



S220/S220x

- **Choice of Two Models**
 - S220, 100 watts average power
 - S220x, 250 watts average power
- **Single-tube Sample Preparation**
- **High Recovery**
- **High Reproducibility**
- **Fast and Easy to Use**
- **Broad Applications**
 - Disruption
 - Extraction
 - Dissolution
- **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 S2 or S2x acoustic methods with existing consumables and holders
 - Standard applications and custom programming capable



S220 / S220x High performance Sample Preparation System

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

The Covaris® S220 / S220x high performance focused ultra-sonicators represent the continuing evolution of S-series. S220 instruments deliver industry leading sample processing capability directly to the benchtop. The new S-series 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 S220 (and S220x) provide single-tube sample preparation with scalable acoustic energy, capable of processing a wide range of sample types and volumes. Both instrument versions can be operated in stand-alone mode or can be easily integrated as part of an automated laboratory system. In either configuration, the S220 and S220x provide world-class AFA® sample preparation technology to our customers.

Adaptive Focused Acoustic® (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 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 workflow
■ Broad sample volume range	✓ One instrument for multiple applications

▶ Broad Range of Applications

- Tissue disruption and homogenization
- Extraction of metabolic and proteomic profiling
- DNA fragmentation
- RNA extraction
- Nanoparticle formation - micronization
- Chromatin fragmentation
- Cell, spore and organelle lysis
- Compound dissolution
- Compound formulation
- ADME/Tox extractions

Instrument Models

S-series™ instruments can be operated in stand-alone mode or may be integrated into robotic systems for enhanced automation. Please contact Covaris for more details.

S-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.

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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.

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

Non-Contact Mixing –With the Covaris S-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 S-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 S-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 S-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 S-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	S220, S220x
Treatment System:	Bench-top; high intensity acoustic transducer, temperature monitoring device, circulation pump, water bath with safety enclosure
Treatment Power:	100 Watts Average Power (S220), 250 Watts Average Power (S220x)
Dimensions:	8"W x 21"D x 13"H (20 cm x 53 cm x 33 cm)
Weight:	approximately 26 lbs (12 Kg)
Power Requirements:	100–240 VAC 500 VA, 50–60Hz
Operating Environment:	Ambient temperature: 19° C to 25° C (66° F to 77° F) Relative humidity: 30% to 70%
Regulatory Labeling:	CE, ETL Mark (for Product Safety), WEEE
Safety:	Complies with Low Voltage Directive 2006/95/EC. Certified to IEC/EN/UL 61010-1:2004 "Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use, Part 1: General Requirements"
EMC:	Complies with radio frequency emissions and immunity requirements for Class A Industrial/Scientific/Medical (ISM) equipment under EN 61326-1:2005, as well as EN 61000-3-2:2004 and EN 61000-3-3:1995. These standards meet the essential requirements of the EU EMC Directive 2004/108/EC. Additionally, the instrument meets FCC Part 15 Class A radio emissions requirements for the USA and ICES-003 Class A for Industry Canada.
Water Bath:	Distilled or deionized water only
Temperature Alarms:	Can be set at +5.0° C to +40.0° C
Computer:	Notebook computer. Optionally supplied by Covaris.
Operating System:	Microsoft Windows XP SP3 minimum or Windows 7
Application Software:	Covaris SonoLab 7
Data Input:	Keyboard, mouse
Chiller:	Chiller re-circulating system - not included but may be purchased from Covaris. Connect with the 3/8 inch I.D. hoses and quick connect fittings supplied.

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