

Ultrasonic generators and submersible transducers with up to three frequencies in a single device

New flexibility for ultrasonic cleaning

Ultrasound is used for many varied tasks, including industrial component cleaning, laboratory applications and product maintenance. A key factor for the cleaning effect is the frequency of the sound waves generated by the ultrasonic generator. Up to now it has been necessary to use several generators and transducers with different frequencies for coarse, fine and superfine cleaning, as well as for a diverse range of part sizes and shapes. The new digital multifrequency series by Weber Ultrasonics makes this a thing of the past. The innovative modular generator and transducer is available in a dual or triple frequency unit with 40, 80 and 120 kHz. The frequency can be switched either on the device itself or via the standard interface.

Ultrasound technology allows film and particulate soiling to be cleaned both gently and efficiently from workpieces, parts and components made of virtually any material. The cleaning effect is based on cavitation. Here, the sound waves generated by the ultrasonic generator are transferred to the cleaning fluid via push-pull or plate transducers located in the cleaning tank. The waves created produce an alternating effect of overpressure and negative pressure. In the negative pressure phases, tiny bubbles are formed which then implode during the overpressure phases. The energy released during this process causes powerful currents and turbulence, which in turn „blast“ soiling off the parts in the cleaning tank. Alongside the ultrasonic output and the treatment time, the ultrasonic frequency employed also plays a decisive role in gaining optimum cleaning results. The lower the frequency, the greater the energy released per implosion and vice versa. If the frequency is too low, this can therefore damage sensitive parts, while using a frequency that is too high will not offer satisfactory cleaning results. Here are some approximate guideline values for selecting the correct ultrasonic frequency:

- 25- 40 kHz** Cleaning grease and oil from hard, unpolished surfaces
- 80 kHz** Fine cleaning, cleaning of electronic components and polished aluminium parts
- 120 kHz** Superfine cleaning for PCB technology and high-gloss polished parts.

Since conventional ultrasonic systems typically only generate and process sound waves at one frequency, users have often had to purchase several generators and transducers for their various cleaning tasks – something which is not only costly, but also takes up a lot of space.

Generating ultrasonic waves at up to three frequencies.

To meet the ever increasing demands for cleaning quality and greater flexibility, Weber Ultrasonics GmbH has developed the SONIC DIGITAL MULTI modular ultrasonic generator and the SONOSUB MULTI submersible transducer that can operate at up to three frequencies. The innovative SONIC DIGITAL MULTI operates at frequencies of 40, 80 and 120 kHz, which can be set directly on the device itself or via a standard interface such as an external SPC, allowing you to perform grease/oil cleaning as well as fine or superfine cleaning with a single unit. The frequency selected is generated and controlled digitally. This ensures reliable and constant power output, which can be set between 100 and 10 percent. The SONIC DIGITAL MULTI also has a useful interval function. With this pioneering technology, the Ittersbach-based company's new ultrasonic generators and transducers guarantee accurate and gentle treatment of the parts to be processed, regardless of the cleaning task. And not only do they do the job of several units in one, they also save you valuable space.

New, ergonomic operator concept

All process-relevant parameters, such as frequency, output, treatment time and temperature, can be easily, precisely and securely set using encoders on the control element of the generator. The values are displayed in a multifunction LCD display. As the generator comes as standard with an interface for controlling the device, the power unit and control console can easily be positioned at different locations. This allows you to place the generator in a control cabinet or any other suitable location, while the operator controls are located at an ergonomic position on the control console of the system or the operator's workplace. Weber Ultrasonics also offers an R42 interface if you wish to operate generators from your PC.

Integrated protective functions secure reliable operation

For maximum operational reliability, the new SONIC DIGITAL MULTI units employ innovative protective functions, such as the intelligent cooling system. With this system, the temperature of the heat sink is continuously monitored. If it then exceeds a defined value, integrated sensors automatically start the casing fan. With this „cooling as required“, the air throughput and thereby also soiling of the generator is significantly reduced. This function also guarantees a constant operating temperature, which in turn increases the service life of the components and the entire system. There is also standard protection against short-circuit, no-load operation and overload.

The innovative SONIC DIGITAL MULTI by Weber Ultrasonics is the first modular ultrasonic generator that can generate up to three frequencies. And the Ittersbach-based company now also offers a new multi-frequency submersible transducer, the SONOSUB MULTI, to perfectly complement the SONIC DIGITAL MULTI model. With frequencies of 40, 80 and 120 kHz, which can be set either directly on the generator itself or using an interface, the ultrasonic system can be adjusted to clean coarse soiling and for fine or superfine cleaning of sensitive components. The frequency selected is generated and controlled digitally. This ensures reliable and constant power output, which can be set between 100 and 10 percent. With their pioneering technology, the Ittersbach-based company's new ultrasonic generators and transducers guarantee accurate and gentle treatment of the parts to be processed, regardless of the cleaning task. And not only do they do the job of several units, they also save you valuable space. The new modular generator is available with either two or three frequencies.

Further informationen www.weber-ultrasonics.com.

