15 seconds and the motor test will indicate a pass or fail. Click on the Fan Test and listen for a faint sound from the fan for the next few seconds. Check the cover status with the cover open and closed.

To begin using your BT series Bullet Blender, lift open the cover and insert the appropriate tubes. For the Bullet Blender Storm Pro (BT24M) model, use up to 24 Next Advance brand 1.5mL RINO® screw-cap tubes or 1.5 mL Eppendorf® Safe-Lock snap-cap tubes. For the Bullet Blender Lite, use up to 12 of these 1.5mL tubes. In order to use these tubes, the Bullet Blender Storm Pro and Lite must be fitted with the appropriate lid gasket corresponding to the tube type. In the Bullet Blender 5E Pro (BT5E), load up to twelve 5 mL Eppendorf snap cap tubes.

There are 2 interchangeable lid gaskets for the Bullet Blender Storm Pro, model BT24M: one is for use with Eppendorf snap cap tubes, the other is for use with RINO screw cap tubes. The Bullet Blender Lite, model BT12LT, comes with the lid gasket for Eppendorf tubes. The lid gasket for RINO tubes can be purchased separately. Each gasket is clearly labeled "RINO" or "Eppendorf". Use 1.5 mL RINO screw-cap tubes when the RINO gasket is installed; other screw-cap tubes may break or result in insufficient homogenization. Only use Eppendorf Safe-Lock (snap-cap) tubes when the Eppendorf gasket is installed. To change which gasket is installed in the Bullet Blender, unscrew the three screws with a Phillips head screw driver and pull the gasket off the

underside of the lid. Attach the proper gasket by aligning the holes in the gasket with the holes in the lid and inserting the screws. Make sure that the gasket is screwed on securely, or else homogenization efficiency may be affected. Do not over-tighten the screws.

When using the 1.5mL snap cap tubes or 5 mL snap cap tubes, the caps and the rims of the tubes must be dry, and the caps must be closed securely before placing the tubes in the Bullet Blender. Likewise, when using screw cap tubes, the threads on the tubes and on the caps must be dry and the caps must be screwed on tightly.

Caution: The Bullet Blender Storm Pro generates greater impact energy at speeds 10 and 12, compared with previous Bullet Blender Storm models, resulting in improved homogenization performance. If using Eppendorf Safe-Lock snap cap tubes at these speeds, limit quantity to 12 tubes and leave an open space between tubes to prevent caps from coming loose (limitation does not apply to RINO tubes).

Do not operate the Bullet Blender with the cover open. If you need to open the cover during a run, press the blue "Stop Button" on the screen and wait few seconds for the hub to decelerate.

To set your Bullet Blender homogenization speed and time, drag your finger along the arc until the dark blue line lines up directly below the time or speed you wish to use. The figure above shows the Bullet Blender is set to run for 3 minutes at a speed of 4. Initiate the run by pressing the "Run Button" on the screen. After 15 seconds, the dark blue arc will have travelled up to the number 15 on the "Time" dial. After 30 seconds, the dark blue arc will have travelled up to the number 30 on the "Time" dial, and so on. Note that the time and speed settings vary by model. At the settings shown above, after 3 minutes, the Bullet Blender will stop the run.

Operator Panel Example:

PROTOCOLS AND SAMPLE SETTINGS

The following ratio should be used as a guideline for determining the quantity of beads and buffer to use given a certain sample size - 1 volume/mass of tissue: 1 volume of beads: 2 volumes of buffer. For more specific information regarding the use of beads and protocol information, please contact us at

customersupport@nextadvance.com.

As the tissue amount becomes smaller, the above recommended ratio may differ due to the limitations of handling small volumes. With microcentrifuge tubes, we recommend using a minimum of 25 µL of buffer. For the 5 mL tubes, we recommend a minimum volume of 100 µL. Volumes can be adjusted to meet the needs of downstream applications.

With microcentrifuge tubes, the recommended maximum sample mass is 300 mg of organ tissue or 300 µL of plant tissue or pelleted cell culture per tube. The sample, beads, and buffer combined should not be more than 1 mL. The rest of the tube needs to be empty so that the contents can be vigorously shaken during the homogenization process. For 5 mL tubes, the recommended maximum sample mass is 1 g of organ tissue or 1 mL of plant tissue or pelleted cell culture per tube. Do not operate with more than a total of 3 mL combined buffer, sample and beads per tube.

Cutting the tissue into smaller pieces will generally yield better results. Tissue with a high aspect ratio (long, thin strips) will homogenize better than tissue that is round or cubic.

Do not operate the Bullet Blender using the same tubes for longer than 10 minutes. Protocols for many types of samples are posted on our website. Note that at high speed settings, there may be some flaking of the tubes. This is a normal side effect of homogenization. The higher speed enables homogenization of tougher tissue.

CLEANING

If you wish to clean your Bullet Blender, clean the outside of the unit only with mild soap, water and a soft cloth. Under normal conditions, the Bullet Blender should never need to be disassembled for cleaning. In the case of a large spill, unplug the instrument, remove the sample tube plate with a 1/8" hex wrench, wipe out the spill using standard laboratory safety precautions, and replace the sample tube plate. Do not touch or tamper with the electronics.

TROUBLESHOOTING

In addition to the tips given below, there are troubleshooting tips at www.nextadvance.com/homogenizer-tissue-cell-culture-bullet-blender-support/.

If the unit does not turn on, the plug of the power supply cord may not be in a live wall outlet or the power supply connector may not be fully inserted in the socket on the back of the Bullet Blender.

If the unit does not run, ensure the lid is completely closed and perform a motor speed test in the

"system test" menu. If the motor test fails contact customer support.

If the sample tubes leak, make sure that the interface regions or screw threads between the lids and the caps is dry when you close the caps or screw them on, so that there is enough friction for the caps to remain tight. Using recommended types of tubes will minimize cap failure.

SUPPORT

FAQs, protocols, and other helpful information are available on our website, www.nextadvance.com. Click on the Bullet Blender, then on the appropriate link. If you cannot find an answer there, please contact customer support by email: support@nextadvance.com or telephone at (518) 674-3510.

SPECIFICATIONS

Size: 34 cm (13.5 in.) long x 25 cm (10in.) wide x 23 cm (9 in.) high.

Weight: 5 kg (11 lbs.)

Power: 24 VDC

Capacity:

- Bullet Blender Storm Pro (BT24M)**:** 24 of 1.5 Eppendorf snap-cap tubes, or 24 of 1.5 mL RINO® screw-cap tubes.
- Bullet Blender Lite (BT12LT): 12 of 1.5 Eppendorf snap-cap tubes, or 12 of 1.5 mL RINO® screw-cap tubes (with RINO lid gasket, sold separately).
- Bullet Blender 5E Pro (BT5E): 12 of 5 mL Eppendorf tubes.

Relative Humidity: 5 – 90% non-condensing

Operating Temperature: 4 - 40°C

Altitude: <2000m

Storage Temperature: -40 to 50°C

Meets CE requirements.

WARRANTY

Next Advance warrants its Products against defects in materials and workmanship for time periods which vary according to the product. Within these time periods, Next Advance will replace or repair, without charge to the original purchaser, any part which is defective. The Bullet Blender warranty is two years for all models. The warranty is void if the product is defective due to product accident, product modification, exposure to radiation other than for sterilization, connection to an improper electrical supply, lack of proper maintenance, contamination, improper installation or misuse. If the product is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. The warranty shall also not apply to defects arising from fire, flood, lightning or other conditions unrelated to correct operation of the product.

Next Advance's liability is limited, at the company's election, to (1) refund of the original purchaser's purchase price for the Product (2) repair of the Product, or (3)

replacement of the Product or defective parts. Evidence of purchase by the original purchaser is required. Next Advance may also request documentation of proper maintenance, if applicable.

Operator is responsible for: providing proof of purchase and providing normal care and maintenance.

WARNINGS AND CAUTIONS

- Read the user's manual before operating.
- Observe standard precautions when working with potentially infectious materials. Gloves, eye goggles, and lab coat should be worn in accordance to laboratory regulations.
- Do not open the cover when Bullet Blender is in use.
- Do not insert fingers or objects other than recommended tubes into sample tube holes.
- Use caution when closing Bullet Blender lid- do not close on fingers.
- When working with hazardous or pathogenic samples, operate the Bullet Blender in a biosafety cabinet, or other standard laboratory safety enclosure.
- Use recommended tubes only. No user serviceable parts are inside of the instrument.
- For indoor use only.
- Pollution Degree 2 per EN 61010-1.
- Overvoltage Category II per EN 61010- 1.
- Enclosure Protection: not protected against the ingress of moisture.
- 5 mL tube models: Use hearing protective devices that reduce exposure to below 85 dBA during prolonged exposure.
- Do not immerse in liquid.

DISCLAIMER

Next Advance makes no other warranty, expressed or implied, with respect to its Products. NEXT ADVANCE MAKES NO WARRANTY RESPECTING THE MERCHANTABILITY OF THE PRODUCTS OR THEIR SUITABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR USE. In no event shall Next Advance be liable for indirect, special, incidental or consequential damages of any nature. Next Advance, Inc. is not liable for any damages, including but not limited to, lost profits, lost savings, or other incidental or consequential damages arising from ownership or use of this product, or for any delay in the performance of its obligations under the warranty due to causes beyond its control. Any recovery for any claim shall be limited to the original purchase price for the product.

Next Advance, Inc. also reserves the right to make any improvements or modifications to the product described in this manual at any time, without notice of these changes. Next Advance, Inc. products are not designed, intended, or authorized for use in applications or as system components intended to support or sustain human life, as a clinical medical device for humans, or for any application in which the failure of the product could create a situation where personal injury or death may occur.

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NEXT ADVANCE INC. DOES NOT GUARANTEE THE INTEGRITY OF THE TUBES USED IN THE BULLET BLENDER. TUBES THAT ARE NOT RECOMMENDED BY THIS MANUAL MAY CRACK OR OPEN IF USED IN THE BULLET BLENDER. NEXT ADVANCE INC. OPTIMIZES THE BULLET BLENDER TO SPECIFIC TUBE TYPES AND BRANDS AND CANNOT GUARANTEE THE SAFE USE OF ALL TUBES BEING SOLD ON THE MARKET.

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