LE220Rsc Focused-ultrasonicator

High-performance, Scalable, Automated Sample Preparation

As the highest power and fastest sample processing system in the Covaris portfolio, the LE220Rsc rapidly delivers AFA-energetics® to standard SBS format plates using the scanning mode. It offers tunable acoustic energy, integration with robotic platforms, and more power than the LE220-plus and R230 Focused-ultrasonicators. This instrument enables a variety of novel high power, fast process applications such as lysis of difficult to lyse microorganisms (for example, yeast) in the 96 AFA-TUBE TPX plate and dissolution of difficult to solubilize compounds.

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<th>Feature</th>
<th>Benefit</th>
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| Automated workflows with full robotic integration | • Accurate, reproducible, and robust sample preparation  
  • Versatile  
  • High-throughput                      |
| Powered by AFA-energetics                   | • Tuneable, non-contact processing  
  • Multiple sample types                         |
| Multiple isothermal energy delivery modes   | • Compatible with most processes  
  • Simplify highly complex workflows            |
| Broad temperature range at high power       | • Multiple applications: nanoparticle formulation, microbe lysis, and hydrophobic compound dissolution |

Supported Applications:

- DNA/Chromatin shearing
- Cell Lysis: mammalian, bacterial, yeast
- Biomolecule extraction: FFPE, tissue, and whole blood
- Sample processing: bead mixing
- Compound screening
- Hit validation
- Target ID & validation

Fully Automated NGS Library Preparation Workflow

The LE220Rsc Focused-ultrasonicator aids in the movement of samples through numerous steps in a workflow on multiple instruments without human intervention. Processing time for a 96 and 384 plate ranges from 5 to 16 minutes, depending on desired fragment size.

**API Integration**

The Covaris API integration toolkit contains everything needed to write a driver for SonoLab 8.4.

This includes:

- Emulation user interface showing all the remote commands needed to integrate
- Example code for scripting each command
- Cut and paste capability for ease of implementation
- Simulation interface for testing
In addition to scanning protocols, LE220Rsc is compatible with existing LE220, LE220-plus, and LE220R-plus protocols and consumables.

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<td>500652</td>
<td>Focused-ultrasonicator</td>
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### Treatment Power
- 2.5 to 500 Watts peak incident power
- 0.1 to 250 Watts average incident power

### Dimensions
- 61 cm (width), 90 cm (depth), and 48 cm (height)

### Power Requirements
- 100 to 240 VAC 500VA, 50 to 60 Hz

### Operating Environment
- Ambient temperature: 19 to 25 °C (66 to 77 °F)
- Relative humidity: 30 to 70%

### Operating Temperature
- 5 to 40 °C

### Regulatory Labeling
- CE, ETL Mark (for Product Safety), WEEE

### Operating System
- Includes: Notebook computer interface via USB with Microsoft Windows and Covaris SonoLab™ 8 Operating Software installed

### Chiller
- ultraCUBE and WCS 2.0 required

### Sample Volumes (dependent on protocol)
- NGS from 5 to 320 μL
- truXTRAC FFPE = LCM 5 to 20 micron slides, up to 80 micron slices, and 1.2 mm cores
- truXTRAC cfDNA = up to 4 ml plasma
- truXTRAC DBS (dried blood spots) = up to seven 3 mm punches
- truCHIP (chromatin) = up to 1 ml for mammalian cells
- truCOLLECT™ = up to 35 μL fresh whole blood

### Recommended Batch Size
- 8 to 1536 samples

### Covaris-qualified Consumables
- Individual microTUBE®; 8 microTUBE strips (rack required); 96 microTUBE plate
- miniTUBE®
- milliTUBE®
- 96 AFA-TUBE TPX Plate™ (with RFID)
- 384 AFA-TUBE Plate (with RFID) - In development
- 1536 AFA-TUBE Plate (with RFID) - In development

### Integration with Lab Automation
- Yes: Sonolab 8 API

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**Extract HMW DNA from Microbial Samples**

Reproducible and robust data for cell lysis and HMW DNA extraction from difficult-to-lyse organisms including yeast and bacteria. (*Figure 1 and 2*)

**Figure 1.** Superposition of electropherograms (AATI - Fragment Analyzer DNF-492-33 - SS Large Fragment) showing an extremely narrow DNA fragment distribution directly extracted from a primary *S. cerevisiae* (~ 5 x 10⁷ cells, buffer volume ~ 30 μL) sample without purification. In scanning mode, processing time less than 15 minutes for 96 samples.

**Figure 2.** Superposition of electropherograms (AATI - Fragment Analyzer DNF-492-33 - SS Large Fragment) showing an extremely narrow DNA fragment distribution directly extracted from a primary *E. coli* (~ 4 x 10⁸ cells, buffer volume ~ 30 μL) sample without purification. In scanning mode, processing time less than 1 minute for 96 samples.

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**Ordering Information**

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High-performance, robotic AFA Focused-ultrasonicator with both scanning and indexing sample processing modes for SBS plates. The system comes with a dedicated notebook computer with SonoLab software, ultraCUBE water chiller, and water conditioning module.