

ULTRASONIC CELL DISRUPTOR



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Handheld ultrasonic processor, USCG-P Series

USCG-P150 USCG-P200 USCG-P300



Description

The handheld ultrasonic processor is a portable ultrasonic instrument developed based on a simple and reliable design concept;

Integrated design of probe and host, with small size, large processing capacity, and compact structure, it mainly includes adjustable switching power supply (power adapter 12-24V/DC and 2.85-260V/AC) and ultrasonic vibration system.

Composed of power amplifier, ultrasonic transducer, and horn, the integrated design of the ultrasonic vibration system has the advantages of high efficiency, energy saving, and portability;



Specifications

Model	USCG-P150	USCG-P200	USCG-P300
Nominal frequency	30KHz	30KHz	30KHz
Nominal power	150W	200W	300W
Applicable capacity	0.1~100ml	0.5~200ml	0.1~300ml
Standard horn	Φ3	Φ6	Φ8
Optional	Φ2 (0.1~0.5mL)	Φ3 (0.1~30mL)	Φ3 (0.1~30mL)
	Φ6 (30~100mL)	Φ8 (100~200mL)	Φ6 (30~200mL) Φ8 (50~300mL)

Features



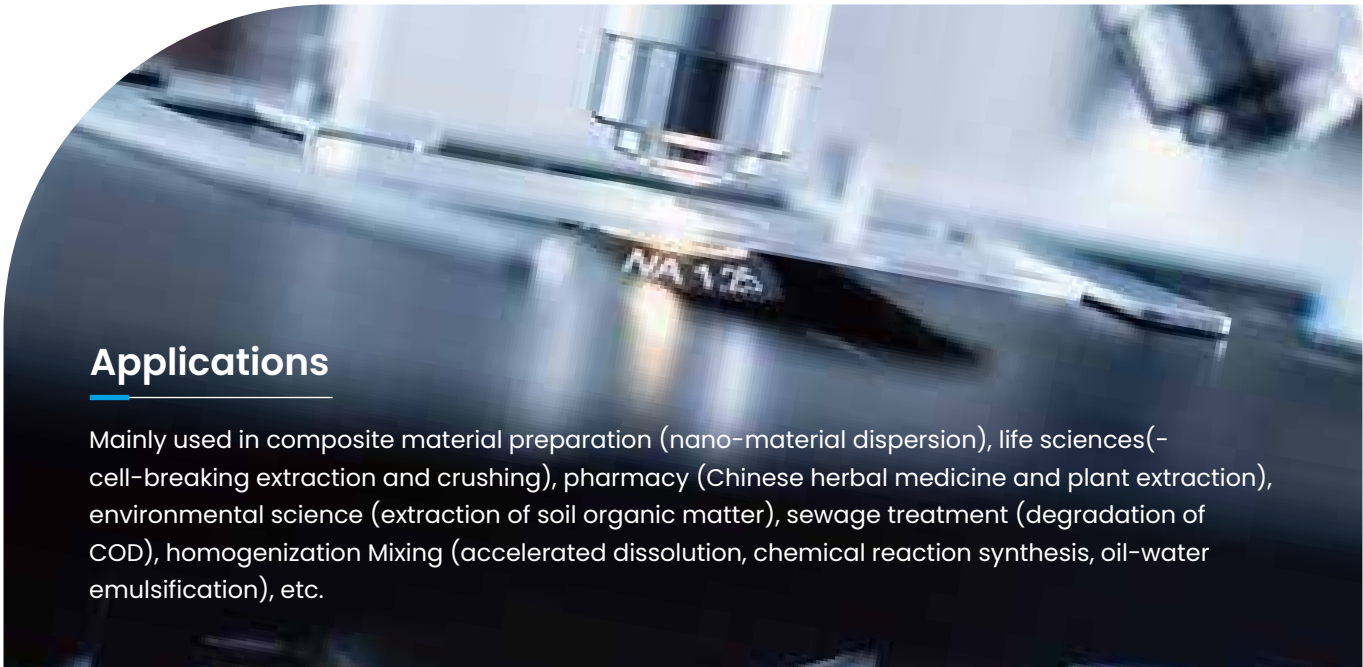
The ultrasound can be controlled manually, or the ultrasound can be fixed on the shelf, which is especially suitable for small sample processing (such as: EP tubes, microcentrifuge tubes and other containers);



The circuit of the product is made with chip technology, automatic frequency tracking, automatic amplitude compensation, stable load, high electro-acoustic conversion efficiency, over-temperature protection, etc.;



The horn is made of titanium alloy material, which has the characteristics of high strength, high speed of sound, good corrosion resistance and high heat resistance, thereby extending the service life of the instrument;



Applications

Mainly used in composite material preparation (nano-material dispersion), life sciences(-cell-breaking extraction and crushing), pharmacy (Chinese herbal medicine and plant extraction), environmental science (extraction of soil organic matter), sewage treatment (degradation of COD), homogenization Mixing (accelerated dissolution, chemical reaction synthesis, oil-water emulsification), etc.

Ultrasonic Cell Disruptor, USCG-F Series

USCG-300F USCG-550F USCG-650F
USCG-950F USCG-1200F USCG-2000F



Main Application

Ultrasonic processor, also alias: ultrasonic cell crusher, pulverizer, extractor, disperser, homogenizer, emulsifier; it is one of the commonly used equipment for laboratory sample pretreatment.



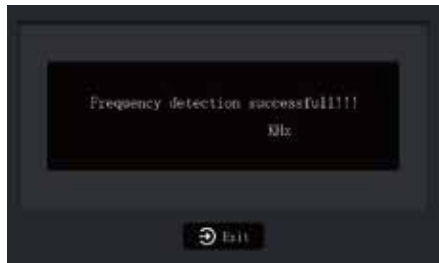
Product Features



The machine comes with a frequency sweep detection function when it is turned on, with a frequency sweep of 18-26KHz, and automatic identification according to different samples and loads;



Automatic energy compensation, in different media and viscosities, the ultrasonic adaptive frequency can automatically compensate the energy output according to different samples.



widely used in

- Composite material preparation (nano-material dispersion), life science (cell-breaking extraction and crushing),
- Pharmaceutical (Chinese herbal medicine and plant extraction), environmental science (extraction of soil organic matter),
- Sewage treatment (degradation of COD), homogenization and mixing (accelerated dissolution, chemical reaction synthesis, oil-water emulsification).



Use color industrial 7-inch touch screen control, all functions integrated display;
Interval pulse mode switch is independent, with three modes of continuous use, pulse, and timed continuous ultrasound;



The equipment is equipped with a temperature sensor, which can test the temperature of samples in real time;



Sample overload, over temperature protection device. Built-in 110V and 220V power switch, you can flexibly switch the voltage switch in different laboratories.

Two-dimensional exponential ultrasonic probe design, which far exceeds the output efficiency of traditional probe design and reduces the loss of the horn;

Scientific design, 99 groups of users store settings and can be directly operated on a single machine;



Specifications

Model	USCG-300F	USCG-550F	USCG-650F	USCG-950F	USCG-1200F	USCG-2000F
Power Supply	110/220V/50-60Hz					
Net Power Output	300W	500W	700W	1000W	1200W	2000W
Nominal Frequency	20KHZ±10%					
Timer	1S~99H can be set					
Power Regulation	1%—100%,1% progressive					
Sample temperature protection setting	1-200℃					
Store Data	99 Groups (Set, Store, Check in Work Status)					
Interval Pulse time	1S~60Min can be set/preset					
Operating mode	Pulse、Time、Continuous					
LCD Display Screen	Color Touch Screen, Resolution: 800×480					
Operational Language	English					
Main Interface Display Parameters	Temperature display, frequency display, probe selection, settings,					
	user group, manufacturer login interface, parameter viewing,					
	power percentage, frequency sweep detection					
Running Interface Displays	Total running time, working time, pause time, overload temperature,					
	power output ratio, working mode, program save key					
Size	440x248x251mm					
Soundproof box size	252x240x455mm					
Configuration of Piezoelectric Frequency Converter						
Standard Amplifier	Titanium alloy material : TC4					
Horn Diameter	3mm	6mm	8mm	10mm	13mm	20mm
Processing Capacity	0.1~50mL	50~500ml	100~800mL	500~1200mL	500~1500mL	1000~3000mL
Cable Line	150cm					
Ultrasonic Horn(Optional)	Φ6 (50~300mL)	Φ3(0.1~50mL)	Φ3(0.1~50mL)	Φ3(0.1~50mL)	Φ3(0.1~50mL) Φ6(50~500mL)	Φ3 (0.1~50mL) Φ6 (50~500mL)
	Φ8 (100~300mL)	Φ8(100~500mL)	Φ6(50~500mL)	Φ6(50~500mL) Φ8(100~800mL)	Φ8(100~800mL)Φ10 (500~1200mL)	Φ8 (100~800mL) Φ10 (500~1200mL) Φ13 (500~1500mL) Φ16 (500~1800mL) Φ18 (1000~2200mL)

Packing list

Model	USCG-F Series
Ultrasonic probe	1
Lifting platform, anti-skid pad	1
Temperature sensor	1
The power cord	1
Cable	1
Fuse	3
Weight	12kg

Ultrasonic Cell Disruptor, USCG Series

USCG-300 USCG-1500
USCG-1800 USCG-2000



Product Features



Automatic resonance point, 19-26KHz Automatic Frequency Scanning and Checking;



Automatic amplitude compensation, which can automatically work at the optimal frequency point and output point according to the fluidity of the sample, Automatic overload protection, over temperature.



Adopt color touch screen controller, all functions are displayed integrated; Independent on/off pulse with 3 modes of continuous use, pulse and timed continuous use.



Small bulb inside the box allows to observe the status of the sample during processing. Scientific design, 99 groups of users store settings and directly implemented on a single machine;

Working Principle

First, the supply electric power is converted into high frequency and high voltage power. This energy is transferred to the transducer and converted into high-frequency mechanical vibration, which is then amplified by amplitude displacement and then the energy is aggregated by the titanium alloy probe.

When this energy is applied on the liquid, it will generate a powerful pressure wave. This pressure wave will form millions of microscopic bubbles, which will grow rapidly with high frequency vibration and then suddenly close. When the bubbles are closed, a strong shock wave is generated due to collision between the liquids, and the pressure is equal to thousands of atmospheric pressures (ie, ultrasonic cavitation).

It causes strong shearing motion on the top of the titanium alloy probe and shears the molecules in gas into smaller fragment. Ultrasonic cavitation is a unique physical process when strong ultrasound is emitted in liquid.

It is accompanied by many effects, mainly as follows: high temperature effect, discharge effect , luminescence effect and jet, impact, pressure effect, etc. This energy is sufficient to crush cells, degrade, reorganize and homogenize various inorganic substances or pulverize nanomaterials.

The device is equipped with a temperature sensor for temperature-sensitive sample;

2D and 3D ultrasound probe design, which greatly improves efficiency and reduces the loss of the horn compared to conventional ultrasound;

Specifications



Packing list

Model	USCG Series
Ultrasonic probe	1pc
Lifting platform, anti-skid pad	1pc
The power cord	1pc
Temperature sensor	1pc
Transducer cable	1pc
Fuse	3pcs
Operating user manual	1set

Model	USCG-300	USCG-1500	USCG-1800	USCG-2000
Power Supply	110V/AC or 220V/AC ,50-60Hz			
Net Power Output	300W	1500W	1800W	2000W
Nominal Frequency	19-26KHz, real-time display (19-26KHzAutomatic Frequency Scanning and Checking)			
Timer	1S~99H can be set			
Power Regulation	1%-100%, 1% progressive			
Temperature warning setting	1-200 ℃			
Store Data	99 Groups (Set, Store, Check in Work Status)			
Pulse interval time	1S ~ 60Min can be set and stored			
Operation Mode	Pulse、 Time、 continuous			
LCD Display Screen	7-inch color touch screen			
Operational Language	English			
Screen display parameters	Temperature , frequency , probe settings, settings, user group, manu- facturer login interface, parameter view, power percentage, sweep frequency detection			
Running Interface Displays	Total running time, working time, pause time, overload temperature, power output ratio, working mode, program save key			
Display light	With ultrasonic output running display light, you can observe the ultrasonic output state at any time			
Size	18.5×12.6×20.6in (470×320×525mm)			
Parameters of Ultrasonic Probe				
Configuration of Piezoelectric Frequency Converter				
Piezoelectric Frequency Converter	CV33, PZT Lead Zirconate Titanate Piezoelectric Ceramics			
Ultrasonic amplitude lever material	Titanium alloy material: TC4			
Horn Diameter	3mm	16mm	18mm	20mm
Processing Capacity	0.1~50mL	500~1800mL	1000~2200mL	1000~3000mL
Cable Line	150cm			
Optional Accessories				
Ultrasonic Horn(Optional)	Φ6 (50~300mL) Φ8 (100~300mL)	Φ3(0.1~50mL) Φ6(50~500mL) Φ8(100~800mL) Φ10(500~1200mL) Φ13(500~1500mL)	Φ3 (0.1~50mL) Φ6 (50~500mL) Φ8 (100~800mL) Φ10 (500~1200mL) Φ13 (500~1500mL) Φ16 (500~1800mL)	Φ3 (0.1~50mL) Φ6 (50~500mL) Φ8 (100~800mL) Φ10 (500~1200mL) Φ13 (500~1500mL) Φ16 (500~1800mL) Φ18 (1000~2200mL)

Ultrasonic Cell Disruptor, USCG-N Series

USCG-150N USCG-250N USCG-300N USCG-450N
USCG-600N USCG-900N USCG-1200N USCG-1800N



Soundproof box
Built-in sound insulation cotton, good double sound insulation effect

Transducer
High energy conversion efficiency

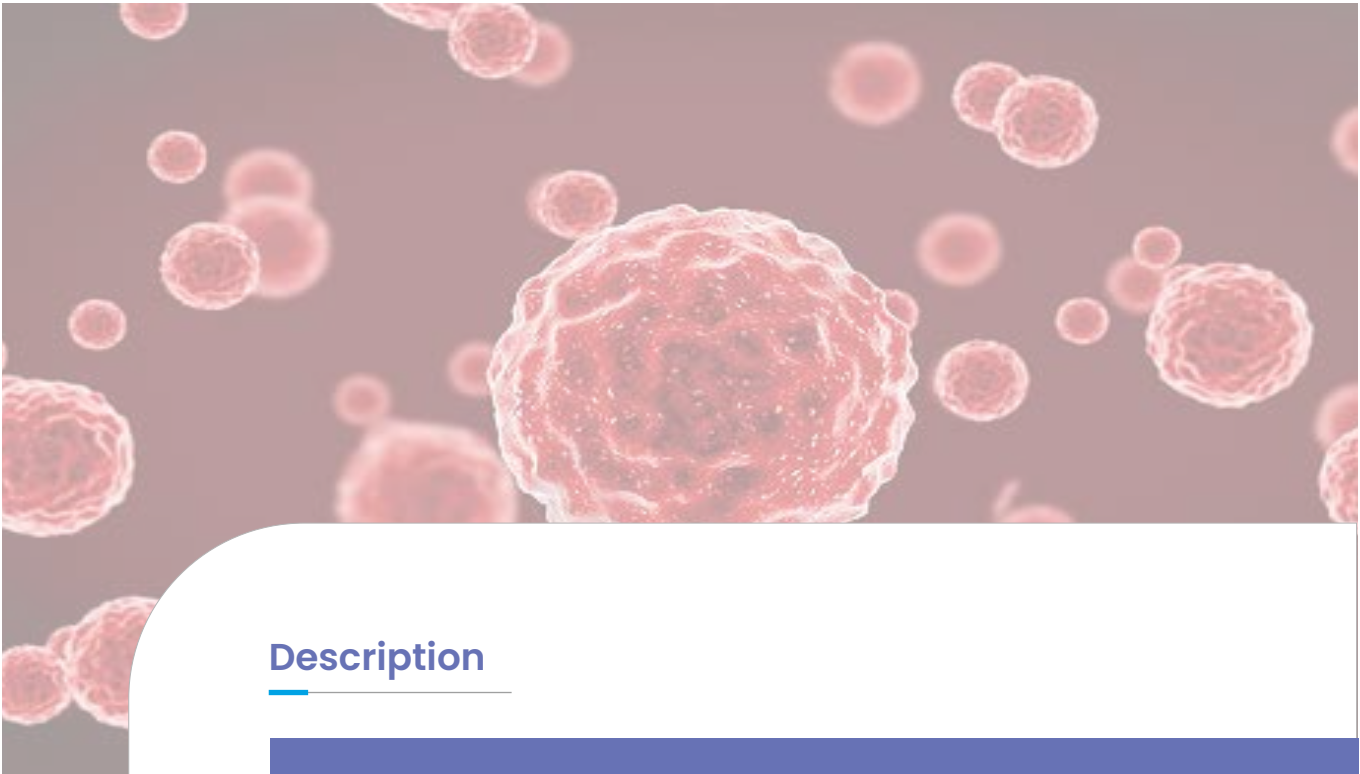
HD LCD Display
Set parameters at a glance

Titanium alloy horn
Acid and alkali resistance, corrosion resistance

Overload protection button
Built-in overload protection device

Lifting table
Knob lift, flexible and convenient

Push-button operation panel
Flexible to the touch and durable











Description

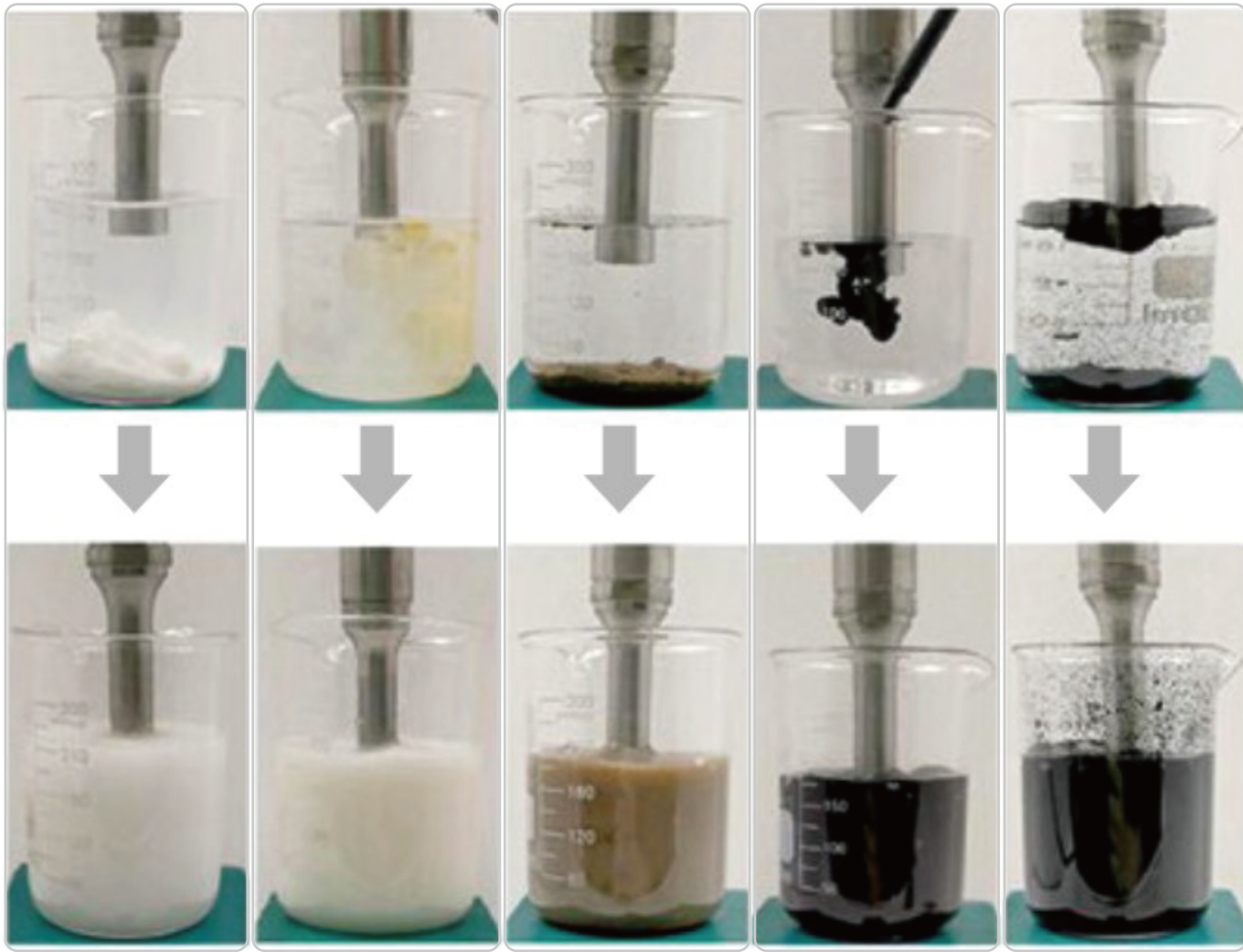
- It is mainly applied in three aspects. First, traditional Chinese medicine extraction, cell, bacterial and viral tissue fragmentation. For example, the extraction of cell contents. Second, dispersion and homogeneity of material particles and emulsification of products. For example, the dispersion of nano materials (silicon dioxide, carbon dioxide, carbon nanotubes, graphene, etc.). Third, accelerate dissolution and chemical reaction. For example, it is used in chemical synthesis.



Features

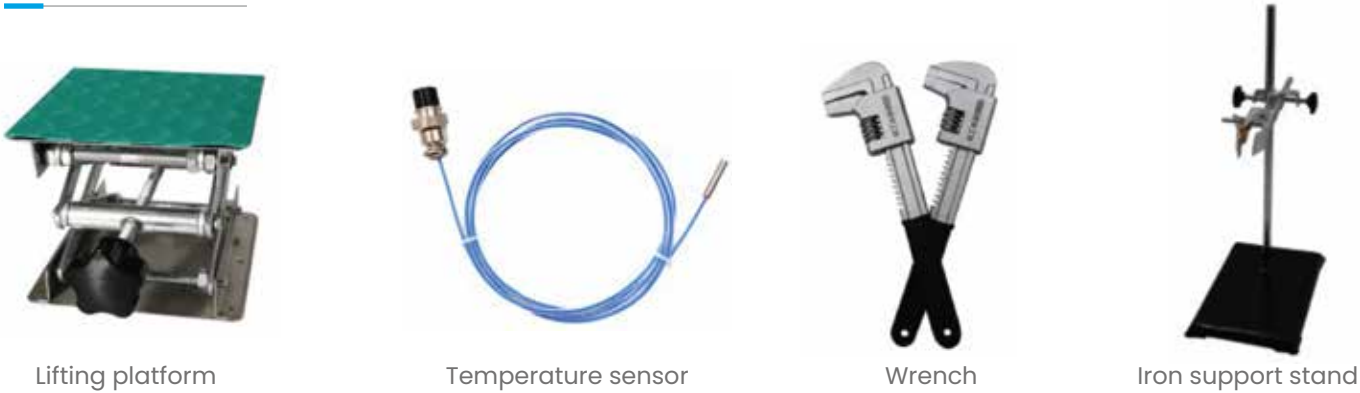
-  Automatic resonance point and power control, without frequent manual energy adjustment.
-  The 99 hour process control timer controls the total working time: from 1 second to 99 hours, and pauses the current running task in real time.
-  The working time is displayed in cumulative status.
-  On / off pulse timer: ensure high-intensity processing of temperature sensitive samples, and the on and off cycles can be set from 1 second to 99 minutes.
-  Automatic amplitude compensation ensures that the probe amplitude does not change due to load changes during the ultrasonic process.
-  Sample overload and over temperature protection device.
-  Automatic frequency tracking and fault alarm.
-  Easy to operate, direct typing.

Ultrasonic Contrast



Composite material dispersion Oil water emulsification Soil extraction Graphene dispersion Carbon nanotube dispersion

Optional Accessories



Lifting platform Temperature sensor Wrench Iron support stand

Specifications



Model	USCG-150N	USCG-250N	USCG-300N	USCG-450N	USCG-600N	USCG-900N	USCG-1200N	USCG-1800N
Electricity	220V/50Hz 80W	220V/50Hz 150W	220V/50Hz 300W	220V/50Hz 450W	220V/50Hz 600W	220V/50Hz 900W	220V/50Hz 1200W	220V/50Hz 1800W
Frequency	20KHz							
Power regulation	0%--100%, 5% increment							
Ultrasonic mode	Pulse mode / continuous mode							
Timing function	LCD, 1s~99h adjustable							
Piezoelectric frequency conversion energy converter	CV33, PZT lead zirconate titanate piezoelectric ceramics							
Diameter	44mm			63mm			73mm	
Length	152mm			154mm			160mm	
Luffing lever material	Titanium alloy material, TI-6AL-4V							
Luffing lever length	128mm	125mm	128mm	134mm			135mm	130mm
Processing capacity	0.5-50ml	2-100ml	5-200ml	10-300ml	20-500ml	20-500ml	50-2000ml	100-3000ml
	(need to select the corresponding horn)							
Standard probe	Φ3mm	Φ6mm	Φ8mm	Φ13mm	Φ16mm	Φ13mm	Φ20mm	Φ25mm
Host size	245*365*245mm							
Soundproof box size	240*250*390mm							
Host weight	8.5Kg			10.5Kg				13.5Kg
Soundproof box weight	4.5Kg							
Lifting table	Stainless steel 100*100mm							

Horn selection table

Model	Nominal frequency	Diameter	Capacity	Optional horn size
USCG-150N	20KHz	Φ3mm	0.5ml-50mL	φ2(0.1-50ml)φ6(5-50ml)
USCG-250N	20KHz	Φ6mm	2ml-100mL	φ2(0.1-50ml)φ3(0.5-100ml)φ8(5-100ml)
USCG-300N	20KHz	Φ8mm	5mL-200mL	φ2(0.1-50ml)φ3(0.5-100ml)φ6(2-200ml)φ10(10-200ml)
USCG-450N	20KHz	Φ13mm	10mL~300mL	φ3(0.1-100ml)φ6(2-200ml)φ8(5-200ml)φ10(10-300ml)φ16(20-300ml)
USCG-600N	20KHz	Φ16mm	20mL~500mL	φ3(0.1-50ml)φ6(2-200ml)φ8(5-300ml)φ10(10-400ml)φ13(10-500ml)φ18(50-500ml)
USCG-900N	20KHz	Φ13mm	20mL~500mL	φ3(0.1-50ml)φ6(2-200ml)φ8(5-300ml)φ10(10-400ml)φ16(20-1000ml)φ18(50-1000ml)
USCG-1200N	20KHz	Φ20mm	50mL~2000mL	φ3(0.1-50ml)φ6(2-200ml)φ8(5-300ml)φ10(10-400ml)
				φ13(20-500ml)φ16(20-1000ml)φ18(50-2000ml)φ25(100-2000ml)
USCG-1800N	20KHz	Φ25mm	100mL-3000mL	φ6(2-200ml)φ8(5-300ml)φ10(10-400ml)
				φ13(20-500ml)φ16(20-1000ml)φ18(50-2000ml)φ20(50-3000ml)φ30(100-3000ml)

Ultrasonic Cell Disruptor, USCG-P150N

USCG-P150N

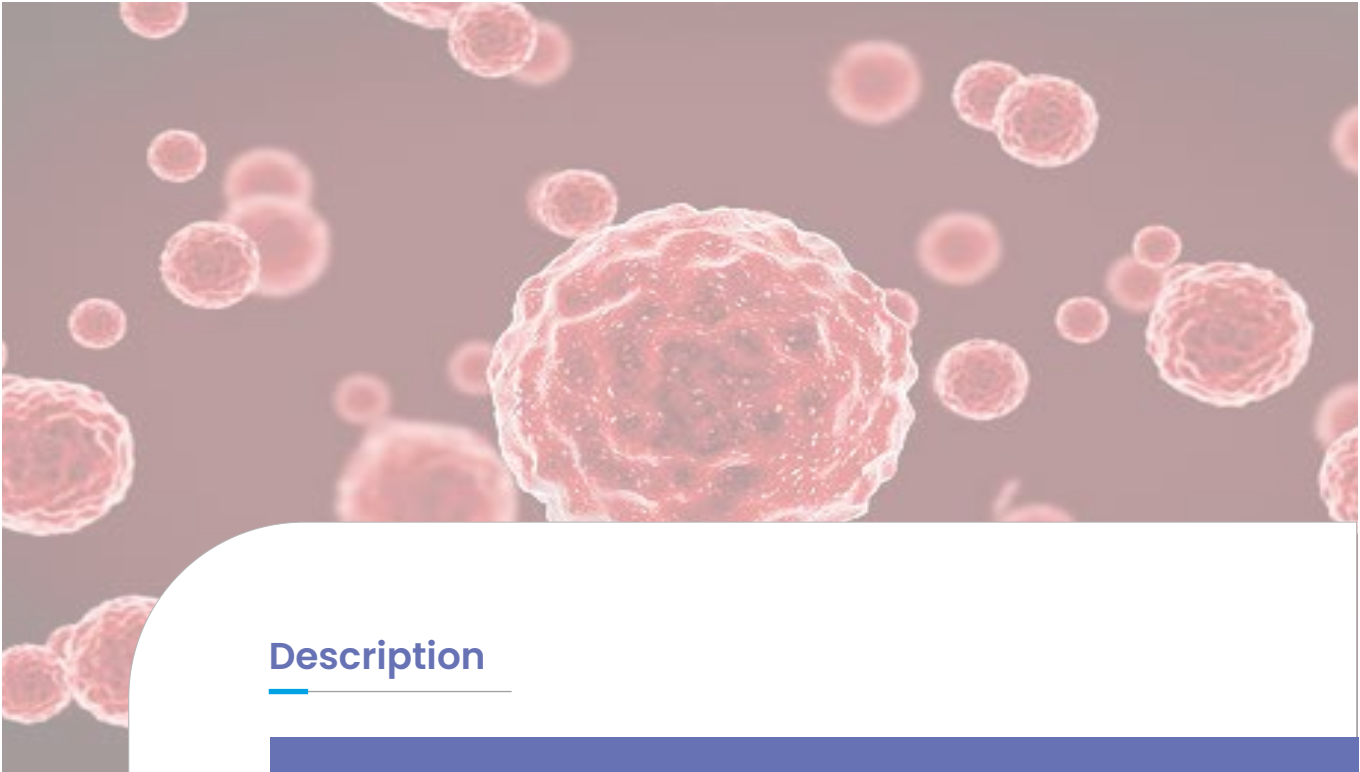


- Small volume, large treatment capacity and good treatment effect
- Multiple power supplies for field use
- Integrated lightweight design
- Small and portable
- Acid, alkali and corrosion resistance



Features

- The horn is made of titanium alloy material, which has the characteristics of high strength, high speed of sound, good corrosion resistance and high heat resistance, so as to prolong the service life of the instrument.
- The circuit of the product is made by the SMD process, which has the characteristics of automatic frequency tracking, automatic amplitude control, stable load, high electro-acoustic conversion efficiency, and over-temperature protection.
- It can either manually control the ultrasound, or fix the ultrasound on the shelf, which is especially suitable for micro or small sample processing (such as: EP tube, microcentrifuge tube container, etc.)
- The working voltage provides DC voltage and AC voltage, and also comes with a vehicle-mounted working cable, which is convenient for users to use outdoors.
- The integrated design of ultrasonic vibration system has the advantages of convenience, high efficiency, energy saving and portability.



Description

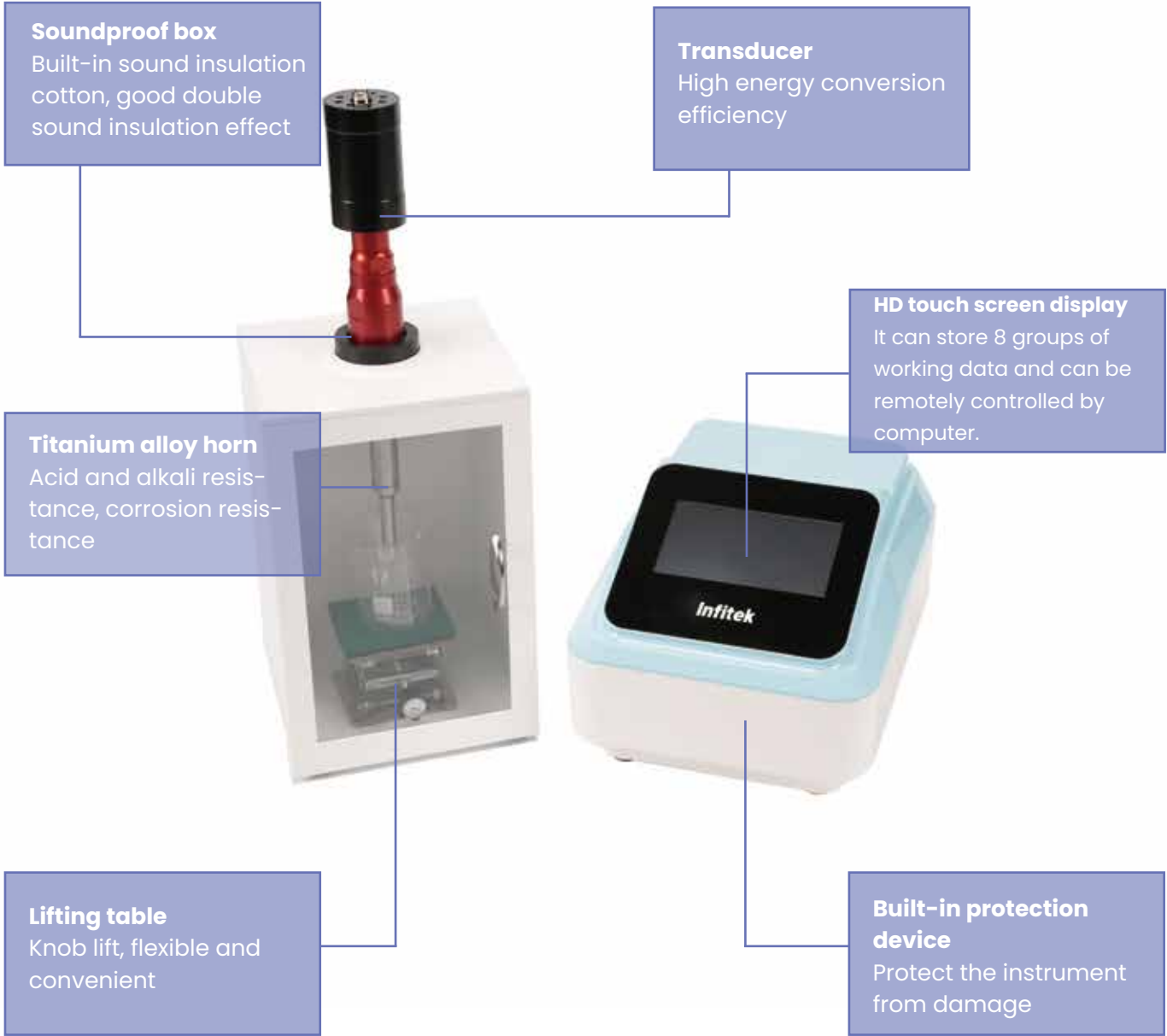
- The handheld ultrasonic processor is a handheld ultrasonic instrument developed based on a simple and reliable design concept. The probe and host are designed in an integrated way, with small volume, large processing capacity and compact structure. It is mainly composed of 12-24V/DC adjustable switching power supply and ultrasonic vibration system. The ultrasonic vibration system consists of electronic tracking frequency converter, ultrasonic transducer and horn.

Specifications

Model	USCG-P150N
Nominal frequency	30KHz
Max. power	150W
Dimension	265mm * Φ42mm
Probe material	Titanium alloy
Diameter	Φ6mm
Handling capacity	100μL~100mL
Optional horn size	Φ2mm, Φ3mm, Φ8mm
Weight	1.0Kg
Electricity	12-24V/DC or 110V/AC-220V/AC, Vehicle 12V

Ultrasonic Cell Disruptor, USCG-T Series

USCG-100T USCG-200T USCG-350T USCG-550T
USCG-750T USCG-1000T USCG-1500T USCG-2000T



Features


- Automatic resonance point and power control, without frequent manual energy adjustment
- 99-hour process control timer to control the total working time: from 1 second to 99 hours, suspend the current running task in real time.
- The working time is displayed in cumulative state, and the operation interface adopts 7-inch color touch screen.
- On / off pulse timer: on and off cycles can be set from 1 second to 99 hours.
- Automatic amplitude compensation: ensure that the probe amplitude does not change due to the change of load during the ultrasonic process.
- Overload protection: The device self-checks, and the timer is suspended.
- With 7-inch large screen touch control mode
Integrated display of operation interface
- Reliable performance, simple operation
Simple and beautiful appearance



USCG-100T USCG-200T USCG-350T



USCG-550T USCG-750T USCG-1000T
USCG-1500T USCG-2000T



Description

Ultrasonic processor is one of the commonly used equipment for sample pretreatment in the laboratory. It is widely used in nano industry, chemical industry, optics, jewelry, aerospace, hardware, automobile manufacturing and other fields. It is mainly applied to the extraction of traditional Chinese medicine, the fragmentation of cells, bacteria and virus tissues, and the acceleration of dissolution and chemical reactions, such as chemical synthesis

Specifications

Model	USCG-100T	USCG-200T	USCG-350T	USCG-550T	USCG-750T	USCG-1000T	USCG-1500T	USCG-2000T
Electricity	220V/50Hz 100W	220V/50Hz 200W	220V/50Hz 350W	220V/50Hz 550W	220V/50Hz 750W	220V/50Hz 1000W	220V/50Hz 1500W	220V/50Hz 2000W
Nominal frequency	20KHz							
Capacity	0.5-80ml	2-150ml	5-250ml	10ml-400ml	20ml-800ml	20ml-1000ml	50ml-2000ml	100ml-3000ml
Timer	1 second - 99 hours, 99 minutes, 59 seconds adjustable							
Data storage	Store 10 sets of operation data (can be switched arbitrarily)							
Power regulation	1%--100%, 1% progressive							
Operation mode	Pulse, Time, Continuous							
Liquid crystal display	Color touch screen, resolution: 800*480							
Dimension	370*265*225							
Piezoelectric	CV33, PZT lead zirconate titanate piezoelectric ceramics							
frequency conversion energy converter	Diameter: 44mm			Diameter: 63mm			Diameter: 73mm	Diameter: 63mm
	Length: 152mm			Length: 153 mm			Length: 163 mm	Length: 153mm
Standard configuration amplifying bar	Head diameter (random amplifying bar): Φ3mm			Head diameter (random amplifying bar): Φ13mm			Head diameter (random amplifying bar): Φ20mm	
	Total length: 128mm			Total length: 134mm			Total length: 132mm	
	Φ6mm	Φ8mm		Φ16mm	Φ13mm		Φ25mm	
	Total length: 120mm			Total length: 129mm			Total length: 132mm	

Horn selection table

Model	Nominal frequency	Diameter	Capacity	Optional horn size
USCG-100T	20KHz	Φ3mm	0.5-80ml	φ2(0.1-50ml)φ6(2-80ml)
USCG-200T	20KHz	Φ6mm	2-150ml	φ2(0.1-50ml)φ3(0.5-100ml)φ8(5-150ml)
USCG-350T	20KHz	Φ8mm	5mL-250mL	φ2(0.1-50ml) φ3(0.5-100ml)φ6(2-200ml)φ10(10-250ml)
USCG-550T	20KHz	Φ13mm	10mL~400mL	φ3(0.1-100ml)φ6(2-200ml)φ8(2-300ml)φ10(5-350ml)φ16(20-400ml)
USCG-750T	20KHz	Φ16mm	20mL~800mL	φ3(0.1-100ml)φ6(2-200ml)φ8(5-300ml)φ10(10-500ml)φ13(10-700ml)φ18(50-800ml)
USCG-1000T	20KHz	Φ13mm	20mL~1000mL	φ3(0.1-100ml)φ6(2-200ml)φ8(5-300ml)φ10(5-800ml)φ16(20-1200ml)φ18(50-1200ml)
USCG-1500T	20KHz	Φ20mm	50mL~2000mL	φ3(0.1-100ml)φ6(2-200ml)φ8(5-300ml)φ10(10-1000ml)
				φ13(20-1000ml)φ16(20-1500ml)φ18(50-2000ml)φ25(100-2000ml)
USCG-2000T	20KHz	Φ25mm	100mL-3000mL	φ6(2-200ml)φ8(5-300ml)φ10(5-1000ml)
				φ13(20-1500ml)φ16(20-1500ml)φ18(50-2000ml)φ20(50-3000ml)φ30(100-3000ml)