

PCT Megasonic Cleaning Systems

PCT's unique transducer array design provides higher and more uniform energy than any other system

FAST • THOROUGH • MEGASONIC HYPERCLEAN

In every industry there's a leader. PCT's Megasonic cleaning system is the most advanced solution to achieving HyperClean™ semiconductor wafers available today. It set the standard for constant-temperature baths. PCT designed the Megasonic system with a combination of moving-beam and phase-shifting technology to make it the most efficient cleaning system — more than 90% acoustical-energy efficient.

A compact, all-quartz vessel ensures superior cleanliness and high purity. The unit is stress free and operates comfortably at elevated temperatures while using fewer chemicals and saving valuable clean room space.

HyperClean incorporates PCT's unique energy-transfer technology in a heated all-quartz unit for superior submicron cleaning, reduced operating costs and high reliability.



Unique Energy-Transfer Technology Improves Performance

PCT designed the HyperClean™ Megasonic Cleaning System using multiple-element transducer arrays to create a highly uniform moving beam that constantly scans the wafers. A fixed-position array of transducers is located on the outside of the vessel, below each cassette. Energy is multiplexed from transducer to transducer. Phase shifting ensures that the energy beam is highly uniform and that dead spots are eliminated. This advanced design enhances transducer life greater than eight times that of competing systems.

High unit-area power densities are easily achieved in the liquid at relatively low power. This unique approach eliminates the need for transducer cooling present in competing systems while extending transducer life. The heat output generated is reduced to 30% of that generated by competing systems. In the long run, you get cleaner wafers, reduced operating costs and improved efficiency.

FEATURES

- No moving parts for improved cleanliness
- Improved energy uniformity - no dead spots
- More than 90% acoustical-energy efficiency
- Uniform particle removal
- High-energy density with low-power output for extended transducer life
- High-purity heated quartz vessel for the highest-purity processing
- Easy to retrofit to existing wet stations
- Available for wafers up to 300 mm and larger
- Optional filtered / recirculating version
- Acid-, solvent-, and stripper-compatible materials available
- Manual and automatic standalone systems available
- Frequency Range 450 kHz – 1MHz

Moving-Beam Technology Delivers Superior Performance

PCT's Megasonic Cleaning System has no moving parts, resulting in simpler operation and longer running times with no required preventive maintenance. The vessel is smaller than competitive systems and uses fewer chemicals and less wet deck area. There is more than enough power to clean two eight-inch wafer boats simultaneously.

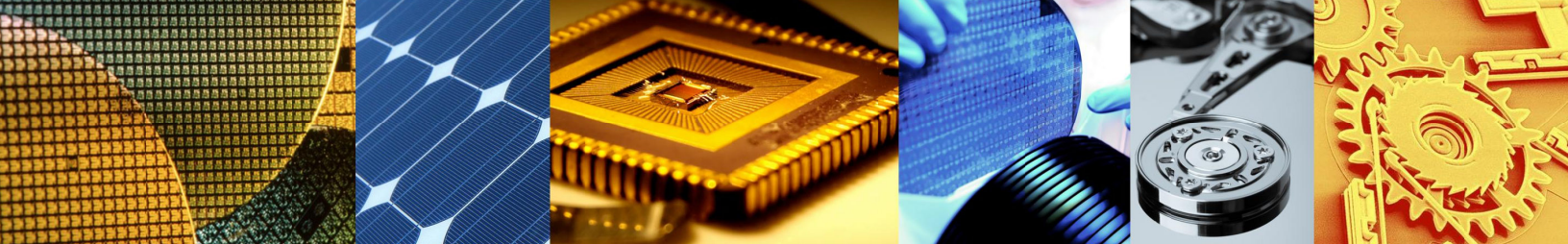
Easy Retrofit To Existing Wet Stations

The Megasonic system from PCT is easily installed in existing clean room equipment. If standard sizes are not available to fit your equipment, custom units can be built to your system requirements. The three different types of interfaces (standalone, latter logic and SECS II) allow for ease of integration, installation and adaptation to current facility requirements.

Contact PCT to learn which technologies and product configurations best meet your application needs.

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Proprietary Solid-State Power Supply & Control System Offer High Reliability, Precision

PCT's electronic control system is compact and can be located up to 12 feet (25 feet optional) from the bath. It features a wide frequency range, auto-tuning power supply and an advanced MPU controller. An operator control panel can be placed in a convenient location for status and control monitoring. Self-tuning smart electronics makes matching transducers quick and easy — with the push of a single button. A single control unit can run two eight-inch arrays simultaneously. The system is equipped with RS-232 and IEEE-422 ports to allow communication with higher-order. PCT's unique transducer array design provides higher energy efficiency than any other system.

PCT's Superior Performance

All PCT heated-quartz baths have exceptional features and options that set them apart from the competition:

- Chemical-resistant flange assembly and seal
- High-efficiency, long-life heaters
- Precise temperature control
- One-year warranty
- Interlocked liquid-level sensing
- Redundant over temperature
- Optional filtration/recirculation

PCT Certifications

- ETL File No. 567511 per UL 3101-1 and CSA 1010.1
- CE EN 61010-1 European Safety Approval
- CE EN 55011 European EMI Approval
- CE EN 50082-2 European ESD, RF, and Transient Susceptibility Approval



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Specifications

Heater Power	Inconel®; Up to 4000 Watts maximum per controller (quartz units only)
Operating Frequency	450 kHz to 1 MHz at resonant levels
Operating Temperature	20° - 70° C
Power Requirements	200 – 220Vac 50/60 Hz Single phase, 10 amperes for ambient temperature operation Optional single phase, 30 amperes for elevated temperature operation
Materials of Construction	
Vessel	Quartz, Stainless Steel, or Plastic Materials
Flange / Case	Fire retardant polypropylene
Cables	Teflon insulated
Temperature Sensor	RTD for process chemistry J-type and thermal switch for overtemperature (heated units only)
Liquid Feedthroughs	Machined virgin PTFE with Kalrez® seals or optional machined quartz NPT

