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(54) Title: ACOUSTIC PARTICLE COUNTER FOR NANOPARTICLES IN LIQUIDS

(57) Abstract: In semiconductor manufacture requiring ultra high purity water, particles of specified si zes are detected using acoustic particle detection capable of detecting nanoparticles. A sensor unit receives a flow of water, with the pressure and rate of flow to the sensor controlled closely. In each sensor unit is a measurement cell to receive a continuous flow of water, with a transducer module engaged with the cell to deliver an acoustic pulse at a known level of intensity as the liquid flows through the cells, the acoustic pulse acting on the liquid at a focus zone to cause cavitation in the event a particle of si ze detectable at that intensity is present. A waveform emitter/receiver connected to the sensor unit sends high-frequency, high-voltage signal to the transducer module to cause the acoustic pulse, and it also receives a waveform echo indicating a cavitation event. The system is controlled by a microprocessor.

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