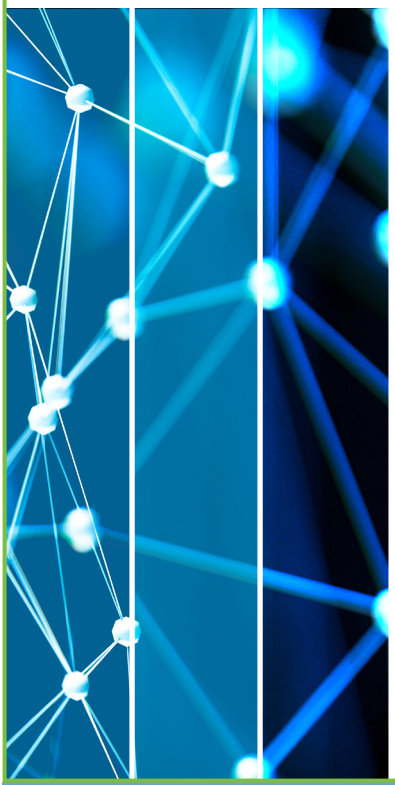
CUSTOMER SUCCESS STORY

IMPROVED GAS FLOW CONTROL FOR FASTER, MORE ACCURATE PV PROCESSING

About the Customer

The customer is a large Asian OEM who is a leading supplier of production equipment for the manufacture of photovoltaic and other green energy solutions. In existence for nearly two decades, the customer operates multiple facilities with nearly 100,000 sq. meters of floor space dedicated to equipment production and over 1,000 employees. OEM equipment and turnkey solutions supplied by the customer include components and full systems for PECVD, diffusion, and edge isolation. The customer also produces wet process equipment such as texturing, cleaning and automation solutions.



THE CHALLENGE

The rapidly growing market for solar power makes it critically important that PV production equipment operate with the shortest possible production cycles. This means that, within processing equipment such as deposition and diffusion tools, process conditions such as gas flow and pressure must be stabilized as rapidly as possible, with minimal processing time allocated for transient states such as gas flow stabilization steps. The customer had been using a competitive Mass Flow Controller (MFC) for gas flow control in their diffusion furnace and plasma-enhanced chemical vapor deposition (PECVD) systems. This constituted a bottleneck for shortening production cycle times in the equipment since the MFCs were relatively slow in establishing steady state in the process. Gas flow control had to be upgraded to achieve rapid production cycles in PV system production.

IMPROVED GAS FLOW CONTROL FOR FASTER, MORE ACCURATE PV PROCESSING

THE SOLUTION

MKS proposed GE50A MFCs for the customer's diffusion and PECVD equipment to improve gas flow control stability and repeatability. The GE50A is a general purpose, multi-gas, multi-range thermal MFC with ranges up to 50 slm (standard liters per minute). It incorporates digital flow control electronics that employ the latest MKS control algorithms for state-of-the-art response speed (time to achieve stable gas flow), accuracy, and repeatability. Typical response times for the GE50A are of the order of 500 milliseconds, and the digital calibration yields an accuracy of 1% of setpoint on the calibration gas. The GE50A MFC employs a reliable, patented thermal sensor and well-proven designs for mechanical components such as the elastomer-sealed control valve.

THE BENEFITS:

By replacing less advanced gas flow control technology with the GE50A MFC, the customer significantly improved both the accuracy and precision of its process tool in the production of photovoltaics and shortened the cycle time required for PV production in that tool. After switching to the GE50A MFC, the customer's products achieved significant improvements in gas flow stabilization times and overall process cycle times. Additionally, the availability of RS485, Profibus™, EtherCAT® or DeviceNet I/O protocols with the GE50A MFC provided the customer with previously unattainable flexibility in accommodating their customers' I/O protocols.

LEARN MORE

To learn more about how MKS gas flow control products such as the GE50A MFC can help you improve productivity in your process operations, go to:
www.mksinst.com/c/mass-flow-controllers