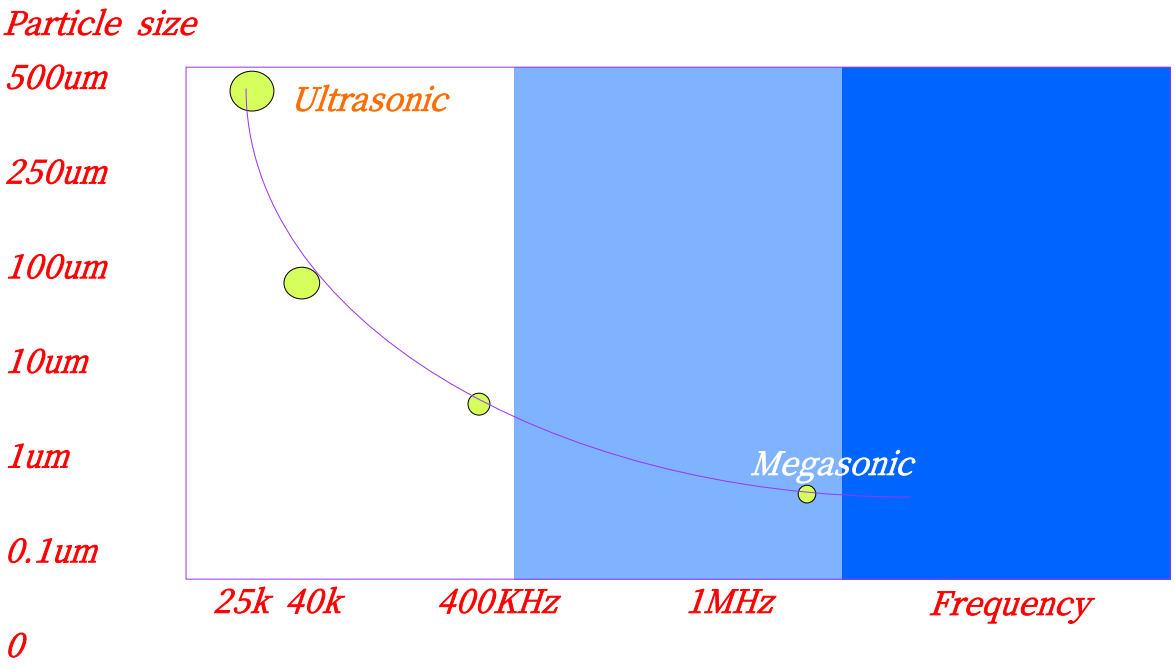
How to use the Megasonic Cleaning System

Megasonic cleaning systems use frequencies between 700Khz and 1.2Mhz.In commparison,ultrasonic use frequencies less than 400 Khz.These frequencies are generated using a ceramic,piezoelectric crystal,which is excited by a high-frequency AC voltage. Also effective wet process cleaning requires a precise integration of technology and components.Complete megasonic energy coverage of all wafer surfaces is essential for complete cleaning.

Conference	ULTRASONIC	MEGASONIC
FREQUENCY	FROM 20k to 400khz	700KHz~1.2Mhz
APPLICATION	Cleaning	Precision cleaning
CLEANING PRINCIPLE	Cavitation	Partilce accerated velocity
Standing wave	Serious	No standing vave
Howling	Various howling on midium	No howling
Partilce accerated velocity	1500G	1,000,000G
SMOG	No distinction	Distinction
REMOVAL Particle	2um	0.1um
Orientation	To be slack	To be sharp
Errosion	To be serious	No serious

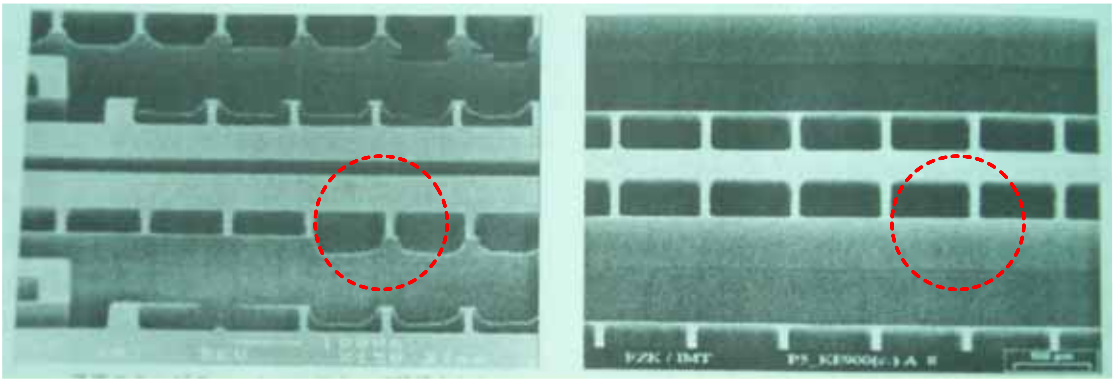
The use of megasonic technology has been shown to be an essential performance element for sub-micron cleaning application.Particle removal efficiency up to 99.2% are achievable for particle sizes to 0.12um.



Primarily used for particle removal,megasonic is effective in removing 0.15-micron particles from silicon and other substrates.Megasonic can be used applications where ultrasonic might result in surface damage or cavitation erosion.

▶ 40KHz of Ultrasonic Cleaning

▶ 1MHz of Megaasonic Cleaning



Pattern Damged by Cavitation

Safe Pattern

Megasonic is often used to increase the cleaning efficiency of surfactant and detergent formulations and is generally more compatible with stronger cleaning agents.

Also has a disadvantage of using megasonic cleaning system.Particles within the pore structure are not effectively cleaned due to the horizontal shear across the substrate surface.Megasonics can generate particles,in addition to those removed from the surface ,due to deteriorating seals or gaskets and transducer-bonding materials.It would not be recommended for gross contaminant removal or large particles.