



ULTRASONIC LABORATORY DEVICES



hielscher
Ultrasound Technology

UP50H

50 Watts Handheld Ultrasonic Homogenizer



UP50H with MS3



Timer T1



Sound Protection Box SB2-16

The ultrasonic processor UP50H is used in particular in medical, biological or chemical laboratories, where small volumes need to be sonicated. Application fields are found mainly in the analytical field with applications such as the disruption of tissues, the cracking of bacteria or the homogenizing of samples in the food industry. The UP50H (50 watts, 30kHz) is perfectly suited for handheld operation with its lightweight 1.1kg, but it can also be operated at a stand. Generator and the transducer are combined in one unit, so there is only one cable. One power supply cord - that's all. For samples volumes from 0.1mL up to 250mL we offer various replaceable sonotrodes with diameters 1mm, 3mm and 7mm. The timer allows to pre-define a sonication period. This is very helpful for routine sonication processes. The sound protection box reduces the noise level. We recommend this box when sonicating for a longer period, e.g. 5 minutes.



UP50H with MS7 at Stand ST1-16

Item / Description
Ultrasonic Processor UP50H-230V for manual operation or for stand use, 50 watts, frequency 30kHz, automatic frequency tuning system, amplitude adjustable 20-100%, pulse 0-100%, dry running protected, in portable case, with fixture f. stand STH-16 and mounting tools, 230V~
Sonotrode MS1 made of titanium, tip diameter 1mm, approx. length 80mm, for samples from 0.1ml up to 5ml
Sonotrode MS3 made of titanium, tip diameter 3mm, approx. length 80mm, for samples from 5ml up to 100ml
Sonotrode MS7 made of titanium, tip diameter 7mm, approx. length 80mm, for samples from 10ml up to 250ml
Stand ST1-16 pole diameter 16mm, made of stainless steel, base length 300mm, width 150mm, height 600mm
Sound Protection Box SB2-16 with vertically adjustable table and 16mm stand pole, for UP50H or UP100H
Timer T1 timer, from 00:00 to 99:59 (min:sec)

*prices are net, EXW Teltow, Germany, valid until 31. Dec. 2009

UP100H

100 Watts Handheld Ultrasonic Homogenizer



UP100H with MS7



MS1 MS3 MS7 MS10



Timer T1



Sound Protection Box SB2-16

The ultrasonic processor UP100H is the perfect device for the sonication of small and medium size lab samples. This compact, yet powerful, lab homogenizer is commonly used for sample preparation, such as emulsifying, dispersing, dissolving and cell disruption.

The ultrasonic processor UP100H (100 watts, 30kHz) has the same compact and ergonomic design as the UP50H but it comes with twice the ultrasonic power. At 1.1kg, it is lightweight in the hand. Of course, an operation at a stand is possible, too. The ultrasonic generator and the transducer are combined in one unit, so that there are no hassles with connecting cables. One power supply cable - that's all. Using the 3mm, 7mm or 10mm sonotrode the UP100H is most suitable for the ultrasonication of samples from 0.1mL to 500mL. The UP100H can be operated in the sound protection box for lower noise emissions. The timer allows to sonicate for a pre-defined time span.



UP100H with MS3

Item / Description

Ultrasonic Processor UP100H-230V

for manual operation or for stand use, 100 watts, frequency 30kHz, automatic frequency tuning system, amplitude adjustable 20-100%, pulse 0-100%, dry running protected, in portable case, with fixture f. stand STH-16 and mounting tools, 230V~

Sonotrode MS1

made of titanium, tip diameter 1mm, approx. length 80mm, for samples from 0.1ml up to 5ml

Sonotrode MS3

made of titanium, tip diameter 3mm, approx. length 80mm, for samples from 5ml up to 100ml

Sonotrode MS7

made of titanium, tip diameter 7mm, approx. length 80mm, for samples from 10ml up to 250ml

Sonotrode MS10

made of titanium, Ø10mm, approx. length 80mm, for samples from 20ml up to 500ml

Stand ST1-16

pole diameter 16mm, made of stainless steel, base length 300mm, width 150mm, height 600mm

Sound Protection Box SB2-16

with vertically adjustable table and 16mm stand pole, for UP50H or UP100H

Timer T1

timer, from 00:00 to 99:59 (min:sec)

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UP200H

200 Watts Handheld Ultrasonic Homogenizer



UP200H with S40



Timer T1



Sound Protection Box SB3-16

The ultrasonic processor UP200H (200 watts, 24kHz) is the most powerful handheld ultrasonic device. The UP200H is well suited for all general ultrasonic applications in small and medium scale. The applications include: Homogenization, disintegration, emulsification, cell disruption, degassing or sonochemistry. The UP200H can be operated at a stand, too. Sample volumes from 5 to 2000ml can be sonicated with sonotrodes of a diameters from 3 to 40mm. We offer a comprehensive range of accessories for the UP200H such as flow cells, stand, sound protection box, timer and PC- control. Using the sound protection box is recommended when running the UP200H for a longer time or often during the day. If you would like to operate the UP200H for a pre-defined time span, you can use the timer. This will shut the UP200H off after the time has elapsed.



UP200H with S7

Item / Description
Ultrasonic Processor UP200H-230V for manual operation or for stand use, 200 watts, frequency 24kHz, automatic frequency tuning system, amplitude adjustable 20-100%, pulse adjustable 0-100%, dry running protected, in portable case, with mounting tools, 230V~
Sonotrode S3 made of titanium, tip diameter 3mm, approx. length 100mm, for samples from 5ml up to 200ml
Sonotrode S7 made of titanium, tip diameter 7mm, approx. length 100mm, for samples from 20ml up to 500ml
Sonotrode S14 made of titanium, tip diameter 14mm, approx. length 100mm, for samples from 50ml up to 1000ml
Sonotrode S40 made of titanium, tip diameter 40mm, approx. length 100mm, for samples from 100ml up to 2000ml
Stand ST1-16 pole diameter 16mm, made of stainless steel, base length 300mm, width 150mm, height 600mm
Sound Protection Box SB3-16 with vertically adjustable table and 16mm stand pole, for UP200H
Timer T1 timer, from 00:00 to 99:59 (min:sec)

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VialTweeter (front) and sonotrode (back) at UIS250v

LS24d3

LS24d5

LS24d10

VT24d10

VialTweeter

Timer T1

The UIS250v is an effective means for the sonication of small volumes and vials, e.g. cryo vials and reagent vials. The latter can be sonicated without the need to open the cap or any water bath. This compact device can be used either as a hand-held or stand-mounted homogenizer for the direct sonication of liquid volumes from 5 to 1000mL. The sonotrode VT24d10 and the VialTweeter are designed for the intense sonication of closed Eppendorf or Cryo-Vials (plastic). The VialTweeter delivers up to 10 watts to each of the six vials in its high intensity part and up to 5 watts to the two vials placed in its low intensity part. These power levels allow for sophisticated sonication processes in short time, similar to direct sonication by a homogenizer. The power can be adjusted by means of the amplitude adjustment at the front panel of the generator. Once set, the amplitude will be maintained at the adjusted value and is distributed

evenly across the six high intensity vials and the two low intensity vials, respectively. This gives you reproducible sonication effects. For a good transmission of the ultrasonic vibrations to the individual vials, the vials are pushed gently into the holes of the VialTweeter. The VialTweeter vibrates through the wall of the vial. The vial can remain closed. Different from the direct sonication by means of an ultrasonic sonotrode that is immersed into the liquid, this eliminates cross contamination of samples and reduces the time required for the sonication of multiple vials. The VialTweeter can be cleaned and disinfected easily. The VialTweeter is autoclavable and the transducer of the UIS250v is made of stainless steel (IP65, NEMA4). The generator is connected to the transducer by a 4m connection cable. The timer can be used to operate the UIS25v for a pre-defined time span.

Item / Description	
Ultrasonic Processor UIS250v-230V for handheld operation or for stand use, 250 watts, ultrasonic frequency 24kHz, automatic frequency tuning system, amplitude adjustable from 20 to 100%, pulse adjustable from 0 to 100%, dry running protected, transducer IP40 grade, 230V~	
Sonotrode LS24d3	made of titanium, tip diameter 3mm, length approx. 100mm, for a sample volume 5ml up to 200ml
Sonotrode LS24d5	made of titanium, tip diameter 5mm, length approx. 100mm, for a sample volume 20ml up to 300ml
Sonotrode LS24d10	made of titanium, tip diameter 10mm, length approx. 100mm, for a sample volume 50ml up to 1000ml
Sonotrode VT24d10	made of titanium, with 1 bore hole diameter 10mm for sonication of one vial (outer diameter 10mm), Stand ST1-16 with clamp ST1-16clamp is recommended
Sonotrode VialTweeter	made of titanium, with bores and clamping fixture for the sonication of up to eight Eppendorf tubes 1,5ml
Stand ST1-16clamp	pole diameter 16mm, made of stainless steel, base length, with clamp, 300mm, width 150mm, height 600mm
Timer T1	timer, from 00:00 to 99:59 (min:sec)

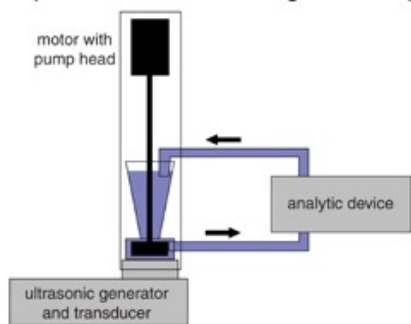
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SonoStep

Ultrasonic Sample Preparation Unit



SonoStep Set



Schematic of Sonostep for Recirculation



Timer T2

The SonoStep combines ultrasonication, stirring and pumping of samples in a compact design. It is easy to operate and can be used to deliver sonicated samples to analytic devices, e.g. for particle size measurement.

Ultrasonication helps to disperse agglomerated particles for the preparation and analysis of particle dispersions and emulsions. This is important, when measuring particle size, for example by dynamic light scattering or laser light diffraction.

Ultrasonication of your samples improves the the accuracy of your particle size or morphology measurement, as the SonoStep performs three important functions:

- De-aeration
- Circulation
- Dispersing / Deagglomeration

The ultrasound de-aerates the liquid and therefore prevents microbubbles from interfering with the measurement. It circulates the sample volume at an

adjustable flow rate and disperses the particles in the liquid. The ultrasonic power is applied directly under the rotor of the pump and ensures that agglomerated particles are getting dispersed before being measured. This leads to more consistent and repeatable results.

If you would like to operate the SonoStep for a pre-defined time span, you can use the timer T2. This will shut the SonoStep off after the set time has elapsed.

Item / Description	
SonoStep Set	ultrasonic processor, 100 watts, ultrasonic frequency 30kHz, microprocessor controlled, automatic frequency tuning system, amplitude adjustable from 20 to 100%, adjustable propeller output signal 20 to 100%, dry running protected, with 15-pin interface (0-10V), with mounting tools, stainless-steel housing, IP65 grade, titanium resonator, thermo-couple (AISI316Ti) with digital display, digital power-meter, O-Rings made of EPDM, detachable stainless steel rotor (AISI316Ti) for pumping and stirring, acrylic shield for noise reduction and spill protection dimensions (LxWxH): 280x210x350mm, 230V~
Timer T2	timer, from 00:00 to 99:59 (min:sec)

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Ultrasonic Sieving System



UIS250L with RIS200



SZS200



Timer T1

The ultrasonic processor UIS250L is used for the acceleration of sieving processes alternatively or complementary to the classical low frequency vibrators. Especially in case of very fine powders ultrasound is often the only possibility to enable the sieving process at all. Hielscher Ultrasonics has developed a worldwide unique technology especially for exciting common laboratory ring sieves (according to DIN ISO 3310/1 or ASTM E 11-95) with diameters of 200mm or 8 inch. A ring sonotrode that fits the sieve is excited by the ultrasonic processor UIS250L. The ring sonotrode (RIS) transmits the oscillation via the sieve frame to the screening surface. With the help of the clamping fixtures the neighboring sieves are also excited. In contrast to the ultrasonic sieving processes known until now, in which each sieve needs its own ultrasonic excitation, this is a very inexpensive and flexible solution. Another advantage of this exciting

principle is that the transducer is situated outside the material to be sieved. This technology can be used for dry or wet sieving, as well as for cleaning the sieves. The ultrasonic components can be retrofitted in already existing sieving towers and can even be used in combination with vibrators. In this case the delivery scope consists only of the ultrasonic processor UIS250L and the ring sonotrode, which will be fitted into the common laboratory ring sieves of most manufacturers. An accessory set (SZS) is necessary for a complete sieving tower. The set consists of a basic platform, tension bars with rapid tension nuts, a bottom receiver and a top cover. The timer T1 allows to operate the sieving system for a pre-defined time span.

Item / Description
Ultrasonic Processor UIS250L-230V for ultrasonic sieving, 250 watts, ultrasonic frequency 24kHz, automatic frequency tuning system, amplitude adjustable from 20 to 100%, pulse adjustable from 0 to 100%, dry running protected, transducer IP40 grade, 230V~
Ring-Sonotrode RIS200 for use with standard laboratory screens (according to DIN ISO 3310/1), diameter 200mm, height 35mm
Ring-Sonotrode RIS203 for use with standard laboratory screens (according to ASTM E 11-95), diameter 203,5mm (8 inch), height 35mm
Accessory Set SZS200 for sieves and ring sonotrodes diameter Ø200mm or Ø203,5mm (Ø8,0"), consisting of platform, tension bars with rapid tension nuts, bottom receiver and top cover
Timer T1 timer, from 00:00 to 99:59 (min:sec)

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UIP250MTP Ultrasonication of Microtiter Plates



The ultrasonic processor UIP250MTP allows for the consistent sonication of an entire microtiter plate within the sonotrode. It can be used for the homogenizing, dispersing, degassing or for disruption of cells.

The ultrasonic power is distributed evenly through each well of the microtiter plate giving you consistent and repeatable sonication effects. Furthermore, the amplitude of oscillation is adjustable and is maintained at the adjusted value for the whole sonication period. The UIP250MTP consists of the 250 watts generator, the sonotrode and the required sound protection hood (acrylic glass). This makes it a complete stand-alone unit that is easy to set-up and operate. The ultrasonic generator is tuned to the frequency of the sonotrode automatically so that there is no manual adjustment required (e.g. in case of a cooled sonotrode). Two attached tubes allow for a continuous flow of the liquid in the sonotrode.

The UIP250MTP can be operated continuously (e.g. 24/7). It is dry-running protected and can be cleaned and disinfected easily. Pulsed operation or different sonication periods can be adjusted exactly at the front panel of the ultrasonic generator.



Item / Description
Ultrasonic Processor UIP250MTP-Set-230V ultrasonic processor for the sonication of microtiter plates, 250W, 20kHz, amplitude adjustable from 20 to 100%, control of pulse ratio and sonication time, transducer in stainless steel housing, connections for cooling water, 2m cable between generator and transducer, 230V~ sonotrode made of titanium, carrying surface 150mmx90mm for microtiter plates, incl. sound protection hood made af acrylic glass

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Distributore Autorizzato : Geass S.r.l. - Torino - Tel.: +39 011.22.91.578 – info@geass.com - web site : www.geass.com

