M-Series Focused-ultrasonicators

Covaris®

M-Series Focused-ultrasonicators

Fully-integrated benchtop sample preparation systems powered by Adaptive Focused Acoustics® (AFA®) technology

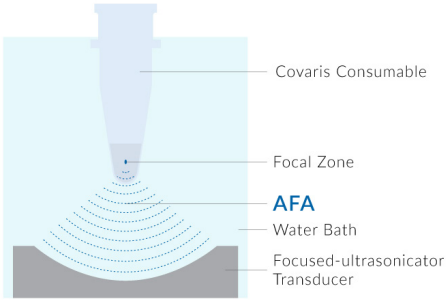
AFA is highly tunable and controllable and thus standardizes pre-diagnostic sample preparation by improving processing robustness and by reducing sample to sample variation.

Sample Prep and Sample Processing Examples

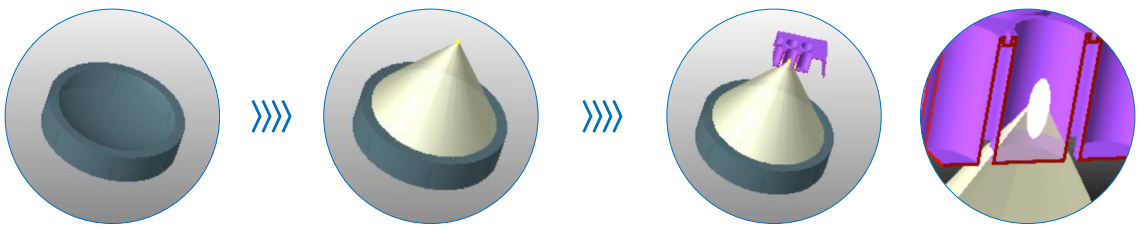
- DNA/RNA extraction from Formalin-Fixed Paraffin-Embedded (FFPE) tissue samples
  - NGS-grade DNA and RNA from FFPE tissue
- Extraction of complex and representative cell-free DNA from blood plasma
- Extract DNA for NGS from whole blood
  - Collect, dry-stabilize, transport, and extract with truCOLLECT®
- Mechanical shearing for next-generation sequencing (NGS)
  - Enable precision NAT-based diagnostics with clinical-grade nucleic acid preparation
- DNA extraction from dried blood spots (DBS)
  - Extract NGS-grade DNA from standard card punches
- Chromatin mechanical shearing for ChIP-Seq
  - Improve reproducibility, increase sensitivity, and obtain unbiased results
- Biomarker extraction for research and clinical microbiology
  - Extract biomarkers such as nucleic acids, small molecules and peptides without use of harsh chemicals

AFA-energetics® Technology

Adaptive Focused Acoustics (AFA) technology was developed exclusively by Covaris and is used in all of our Focused-ultrasonicators. Our patented approach combines the integration of proprietary high-performance control electronics, medical-grade transducers, and custom-engineered acoustical cuvettes. Together, these components reproducibly convert focused high-frequency acoustic energy into mechanical force, delivered in a tightly-defined region within the sample tube. This process, defined as AFA-energetics, uses controlled bursts of high-power acoustic energy to process samples in a temperature-controlled, non-contact, and closed vessel environment. Uniquely, all AFA Focused-ultrasonicators are calibrated to NIST traceable standards, ensuring highest quality and standardized results.



Focused Acoustics Powered by AFA



AFA transducer | Focused acoustic field | Acoustic energy applied to the sample

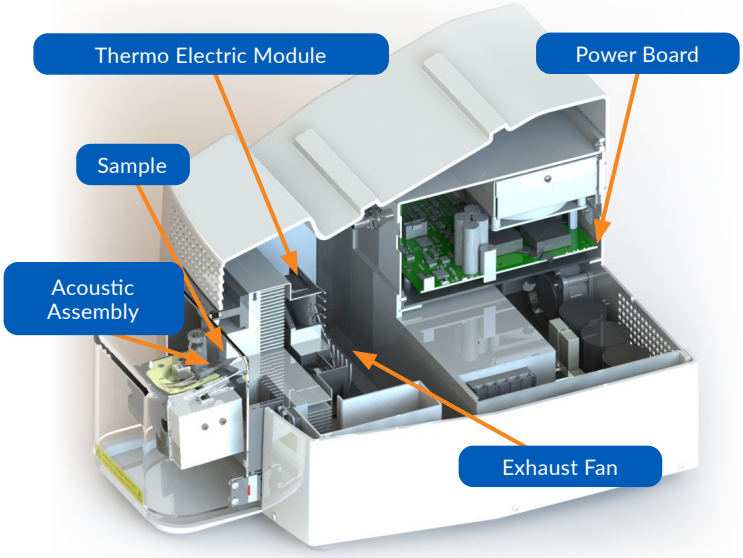
M220 Focused-ultrasonicator

...single sample processing at the benchtop

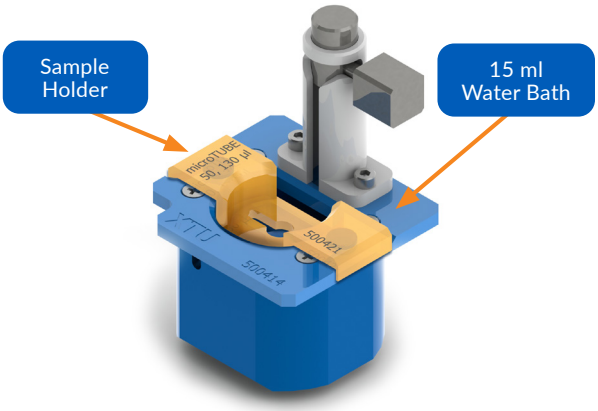
- The “Scientist’s Standard” in a compact, easy-to-use system
- Precise and accurate results with AFA-energetics
- Proven gold standard used in genome centers worldwide
- Less than one minute start-up time
- Integrated chiller
- Optimized pre-loaded mechanical DNA shearing protocols for fragment sizes of 150 to 5,000 bp

AFA technology in the M220 eliminates operator-induced variations, improves recoveries, increases efficiency, and provides standardized results.

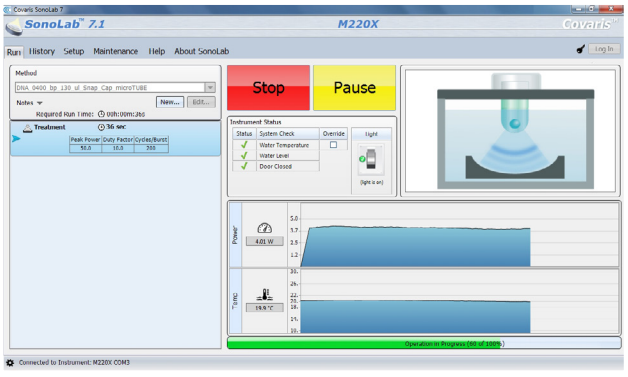
Single Box Design



Focused-ultrasonicator Assembly



- Real-time monitoring and integrated Quality Control with SonoLab™ software
- Integrated engineered design
- Custom Class D, high-efficiency electronics
- Calibrated to NIST-traceable standards



ME220 Focused-ultrasonicator

1 to 8 sample processing at the benchtop

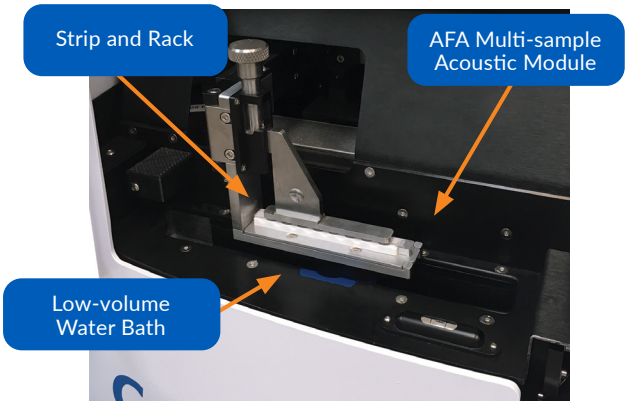
- The “Scientist’s Standard” in a compact, easy-to-use system, formatted for batch-processing
- Precise and accurate results with AFA-energetics
- Integrated chiller and automated water management
- User friendly SonoLab software with preloaded protocols
- Less than 2 minute start-up time

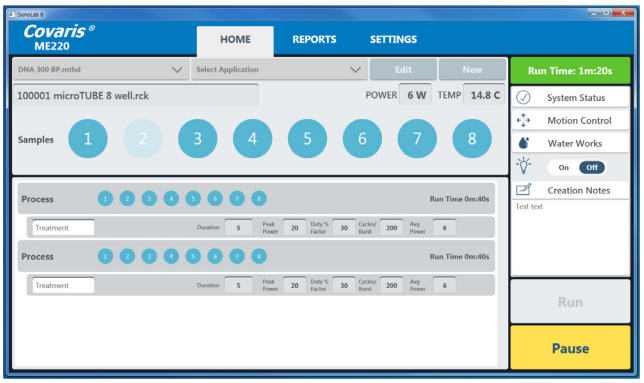
No refill and maintenance necessary for up to 30 days.

The ME220 Focused-ultrasonicator is the multi-sample, multi-application benchtop sample preparation solution for every lab.

Single Box Design

Focused-ultrasonicator Assembly





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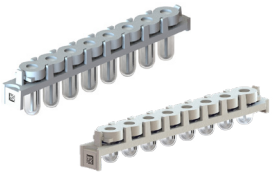
Key Features	Benefits
Precision temperature control	Allows isothermal processing for high sample recovery with no heat-induced bias
Small, compact footprint	Fits on any benchtop
Non-contact, closed vessel	No cross-contamination, aerosols, or clean-up
Flexible sample processing volume	15 µl to 2 ml
Highly reproducible results	Minimal post-process QC required
Automatable	Sample vessels compatible with liquid handling robots
Sample tracking with 2D barcoded consumables	Traceable sample identification
Operates at 500 kHz (Ultrasonic Range)	Beyond audible range - no discomfort to operators
Calibrated to NIST traceable standards	Optimized protocols available and transferable

Model	M220	ME220
Description	Focused-ultrasonicator - single-sample process Included: dedicated notebook computer, SonoLab software, and integrated chiller	Focused-ultrasonicator – 1 to 8 sample batch process Included: dedicated notebook computer, SonoLab software, integrated chiller, and automated water bath control
Part Number	PN 500295	PN 500506
Treatment Power	2.5 to 75 Watts Peak Incident Power 0.1 to 20 Watts Average Incident Power	
Dimensions	12” W x 17” D x 10” H (30 cm x 43 cm x 25 cm)	17” W x 14” D x 19”H (43 cm x 35 cm x 48 cm)
Weight	Approximately 22 lbs. (10 kg)	Approximately 40 lbs. (19.1 kg)
Power Requirements	100 to 240 VAC 500 VA, 50 to 60 Hz	
Operating Environment	15 to 32C	
Regulatory Labeling	CE, ETL Mark (for Product Safety), WEEE	
Safety	Complies with Low Voltage Directive 2006/95/EC. Certified to IEC/EN/ANSI/UL 61010-1:2010 and CAN/CSA C22.2 No. 61010-1, “Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use, Part 1: General Requirements”	
Water Bath	Requires 15 ml of AFA-grade Water	Automated waterbath management, AFA-grade Water
Bath Temperature Set Point	Programmable +6.0C to +40.0C	
EMC	Complies with Class A Industrial/Scientific/Medical (ISM) equipment under EN 61326-1 for EU EMC Directive 2014/30/EU. Also FCC Part 15 Class A radio emissions requirements for the USA and ICES-003 Class A for Industry Canada.	
Operating System	Includes: Notebook computer interface via USB with Microsoft Windows and Covaris SonoLab Operating Software installed.	
Data Input	Keyboard, Touchpad	
Chiller	Integrated solid state chiller for heating and cooling (built-in) 0 to 48 Watts	

		Number of samples	
Product	Image	M220	ME220
microTUBE • 15 to 500 µl sample volume range • DNA shearing <1.5 kb fragments • Up to 3x10⁶ cells chromatin shearing • truXTRAC® FFPE and DBS • truCOLLECT®		1	1 to 8
8 microTUBE Strip • 15 to 130 µl sample volume range • DNA shearing <1.5 kb fragments • Up to 3x10⁶ cells chromatin shearing • truXTRAC FFPE and DBS		N/A	8
miniTUBE • 200 µl sample volume • DNA shearing to 2, 3, or 5 kb		1	1 to 4
milliTUBE • 1 to 2 mL volume • Up to 3x10⁷ cells chromatin shearing • cfDNA extraction • Tissue biomarker extraction		1	1 to 4
t-PREP • Up to 10 mg tissue samples • Tissue biomarker extraction		1	N/A

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