mks

Flow Solutions

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Enabling

Productivity Through **Innovation**

MASS FLOW CONTROLLERS
APPLICATION-SPECIFIC INTEGRATED SOLUTIONS
ADVANCED MATERIALS DELIVERY SOLUTIONS

Flow Solutions

I Series Thermal Mass Flow Controllers & Mass Flow Meters — The I Series Mass Flow Controllers are designed specifically for industrial mass flow control applications in harsh environments where water and dust may be present and must be protected against. The IP66-rated enclosure for I Series mass flow controllers protect it against direct water spray as well as dust. (for example, hose-down in bioreactor applications). The I Series Mass Flow Controllers are well suited for a wide variety of applications requiring flow control capability from 5 sccm to 1000 slm, FS N_2 equivalent.

G Series Digital Mass Flow Controllers — The G Series Mass Flow Controllers are well suited for a wide variety of applications requiring flow control capability from 5 sccm to 300 slm, FS N_2 equivalent. They incorporate the latest in digital flow control electronics along with a well proven, patented thermal sensor and mechanical design. The G Series models are available with Analog, RS485, DeviceNet™, Profinet® or Profibus® I/O and utilize the latest in MKS control algorithms, providing fast and repeatable response to set point throughout the device control range. G Series models include the metal sealed GM50A and GM100A, elastometer sealed GE50A, GE250A and GE300A, and the GV50A incorporating a normally closed, diaphragm type positive shut-off valve.

P Series Multi-Gas/Multi-Range Mass Flow Controllers — The P Series Mass Flow Controllers are the next generation of MKS multi-gas/ multi-range MFCs. Using the latest in electronics and valve components, the P Series will meet the most critical of process gas flow control requirements from 5 sccm to 250 slm and is available with either analog or a variety of digital I/O. Utilization of the multi-gas/multi-range capability is made simple through the device's embedded software and standard Ethernet interface, requiring no special software, only a standard web browser and PC. Equipped with pre-programmed gas parameters for today's most challenging semiconductor applications, the P Series models include P250A, P4B and the pressure insensitive P9B.

Mass Flow Verifiers — MKS in-situ flow verifiers are the standard for gas diagnostics providing fast, accurate verification of mass flow controller and mass flow meter performance. They are fully integrated diagnostic instruments that measure a pressure rate-of-rise into a known volume at a known temperature to determine mass flow to within ±1% of Reading. The HA-MFV, High Accuracy Mass Flow Verifier, is designed for use on process tools to verify mass flow control rates in-situ. Gas flows are verified significantly better than older rate-of-rise devices or process chamber rate-of-rise methods.

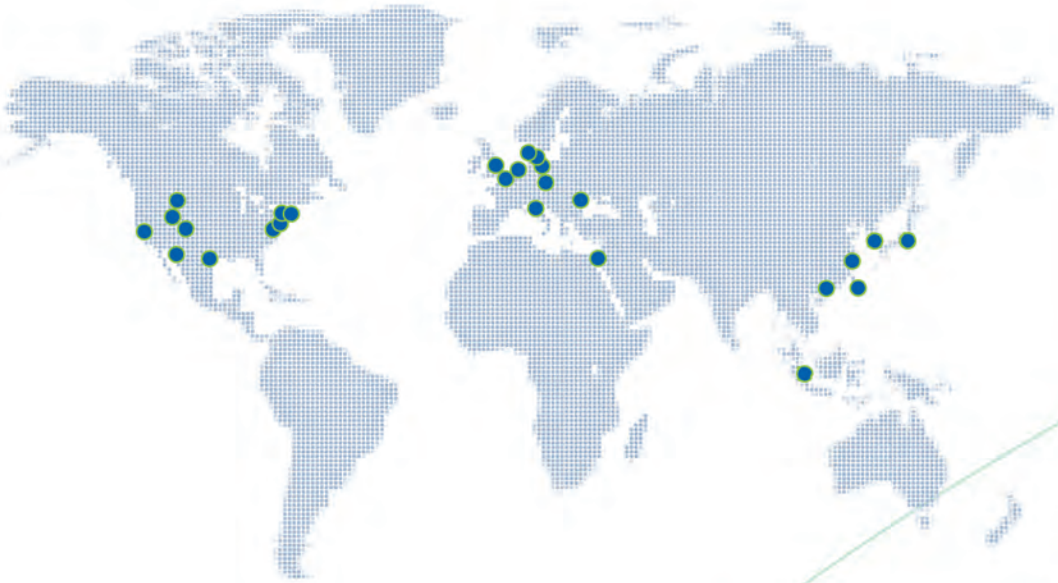
DELTA™ Series Flow Ratio Controllers — Optimizing process performance is easier with the DELTA™ Flow Ratio Controller (FRC), a critical process control instrument providing the latest in gas flow ratio measurement and control technology necessary to meet the demands of multi-channel flow distribution. It divides and controls mixed process gas flows to multiple chambers or zones at ratios specified by the user. Widely used in a variety of flow splitting applications such as etching, stripping and PECVD, the DELTA FRC is available in models DELTA II, DELTA III and DELTA IV, providing users the ability to distribute gas or gas mixtures to two, three and four different zones respectively.

Dual-Zone Pressure Controller — The Dual-Zone Pressure Controller (DPC) is a highly integrated closed-loop pressure control subsystem. It consists of an inlet pneumatic shut-off valve, two independent channels of pressure control with mass flow metering, and a vacuum outlet. Each pressure control channel of the DPC consists of a pressure sensor, a control valve, and a mass flow meter. This controller has been designed to reduce the overall cost of ownership of pressure control subsystems for backside wafer cooling, specifically for the latest two-zone electrostatic chucks.

Pressure Controllers— MKS provides multiple solutions for upstream pressure control including integrated controllers, standalone solenoid valves, and remote controllers and drivers for solenoid valves. Upstream pressure controllers are used upstream of the vacuum chamber to control the gas flow entering the vacuum chamber. The PPCA and PPCMA are integrated along with a proportioning control valve and the latest in control electronics providing fast and accurate pressure control with critical flow monitoring. The GPCA and GPCMA incorporate the latest in digital flow control electronics along with a proven, thermally stable pressure sensor and mechanical design.

1150 Series Pressure-Based Mass Flow Controllers — The 1150 Series products provide controlled amounts of vapor from a low vapor pressure liquid source precursor to the process chamber at rates consistent with high throughput requirements. Suitable for advanced CVD precursors, the 1150 Series does not require carrier gas to deliver the precursor vapors, lowering costs of ownership and reducing system complexity. The 1150C consists of a fixed flow element and one capacitance manometer using viscous flow through a choked orifice. The 1152C contains two capacitance manometers using viscous flow through a laminar flow tube.

Global Locations



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