

Covaris®

M-SERIES

FOCUSED-ULTRASONICATORS

M-Series Focused-ultrasonicators

Fully-integrated Benchtop Sample Preparation Systems Powered by Adaptive Focused Acoustics® (AFA®) Technology

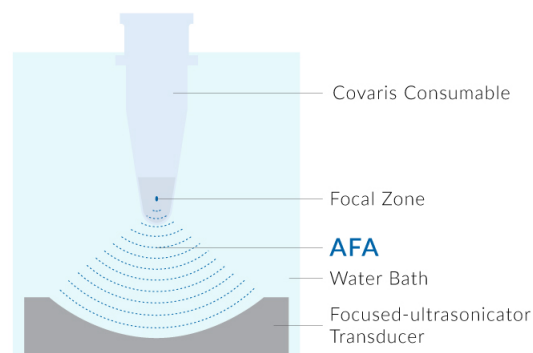
AFA is highly tunable and controllable and thus standardizes pre-diagnostic sample preparation by improving processing robustness and by reducing sample to sample variation.

Sample Prep and Sample Processing Examples

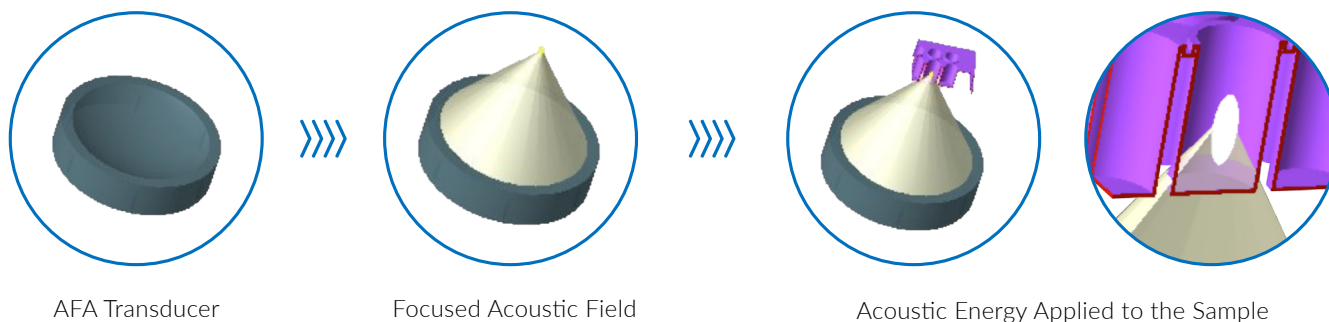
- DNA/RNA extraction from Formalin-Fixed Paraffin-Embedded (FFPE) tissue samples
 - NGS-grade DNA and RNA from FFPE tissue
- Extraction of complex and representative cell-free DNA from blood plasma
- Extract DNA for NGS from whole blood
 - Collect, dry-stabilize, transport, and extract with truCOLLECT®
- 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

AFA technology was developed 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



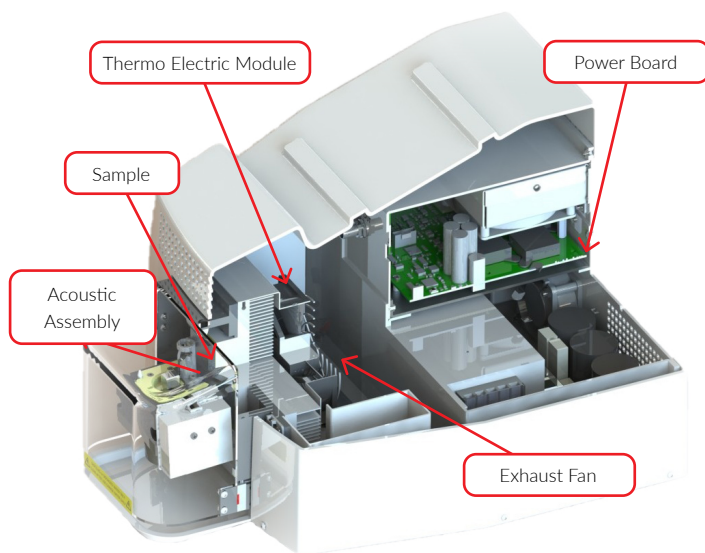
M220 Focused-ultrasonicator

Single Sample Processing at the Benchtop

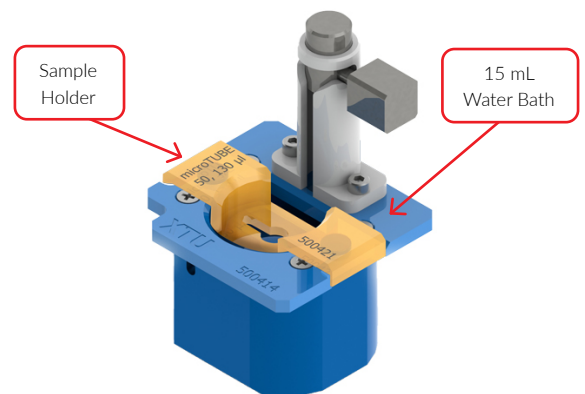
- The “Scientist’s Standard” in a compact, easy-to-use system
- Precise and accurate results with AFA-energetics
- Proven gold standard used in genome centers worldwide
- Less than one minute start-up time
- Integrated chiller
- Optimized pre-loaded mechanical DNA shearing protocols for fragment sizes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

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

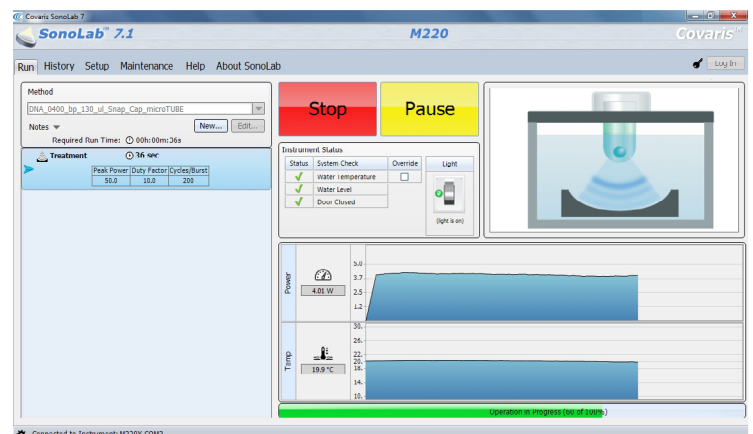
Single Box Design



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

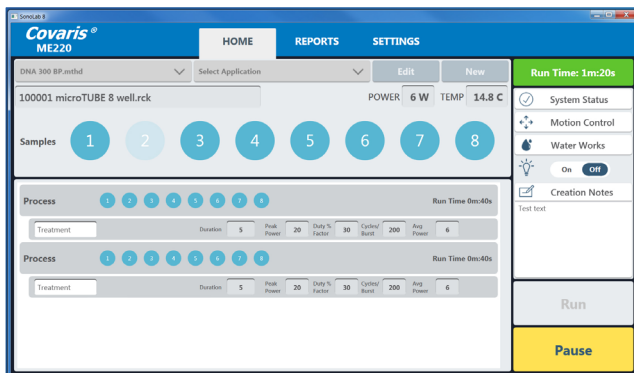
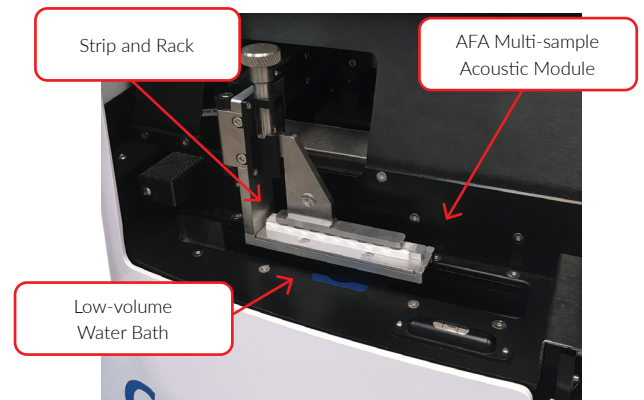
- The “Scientist’s Standard” in a compact, easy-to-use system, formatted for batch-processing
- Precise and accurate results with AFA-energetics
- Integrated chiller and automated water management
- User friendly SonoLab software with preloaded protocols
- Less than 2 minute start-up time
- No refill 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



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

ML230 Focused-ultrasonicator

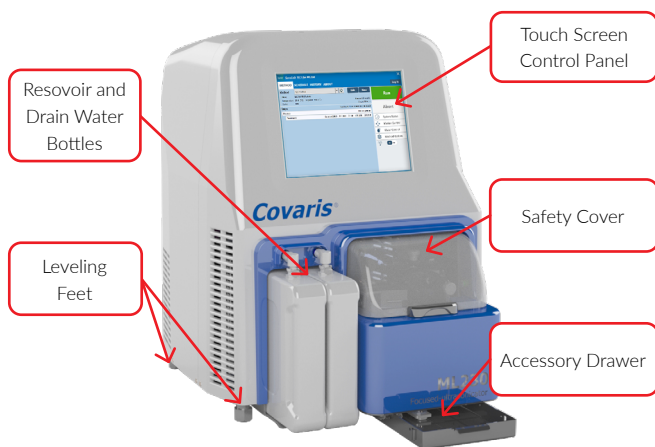
Parallel Processing of up to 8 Samples

- AFA-energetics (active, non-contact, isothermal acoustic energy)
- Intuitive touchscreen control
- Automated water management
- Simultaneous processing
- Embedded RFID Reader

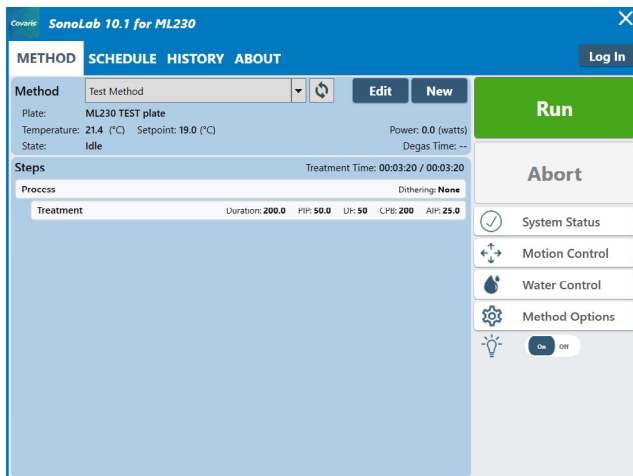
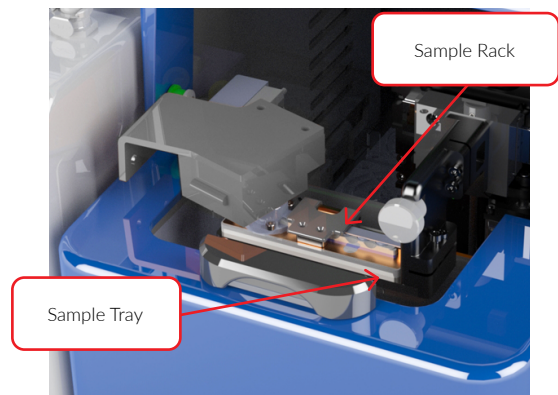
he ML230 Focused-ultrasonicator enables parallel processing of up to 8 samples simultaneously and is compatible with the AFA-TUBE conical style strip tubes with no thread or septa.



Single Box Design



Focused-ultrasonicator Assembly



- Precise and accurate results with the robust AFA process for many applications
- Easy-to-use software user interface that is easy to clean
- Easy to maintain with reduced user variability
- Preserves labile biomolecules
- Guarantees proper consumable matches the correct method and tracks lot information

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	5 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

Focused-ultrasonicator	M220	ME220	ML230
Description	Single-sample process Included: dedicated notebook computer, SonoLab software, and integrated chiller	1 to 8 Sample batch process Included: dedicated notebook computer, SonoLab software, integrated chiller, and automated water bath control	Parallel processing of up to 8 samples simultaneously; Included: Intergrated touchscreen computer, SonoLab software, and integrated chiller and water bath control
Part Number	500295	500506	500656
Treatment Power	2.5 to 75 Watts Peak Incident Power 0.1 to 20 Watts Average Incident Power		1.5 to 450 Watts Peak Incident Power .5 to 110 Watts Average Incident Power
Dimensions (WxDxH)	30 cm x 43 cm x 25 cm	43 cm x 35 cm x 48 cm	46.5 cm, 51.5 cm x 58.5 cm
Weight	Approximately 22 lbs. (10 kg)	Approximately 40 lbs. (19.1 kg)	Approximately 79 lbs. (36 kg)
Power Requirements	100 to 240 VAC 500 VA, 50 to 60 Hz		100 to 240 VAC 500VA, 50 to 60 Hz
Operating Environment	15 to 32 °C		15 to 25 °C
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	Integrated waterbath management, AFA-grade Water
Bath Temperature Set Point	Programmable +6.0C to +40.0 °C		10 to 40 °C
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.		
Instrument Software	SonoLab 7.2	SonoLab 8.0	SonoLab 10.1
Data Input	Keyboard, Touchpad		Integrated controller with touchscreen
Chiller	Integrated solid state chiller for heating and cooling (built-in) 0 to 48 Watts		Integrated, Air-cooled

Product	Number of samples		
	M220	ME220	ML230
<p>8 AFA-TUBE TPX Strip</p> <ul style="list-style-type: none"> • 10 to 20 μL sample volume range • 175 bp to 1.5 kb fragment size • Specially engineered polymer 	N/A	1 to 8	1 to 8
<p>microTUBE</p> <ul style="list-style-type: none"> • 15 to 500 μL sample volume range • DNA shearing <1.5 kb fragments • Up to 3×10^6 cells chromatin shearing • truXTRAC® FFPE and DBS • truCOLLECT® 	1	1 to 8	N/A
<p>8 microTUBE Strip</p> <ul style="list-style-type: none"> • 15 to 130 μL sample volume range • DNA shearing <1.5 kb fragments • Up to 3×10^6 cells chromatin shearing • truXTRAC FFPE and DBS 	N/A	8	1 to 8
<p>miniTUBE</p> <ul style="list-style-type: none"> • 200 μL sample volume • DNA shearing to 2, 3, or 5 kb 	1	1 to 4	N/A
<p>milliTUBE</p> <ul style="list-style-type: none"> • 1 to 2 mL volume • Up to 3×10^7 cells chromatin shearing • cfDNA extraction • Tissue biomarker extraction 	1	1 to 4	N/A
<p>t-PREP</p> <ul style="list-style-type: none"> • Up to 10 mg tissue samples • Tissue biomarker extraction 	1	N/A	N/A

**Contact Covaris today to discuss the potential of AFA
and how it can help you achieve your throughput goals!**