

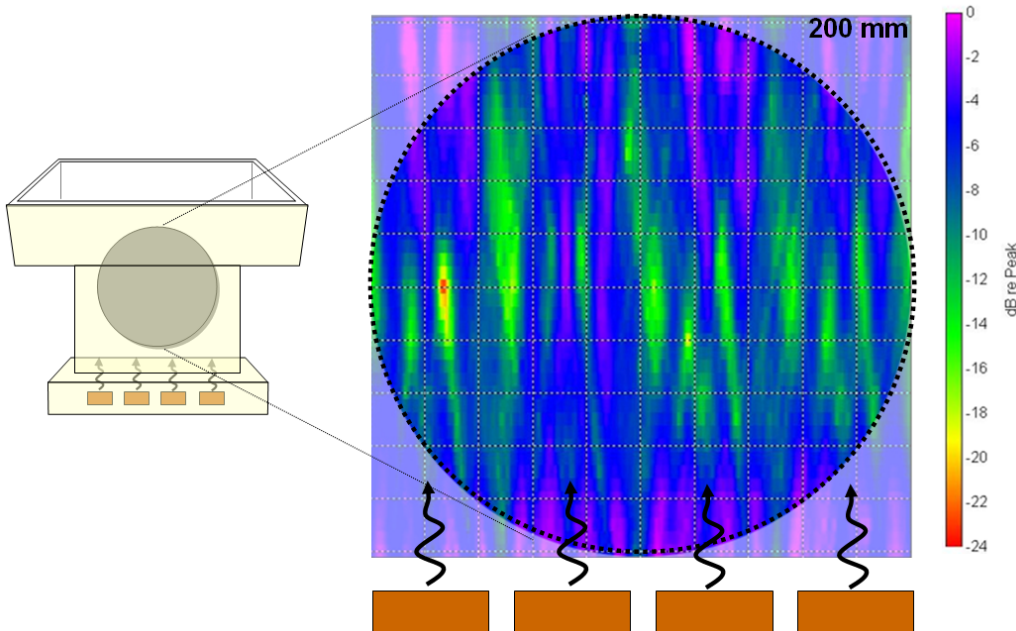
Cleaning Tank Hydrophone with Acoustic Meter

HCT-Series, MCT-1010

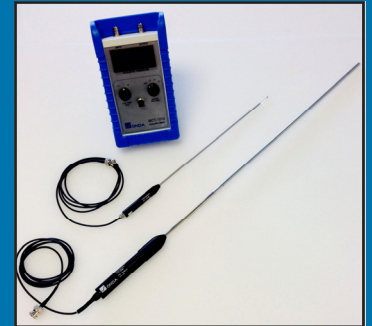
Despite the wide adoption of ultrasonic and megasonic cleaning, the acoustic characteristics are not well understood. The HCT hydrophone with MCT acoustic meter bridges this gap, offering a reliable solution to characterize and monitor the acoustic properties of ultrasonic and megasonic cleaners. Its unique single point sensing design allows measurements with high spatial resolution to offer true 3-dimensional mapping of the cleaning tank. The rugged construction allows routine mapping of the acoustic pressure and ultimately determination of the cleaning efficiency of the tank.

Applications

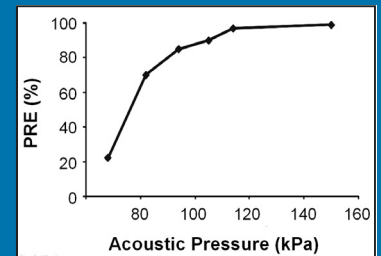
- Acquire acoustic maps to optimize cleaning efficiency of ultrasonic and megasonic baths
- Routinely spot check acoustic field of cleaning tank for process control monitoring
- Compare tank-to-tank performance to maintain matching in production environments
- Tune process recipes by characterizing the ultrasonic cleaner fully loaded with substrates
- Identify cleaning tank issues such as debonded or malfunctioning transducers
- Collect lower level acoustic information by connecting probe directly to an oscilloscope



Acoustic Pressure Plot of a 970kHz Semiconductor 200mm Single Wafer Cleaner indicating near field and standing wave effects

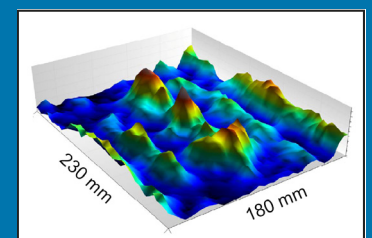


HCT Hydrophone with MCT Acoustic Meter



Effect of Acoustic Pressure on PRE for 520 nm particle size

[Courtesy of Seoul University, Kim, et al]



Acoustic Pressure Field of an Industrial Tank (40 kHz)

Technical Specifications

	HCT-0310	HCT-0200
Acoustic Pressure Range	10 kPa to 1 MPa	
Useful Frequency Range	30 kHz to 1.2 MHz	20 kHz to 200 kHz
Acoustic Calibration (Traceable to National Laboratory)	30 kHz to 300 kHz (included) 300 kHz to 1.2 MHz (optional)	30 kHz to 200 kHz (optional)
Dimensions	Shaft: Diameter: 3 mm Length: 270 mm Handle: Diameter: 12 mm Length: 80 mm Cable: Length: 1.5 m coaxial (BNC)	Shaft: Diameter: 6 mm Length: 500 mm Handle: Diameter: 22 mm Length: 135 mm Cable: Length: 1.5 m coaxial (BNC)
Chemical Compatibility	pH 4 to 12 (Teflon)	Aqueous (SS)
Mechanical Isolation	"Single Point" sensing	
Max. Operating Temperature	70 °C	

Specifications are subject to change without notice.

MCT-1010 Acoustic Meter

- *Pressure Range:* 20 kPa to 20 MPa
- *Time Averaging Intervals:*
100 msec, 1 sec, 10 sec
- *Range Settings:*
20 kPa to 200 kPa
200 kPa to 2 MPa
2 MPa to 20 MPa
- 4 digit LCD display
- *Power:* 9 V battery (dual)
Low battery indicator
- *Output:* V_{RMS} with ref to display (BNC)
- *Dimensions (with display guard):*
111 mm (W) x 190 mm (L) x 57 mm (D)

Simple Measurement Set-up

