

## Good Reasons for Hielscher's Industrial Ultrasonic Equipment

High power ultrasonic equipment: Hielscher's ultrasonic machines work in the low frequency/ high power range and are highly reliable and robust. All units are built to run 24/7 (even the lab devices). All devices are capable to run at full load and deliver the label power. (Verify the delivered energy from Hielscher's ultrasonic device into the liquid by using the wattmeter - and compare it with the results achieved by competitor's ultrasonic devices => label power does mostly not mean delivered energy into the liquid!)

High efficiency: A very high efficiency in the conversion of electrical energy into mechanical oscillations of the sonotrode makes a closed transducer housing possible. 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 Hielscher's industrial units is approx. 80-90% from the power plug into the liquid.

Industrial grade: The transducers of the industrial ultrasonic machines are IP65 grade and can be installed in very demanding environments. The cleaning is easy as the transducer and flow cells can be showered completely. Hielscher's equipment gives full control over the most important sonication parameters: amplitude, pressure, temperature, viscosity

Cleaning: Simple cleaning and sanitizing of the ultrasonic setup as the reactor chamber have no hidden orifices. The transducer and flow cells can be showered completely as they are IP65 grade. Just flush the system with water or cleaning agents and use the ultrasound as cleaner in place (CIP cleaner-in-place/ SIP sanitizer-in-place)

Service, consulting and support: Hielscher does not only supply the ultrasonic machinery, but helps also to optimize the process and to find the best installation setup. Maintenance, installation service and training can be provided upon request.

Manufactured in Germany: All devices are made in Germany. Hielscher guarantees with its name for high quality machinery. All devices are tested in continuous running before they are shipped to the customer. All standard items are in stock and can be shipped immediately.

Scale-up to any size needed: By building the worldwide most powerful ultrasonic machine with 16kW per ultrasonic unit, Hielscher is capable to supply the suitable ultrasonic setup for any process volume. The sonotrodes and accessories for scale-up can be customized ideally matching your process requirements.

Exact reproducibility and linear scalability: All the obtained results can be reproduced exactly and can be scaled completely linearly. After testing various setups, the configuration found to be best can be used to run continuously (24h/7d) under production conditions.

Fixed frequency: Hielscher's ultrasonic machinery is equipped with an intelligent automatic frequency tuning. That means the generator finds the optimal operational frequency of the attached transducer-booster-sonotrode configuration, automatically. The generator maintains the set amplitude. This results in a higher overall energy efficiency and reliability.

Continuous inline processing: Continuous sonication results in an uniform and consistent product. Continuous processing requires less cleaning and provides a cleaner production environment as less material handling accrues. The closed sonication system secures that no unwanted material enter during the processing step.

Risk free testing: Buy Hielscher's devices with refund option. If the equipment will be returned after three month, 70% of the sales price will be refunded.



**Ultrasonic industrial processor UIP16000 (16kW) for high volume processing**



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