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UIP1000hdT – Powerful and Versatile Homogenizer

The UIP1000hdT (1000W, 20kHz) is a powerful and adaptable ultrasonic device for lab testing and industrial processing of liquids. It is used for applications, such as **emulsification, dispersing & particle fine milling, lysis & extraction, dissolving or sonochemical reactions**. Color touch display, browser remote control, automatic data recording, integrated SD Card and plugable temperature and pressure sensors allow for precise process control and operation comfort..

The UIP1000hdT is the powerful link between laboratory testing and the industrial processing of liquids. It combines the flexibility and easy handling required in the research and development with an outstanding performance in heavy-duty operation. For this reason, this single device is used for lab scale feasibility testing, process optimization, and process demonstration for ultrasonic liquid processes.

Adaptable System to Fulfill R&D Needs

Since the UIP1000hdT is very flexible and adaptable, it is being used in many R&D facilities and universities, today. The flexibility of the UIP1000hdT results from an extensive list of manifold accessories, such as sonotrodes, boosters and flow cells. In combination with a sonotrode and the stand, you can sonicate sample beakers (click to enlarge picture) to test various liquid formulations for their response to sonication. For the processing of batches larger than 5 liters, we generally recommend to sonicate using a flow cell reactor (flow mode) in order to obtain a better processing quality. When used with a flow cell (right picture) you can run larger samples in recirculation to establish the correlation between parameters, such as amplitude, pressure and liquid composition, and the process results and efficiency. When used for the sonication of liquids in flow mode, the UIP1000hdT can typically process between 0.5 and 4.0L/min (The actual rate will depend on your process). As the UIP1000hdT is **full industrial grade**, it can be operated **24 hours per day** (24h/7d). A UIP1000hdT can typically process approx. 1 to 5m³ per day. For higher production throughput, we recommend using either multiple units or one of the larger ultrasonic devices:

- [UIP1500hdT](#) (1500W, 20kHz)
- [UIP2000hdT](#) (2000W, 20kHz)
- [UIP4000hdT](#) (4000W, 20kHz)
- [UIP10000](#) (10000W, 20kHz)

- **UIP16000** (16000W, 18kHz)

High Power and Full Process Control

Powerful sonication is the process solution for manifold liquid processing applications, such as **emulsifying**, **dispersing**, **milling** or **dissolving**. The UIP1000hdT provides intense ultrasound waves to fulfill demanding tasks without problems. To ensure a consistent **process quality**, not only the power delivered is essential, the **control and monitoring of all important process parameters** is key. The new generation of hdT ultrasonicators enables the operator to pilot the ultrasonic device via touch display or browser remote control. All relevant process parameters – such as amplitude, sonication time, temperature and pressure – are automatically recorded and saved as CSV file on the integrated SD Card.

Thereby, the new UIP1000hdT provides the same ultrasound power as the predecessor UIP1000hd, but excels with a broad range of additional features, which makes the ultrasound process much more user-friendly. From the operational view, the precise control of all ultrasonic process parameters are absolute key functions.

The UIP1000hdT at a glance

- 1000 watts powerful ultrasonicator
- reliable for heavy duty sonication processes
- 24/7 operation
- industrial grade
- full color touch display
- browser remote control
- data recording of process parameters
- integrated SD Card
- temperature sensor
- pressure sensor (optionally available)
- LAN connection
- Ethernet connection
- no software installation
- automatic frequency tuning

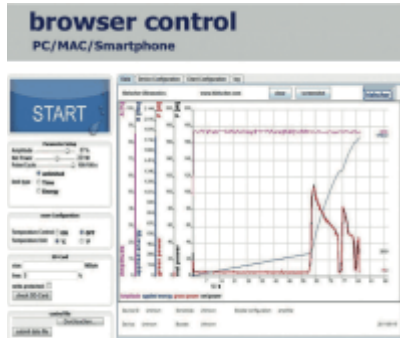
Full Color Touch-Screen



The colored touch-screen is a great enhancement making the device even more user-friendly. The touch- and stylus-sensitive screen allows for easy handling and guarantee the accurate setting of operating parameters and the display of the ultrasound power setting. The digital control menu is intuitive to use and features a clearly structured settings menu. The amplitude/ power setting and the pulse mode can be adjusted by a colored touch-slider (with 1%, 5% or 10% snap). The user decides, if he prefers the display of amplitude and power as colored bargraphs or numerical

representation. The display can be changed from regular view mode into BIG NUMBER mode, where a high contrast and big font-size ease its readability.

Browser Remote Control



Due to its new LAN web interface, the UIP1000hdT can be controlled using any common browser, such as Internet Explorer, Safari, Firefox, Mozilla, mobile IE/Safari. The LAN connection is a simple plug-n-play setup that requires no software installation. The ultrasonic device acts as DHCP server/client and requests or assigns an IP automatically. The device can be operated directly from the PC/MAC or using a switch or router. Using an optional pre-configured wireless

router, the device can be controlled from most smartphones or tablet computers, e.g. the Apple iPad. Using the port-forwarding of a connected router, you could control your UIP1000hdT via internet from anywhere in the world – using your smart-phone or tablet as remote control.

Built-In Network

The UIP1000hdT can be operated and controlled via LAN (local area network, see right box) which facilitates the operation and allows for high processing flexibility. All information of the sonication process is recorded on SD data card, automatically. A pluggable sensor measures the temperature permanently. An optionally available pressure sensor can be additionally plugged to record the pressure.

Automatic Frequency Tuning

All Hielscher ultrasonic devices are equipped with an intelligent automatic frequency tuning. When the device is switched on, the generator will sense the optimal operational frequency and ensures that the device operates at this frequency. The automatic frequency tuning improves the overall energy efficiency and reliability of our ultrasonic devices.

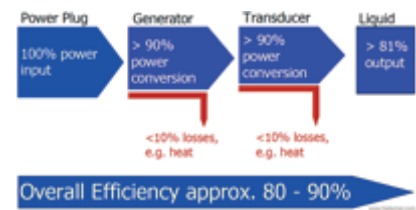
Industrial Grade and Outstanding Efficiency

The UIP1000hd is designed and **built for commercial production**. It proves its solid, durable design in more than thousand commercial installations worldwide where it is being used in everyday production. This ultrasonic processor requires **little maintenance**, is easy to setup and simple to clean and to sanitize. Special flow cell reactors meeting the advanced CIP (clean-in-place) and SIP (sterilize-in-place) requirements are available, too.

The transducer of the UIP1000hdT is **IP65 grade**, so that it can be installed in **demanding environments** (dirt, dust, moisture, outside operation etc.), while the generator can be placed remotely in another area.

Since Hielscher's ultrasonic devices have a very **high efficiency** in the conversion of electrical energy into mechanical oscillations of the sonotrode, our transducer can be built into closed housings. There are no louvers in the

transducer case. As the energy loss, which would cause a heat-up in the closed transducer housing is very low, no forced cooling, such as compressed air or water is needed. More important this means, that **more energy** is transmitted into the liquid, resulting in a **better sonication**. The overall energy efficiency of the UIP1000hdT is approx. 80-90% from the power plug into the liquid ([click at the image above to enlarge the chart](#)).



Full Amplitude Control and High Performance

The UIP1000hdT can be **run at 1000W continuously**. The power is transmitted at a controlled amplitude, so that the magnitude of the mechanical ultrasonic vibrations at the sonotrode is constant under all load conditions. You can change the amplitude from 20 to 100% at the generator and by using various booster horns. The chosen amplitude is being held constant, while sonicating any material at any pressure. This feature gives you **full control over the most important sonication parameter: Amplitude**.





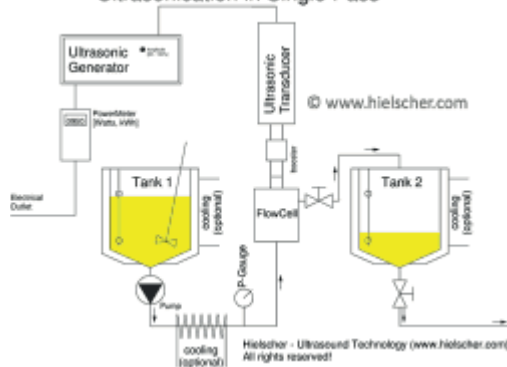
UIP1000hdT



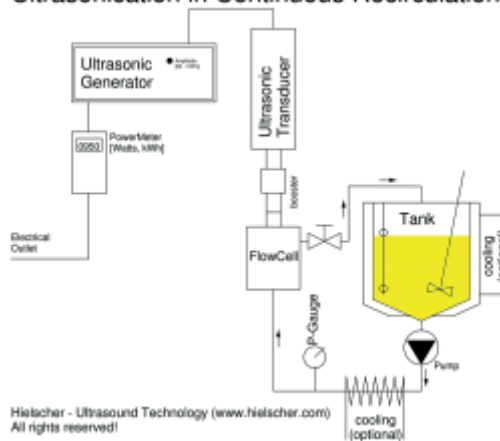
Sonication System of 7 x UIP1000hdT

Various System Setups

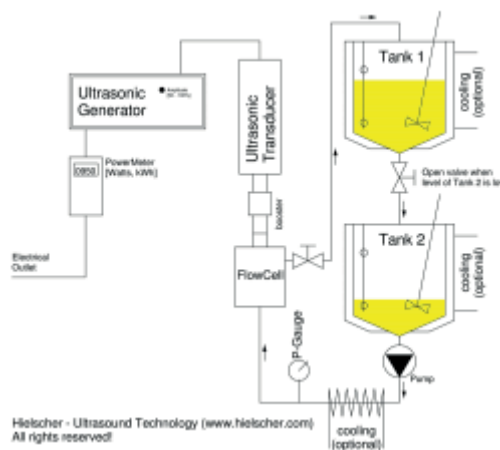
Ultrasonication in Single Pass



Ultrasonication in Continuous Recirculation



Ultrasonication in Discrete Recirculation





UIP1000hdT with flow cell and pump

UIP1000hdT Set – Good Value at a Good Price

The UIP1000hdT set includes all items typically required for the research and testing of ultrasonic liquid processes. It combines the powerful, 1,000 watts digital ultrasonic processor UIP1000hdT with a robust stainless steel flow cell, two sonotrodes, booster and a temperature sensor so that you can vary all parameters important to ultrasonic liquid processes.

This set is a **suitable setup for R&D, pilot scale and small production** level for any kind of ultrasonic liquid processing.

The UIP1000hdT is very **easy to operate** so that you can have your unit up and running within minutes. Its amplitude control feature maintains a constant amplitude under all load conditions. This gives you **reproducible operation conditions**. You can vary the amplitude electronically and mechanically, so you can process your liquid at various amplitudes. If required, it can be operated on a 24/7 basis.

In addition to that, you can pressurize the **stainless steel reactor vessel** to pressures of up to 10atm.

This unit can be easily integrated into existing liquid circulations. There is no easier way to explore the potential of ultrasound and cavitation for your product and process. All results obtained with this unit can be easily scaled up. This allows you to implement your results into production level at low investment and maintenance costs.

If you need assistance in getting your process up and running, we will be there to support you. We have an extensive knowledge in ultrasound, cavitation and liquid processing. Based on this we can advise you on the most suitable parameter choice and on the process optimization. Our long record of processes that we scaled up, enables us to provide you with the essential knowledge and technology to transfer your results to whatever size you want.

