NON-CONTACT ULTRASONIC

Product I Features

- No aerosol or floating particles produced - enhanced biological safety (e.g. branched bacteria, viruses, etc.)
- Closed ultrasonic processing eliminates the risk of sample cross-contamination
- Eliminates the traditional problem of probe wear and tear
- Can process a variety of samples, with a wide range of sample processing options
- Suitable for a variety of standard containers
- Can be used for processing small samples, as small as 5ul, with multiple sample adapters available from 0.2 to 1000ml
- Automatic continuous rotation of centrifuge tubes driven by the motor makes the energy distribution of ultrasound more uniform, and the tubes are rotated at a low speed to ensure consistency of sample shearing
- Built-in cooling water motor eliminates the worry of cooling water overflow

LAWSON_Chou
Wholehuge

Product I Introduction

Non-contact Ultrasonic Crusher LAWSON21-1200 adopts an isothermal and non-contact method to crush, homogenize, and mix samples, which is suitable for sterile, ultra-microscale and high-capacity crushing. Non-contact ultrasonics are used to disrupt samples through containers. For laboratories that process multiple samples per day or valuable samples, it has the advantages of high-throughput processing, low sample loss, and no cross-contamination.

Advantages

Traditional probe-type ultrasonic cell disruptors come into direct contact with the sample, leading to metal ion contamination, and can only handle one sample at a time with a long experimental cycle. For multiple samples, the same probe needs to be reused, which can easily cause cross-contamination between samples. Moreover, since the depth of each probe insertion is different, the distribution of ultrasonic energy during each use is also different, affecting the repeatability and accuracy of experimental results. In addition, since a closed system cannot be used, the aerosols or foams generated during ultrasonic processing will spread into the environment, posing a potential biological hazard. The non-contact ultrasonic cell disruptor can simultaneously process 4-32 samples, with high experimental efficiency; there is no need to frequently operate the probe, and each sample is in a separate fully enclosed test tube, avoiding cross-contamination. With a 4°C water bath, the ultrasonic energy is evenly distributed and the ultrasonic effect is complete. The ultrasonic parameters are flexible, and the experimental steps are standardized, with good experimental repeatability and high reliability of results.

Application I Range

- Fragmentation of DNA samples for second-generation sequencing
- Fragmentation of RNA samples
- Lysis of bacteria and cells
- ChIp assay (chromatin immunoprecipitation)
- Sample pre-processing for high-throughput sequencers
- Extraction of histones/proteins
- Homogenization and emulsification reactions
- Ultrasound treatment of valuable reagents
- Immunoprecipitation experiments/catalytic reactions

NON-CONTACT ULTRASONIC

Technical I Parameters

Model	LAWSON21-1200	LAWSON21-2200
Power	15-1500W continuously adjustable	30-3000W continuously adjustable
Standard sample processing volume	20 holes * 5ml, 15 holes * 10-15ml, and 1 hole * 500-1000ml flask	30 holes * 0.1ml, 20 holes * 5ml, 15 holes * 10-15ml, and 1 hole * 500-1000ml flask
Optional sample processing volume	99 holes * 0.2ml, 9 holes * 0.5ml, 32 holes * 1.5ml	99 holes * 0.2ml, 9 holes * 0.5ml, 32 holes * 1.5ml
Single ultrasound time	0.1-99.9S	0.1-99.9S
Single gap time	0.1-99.9S	0.1-99.9S
Total time (ultrasound + gap)	1-99H59M59S	1-99H59M59S
Frequency range	21KHz（20-40KHz customizable）	21KHz（20-40KHz customizable）
Cooling system - temperature control range	Portable constant temperature bath mainframe(compressor refrigeration) -5 ~ 100°C (optional)	Portable constant temperature bath mainframe (compressor refrigeration) -5 ~ 100°C (optional)

Technical I Parameters

Model	LAWSON21-1200	LAWSON21-2200
Temperature reading accuracy	±0.1 °C	±0.1 °C
Compressor power	800W	800W
Ultrasonic water bath volume	3L（15.5*14*14cm）	3L（15.5*14*14cm）
Adapter material	316 stainless steel material	316 stainless steel material
Dimensions	33*50*39cm	33*50*39cm
Weight	25kg	25kg
Noise level	<50dB	<50dB
Imported original multi-frequency ultrasonic transducer	12 sets	22 sets
Power supply (optional 110V)	220V/110V/ 50Hz/60HZ	220V/110V/ 50Hz/60HZ

Working I Principle

Non-Contact Ultrasonic Crusher adopts a design that installs the ultrasonic generator at the bottom of the water tank. In traditional probe-type ultrasonic cell disruptors, the microfluidic phenomenon caused by ultrasound can only occur in the area near the probe. However, the non-contact ultrasonic cell disruptor installs the ultrasonic generator at the bottom of the water tank, so that the entire water tank is within the range of ultrasound, and the ultrasonic effect is widely and evenly distributed, reducing the formation of foam. During the experiment, the automatic continuous rotation of the independent sealed centrifuge tubes by the non-contact ultrasonic cell disruptor makes the distribution of ultrasonic energy more uniform. In the experimental process, the samples are placed in separate fully sealed centrifuge tubes, and there is no cross-contamination between samples, avoiding the spread of aerosols.