



## Covaris E-series

### Choice of Two Models

**E220, 100 watts average power**

**E220x, 250 watts average power**

### MULTI-SAMPLE PREPARATION IN TUBES, STRIPS OR MICROPLATES

- 1-96 Sample Capacity
- High Recovery
- High Reproducibility
- Broad Applications
  - Disruption- Extraction- Dissolution
- Automation Ready
- Proven Technology

### SUPERIOR TECHNOLOGY

- Isothermal processing
- Non-contact, closed vessel
- Focused Acoustic Energy provides controlled sample preparation across a wide range of applications
- Fine acoustic treatment resolution available with SonoLab 7 control software
- Easily replicate E210 acoustic methods with existing consumables and holders
- Standard applications and custom programming capable



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## E220 / E220x (E-series) High Performance Multi-Sample Preparation System

**High value samples demand controlled preparation... prior to committing to high cost analysis**

The Covaris™ E220 / E220x™ high-performance focused ultra-sonicators represent the continuing evolution of the E-series. E220 instruments deliver industry leading sample processing capability directly to the benchtop in a scalable, multi-sample format. The new E-series ultrasonicator is a workstation-based instrument capable of extremely rapid and complete homogenization, tissue disruption and sample extraction. As part of Covaris family of instruments, the E220 (and E220x) instruments provide multi-sample preparation with scalable acoustic energy, capable of processing a wide range of sample types and volumes. Both instrument versions process from 1 to 96 samples in a single batch. They can be operated in stand-alone mode or can be easily integrated as part of an automated laboratory system. In either configuration, the E-series provides world-class AFA™ sample preparation technology to our customers.

### Adaptive Focused Acoustics™ (AFA)

Our highly efficient and reproducible up-front sample preparation, utilizing the proprietary Covaris Adaptive Focused Acoustic (AFA) technology, eliminates operator induced variation, improves recoveries, increases efficiency, and provides standardized results.

The AFA process works by transmitting focused acoustic energy wave packets from a dish-shaped transducer to the sample. The acoustic energy waves converge on the target sample in a small-localized area. When operated at low intensity levels, the computer controlled and focused waves, create a gentle mixing environment, suitable for accelerating any diffusion-dependent applications, such as compound dissolution, mass action binding events, and enzyme digestion. When operated at higher intensity levels, the instrument can create a tunable shock wave environment with subsequent shear jet forces which has been demonstrated to be ideal for tissue disruption and DNA fragmentation applications.

Please visit Covaris website: [www.covarisinc.com](http://www.covarisinc.com) for more details on Covaris AFA technology.

Key Features	Benefits
■ Isothermal processing	✓ No heat damage, higher recovery
■ Non-contact, in closed vessel	✓ No cross contamination, no clean-up, no aerosol
■ Precisely controlled and adjustable energy delivery	✓ Standardized processes, highly reproducible
■ Automation ready	✓ Integrates into customers' sample processing work flow
■ Multi-sample capability	✓ Higher productivity, less operator intervention
■ Broad sample volume range	✓ One instrument for multiple applications

### Broad Range of Applications

In life science and pharmaceutical research, the following are some of the areas E-series are used:

- DNA fragmentation
- Chromatin fragmentation
- RNA Extraction
- Cell spore and organelle Lysis
- Nanoparticle formation - micronization
- Compound dissolution
- Compound formulation
- High-throughput chemistry
- Tissue disruption and homogenization
- Sample extraction for metabolic and proteomic profiling
- ADME/Tox extractions

## Instrument Models

Covaris E210 is used in most applications. Additional E-series™ models are available and may be recommended for certain specialized projects. Please contact Covaris for further details.

Covaris E-series systems can be operated in stand-alone mode or may be integrated with a liquid handler or as a module on an automated platform. Please contact Covaris for more details.

## E-series Consumables

Covaris provides a wide variety of tubes and vials specifically designed to meet your DNA fragmentation requirements. Covaris microTUBES™ and miniTUBES™ are engineered to work in combination with the S-series™ to reliably deliver random DNA fragments at your desired lengths.

Our highly efficient, and reproducible up-front sample preparation, utilizing the proprietary Covaris Adaptive Focused Acoustic™ (AFA) technology, eliminates operator induced variation, improves recoveries, increases efficiency, and provides standardized results.

The sample vial is a key component of the AFA acoustic circuit, and Covaris scientists have optimized a broad range of consumables for key applications. For optimal results, we suggest that you only use the appropriate sample vessels and protocols recommended by Covaris.

Covaris will work with you to select the right sample preparation vessel for your application.

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## The E-series effectively enables a broad range of sample preparation applications from mixing and dissolution through disruption and extraction.

**Non-Contact Mixing** –With the Covaris E-series, reaction volumes can be mixed and pellets can be re-suspended in milliseconds. Because AFA is a non-contact process using closed vessels, sample integrity is maintained throughout the operation, with no risk of contamination or evaporation. The E-series may also be used to rapidly thaw frozen samples (e.g., thaw and mix DMSO in seconds).

**Dissolution** –Effective compound screening requires complete dissolution of sample. Without thorough sample dissolution, the downstream screening process can be compromised and can potentially miss the molecule of interest. The Covaris E-series with AFA, is a very effective tool for completely dissolving difficult solutes (such as those lyophilized in DMSO) in small volumes.

**Disruption** –The Covaris E-series provides highly focused and tunable acoustic energy for tissue disruption applications. The ability to control and focus energy is key for effective tissue disruption, and the E-series provides a level of performance unmatched by other available sample processing technologies.

**Extraction** –Once a cell or tissue matrix is disrupted, it is often very difficult to effectively and reproducibly extract desired target molecules. With Covaris AFA technology, both the time and temperature are tightly controlled during the extraction process. Sample temperature is maintained isothermal throughout the reflux process. As a result, recoveries are improved and samples are processed more rapidly.

## ▶ SYSTEM SPECIFICATIONS

Models	E -series (E220, E220x)
<b>Treatment System:</b>	Bench-top: high intensity acoustic transducer, sample positioning system, temperature monitoring device, circulation pump, and water bath with safety enclosure.
<b>Treatment Power:</b>	100 Watts Average Power (E220), 250 Watts Average Power (E220x)
<b>Dimensions:</b>	24"W x 30"D x 19"H (61cm x 76cm x 48cm)
<b>Weight:</b>	approximately 110 lbs (50 Kg)
<b>Ambient Temp. Range:</b>	4 to 37C
<b>Power Requirements:</b>	100-120, 200-240 V~ 50-60Hz, 500 VAC
<b>Regulatory Labeling:</b>	CE and ETL Mark
<b>Safety:</b>	Meets Low Voltage Directive 2006/95/EC. Tested to EN/UL/CSA 61010-1:2004 "Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use, Part 1: General Requirements"
<b>EMC:</b>	Meets EMC Directive 2004/108/EC. Tested to EMI emissions requirements for Industrial Scientific or Medical (ISM) equipment EN55011:1998 + A2:2002 Class A Group1 and EMC requirements - Electrical Equipment for Measurement, Control, and Laboratory Use EN 61326-1:2005 Table 2, EN 61000-3-2:2004 and EN 61000-3-3:1995 +A1:2001.
<b>Water Bath:</b> <b>Water Temp. Alarm Limit:</b>	Distilled or deionized water only Can be set at +5.0C to +40.0C
<b>Water Conditioning System: (WCS)</b>	Accessory to the E system water bath, automatically circulates water through a 0.5micron particulate filter and ultraviolet (UV) lamp system, help to keep water clean and free of algae growth for up to one year. Uses 100-240VAC. Includes hosing connected to E water bath.
<b>Computer:</b>	Notebook computer (may be supplied by Covaris or the user)
<b>Operating System:</b>	Microsoft Windows XP Professional
<b>Application Software:</b>	Covaris SonoLab
<b>Data Input:</b>	Keyboard, mouse
<b>Chiller:</b>	Chiller/heater re-circulating system - not included (may be supplied by Covaris or the user). Connect with the 3/8 inch I.D. hoses and quick connect fittings supplied