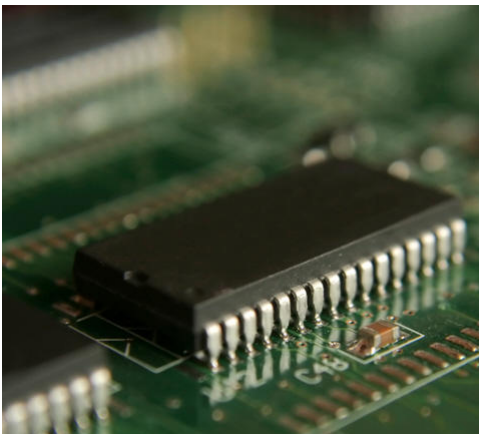


Meeting the strict guidelines for clean rooms, Katronic's ultrasonic clamp-on flowmeters measure the flow of ultra pure water and process chemicals within all stages of the microchip and circuit board fabrication.

Specifications

- **Installation:** Portable & fixed installed
- **Medium:** Ultra Pure Water, Chemicals
- **Pipe Materials:** All common metals, plastics and more
- **Pipe Diameters:** 10 to 3,000 mm
- **Flow Velocities:** 0.01 to 25 m/s
- **Accuracy:** Up to $\pm 0.5\%$ for volume flow and flow velocity

Application



The production of microchips and circuit boards involves flow processes of various toxic chemicals which need to be monitored.

Instrument Solution



The KATflow 200 ultrasonic clamp-on flowmeter meets the strict guidelines for clean rooms and is ideal for spot measurements.

Measurement Task

The fabrication process for microchips and circuit boards consists of a sequence of photo-graphic and chemical processing steps. This work is carried out in clean rooms which contain a very low level of environmental pollutants. One key stage of the production process is the so called wet etching during which unwanted materials are removed from the semiconductors and circuit boards by using various chemicals.

The cleanliness of the production rooms should be maintained at all times to avoid costly production stops. Consequently, the subsequent installation of flowmeters or spot measurements on chemical lines must not compromise the cleanliness while at the same time any contact with the often highly toxic substances has to be avoided.

Solution

A solution for the described requirements comes in form of Katronic's ultrasonic clamp-on flowmeters. As they apply the ultrasonic transit-time technology, they can measure the flow of electrically non-conductive liquids such as ultra pure water. At the same time, the flowmeters can be installed without the need to open pipes by clamping the sensors on the pipe wall. As a result, no engineering work with an uncontrollable spreading of particles in clean rooms is necessary and consequently production does not have to be stopped.

Furthermore, as semiconductor and circuit board manufacturers use highly toxic chemicals such as hydrofluoric acid, non-invasive flowmeters also promote improved safety and reduced risk. Apart from spot measurements with portable instruments, continuous monitoring of flows through critical pipelines ensures the quality of the product and reduces wastage. Katronic's hand-held ultrasonic flowmeter KATflow 200 and its fixed installed counterpart KATflow 150 are ideal instruments for these purposes.

- **Easy, quick and cost-effective installation on existing pipelines**
- **Applicable on pipes of various materials, diameters and liquids**
- **Integration of fixed installed KATflow 150 into existing or future control systems possible**
- **Flowmeters of KATflow series meet strict clean room guidelines**
- **Safe installation due to no contact with toxic chemical fluids**
- **Measurement of electrically non-conductive liquids**

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