

<a href="http://www.imlab.eu">www.imlab.eu</a>	<b>imLab</b>	<a href="http://www.imlab.fr">www.imlab.fr</a>
info@imlab.eu - Tél. : +32 (0)16 73 55 72		info@imlab.fr - Tél. : +33 (0)3 20 55 19 11
Imlab sprl - Oude Vijvers, 1 3370 Boutersem - Belgique		Imlab sarl - Centre d'Affaires de l'Horlogerie 48 rue des Canoniers - 59000 Lille - France



## UIP500hdT – Industrial Processing in Small Scale

The ultrasonic processor UIP500hdT (20kHz, 500W) is an industrial grade device for pilot testing and small scale processing of liquids. Amongst the most common applications of the UIP500hdT are homogenization, dispersing, emulsification, cell disintegration and sonochemical reactions. A full color touch display, browser remote control, automatic data protocolling on an integrated SD/USB ComboCard as well as temperature and pressure sensors gives you full process control and a high operation comfort.

The UIP500hdT operates at an ultrasonic frequency of 20kHz. Ultrasonic waves at this frequency create an **intense cavitation in liquids**. The cavitational effects can be used for **manifold applications**, such as: [emulsifying](#), [dispersing](#), [homogenizing](#), [cell disruption and extraction](#), [deagglomeration](#), and [degassing](#).

The UIP500hdT can be used with a lot of accessories, such as various sonotrodes, boosters, and flow cells. For the processing of batches larger than 5 liters, we generally recommend to **sonicate using a flow cell reactor** (flow mode) to achieve a higher processing consistency. When used for the sonication of liquids in flow mode, the UIP500hdT can typically process between 0.25 and 2.0L/min (The actual rate will depend on the application). As all our devices, the UIP500hdT can be operated 24 hours per day (24h/7d). Therefore, this setup could process approx. 0.5 to 3m<sup>3</sup> per day. For higher production throughput, we recommend using either of the following devices:

- [UIP1000hdT \(1000W, 20kHz\)](#)
- [UIP1500hdT \(1500W, 20kHz\)](#)
- [UIP2000hdT \(2000W, 20kHz\)](#)
- [UIP4000 \(4000W, 20kHz\)](#)
- [UIP10000 \(10000W, 20kHz\)](#)
- [UIP16000 \(16000W, 18kHz\)](#)



UIP500hdT with flow cell

## Power Ultrasound with Full Process Control

Power ultrasound is the process solution for various liquid applications, such as **emulsification**, **particle size reduction**, **grinding** or **dissolving**. The UIP500hdT delivers intense ultrasonic waves generating strong cavitation. Ultrasonic cavitation and the resulting shear forces fulfill demanding tasks without problems. To guarantee a consistent **process quality**, not only the actual ultrasound power delivered is essential, instead **all important process parameters** must be controlled. The new generation of hdT ultrasonic processors enables the user to operate the ultrasonic system 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/USB ComboCard.

Thereby, the new UIP500hdT provides the same ultrasound power as its predecessor UIP500hd, 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 UIP500hdT features:

- 500 watts power ultrasound
- built for heavy-duty operation
- runs 24/7
- industrial standard
- color touch display
- browser remote control
- data recording
- integrated SD/USB ComboCard

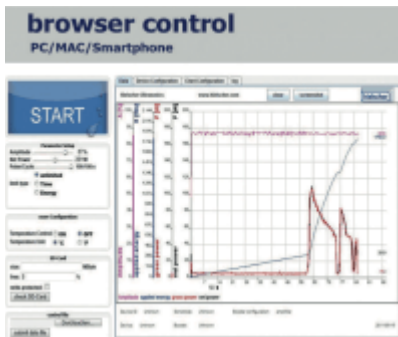
- temperature sensor
- pressure sensor (optionally available)
- LAN connection
- Ethernet connection
- no software installation
- automatic frequency tuning

### 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 guarantees 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 UIP500hdT 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 UIP500hdT via internet from anywhere in the world – using your smart-phone or tablet as remote control.

### Built-In Network

The UIP500hdT 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/USB data card, automatically. A plugable sensor

measures the temperature permanently. An optionally available pressure sensor can be additionally plugged to record the pressure.

### Automatic Frequency Tuning

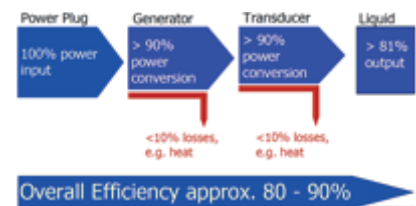
All Hielscher ultrasonic devices are equipped with an intelligent automatic frequency tuning. When the device is switched on, the generator will sense the optimal operational frequency and ensures that the device operates at this frequency. The automatic frequency tuning improves the overall energy efficiency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

### Industrial Grade and Outstanding Efficiency

The UIP500hdT is **built for commercial production** and fulfills industrial standards. Its robust, durable design has been proven in many commercial installations worldwide where it is used for production and heavy-duty applications. This ultrasonic processor requires only very **little maintenance**, is easy to install and simple to clean and sanitize. Special flow cell reactors that comply the advanced CIP (clean-in-place) and SIP (sterilize-in-place) requirements are available, too. The transducer of the UIP500hdT is **IP65 grade**, so that it can be installed in **demanding environments**. The transducer can handle dirt, dust, moisture, outside operation etc., while the generator can be placed remotely in another area.

Our ultrasonic devices have a very **high efficiency** in the conversion of electrical energy into mechanical oscillations of the sonotrode, so that transducers of our bench-top ultrasonicators have a closed housing. There are no

ventilation slits in the transducer case. Since 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. However, the most important fact is that **more energy** is converted into ultrasound waves in the liquid, resulting in a **more intense sonication**. The overall energy efficiency of the UIP500hdT 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 UIP500hdT can be run **permanently at 500W**. The power is transmitted at a controlled amplitude, so that the displacement of the mechanical ultrasonic vibrations at the sonotrode is constant under all load conditions (e.g. at fluctuating pressures, viscosities etc.). You can change the amplitude from 20 to 100% at the generator and by mounting one of the various booster horns. The chosen amplitude is being held constant, while sonicating any material at any pressure.



Thereby you have the **full control over the most important ultrasound parameter: Amplitude.**



*UIP500hdT*

---

Terms of use and legal information, imprint, © copyright 1999-2017, by hielscher ultrasonics gmbh