

Sputtering Flow Control

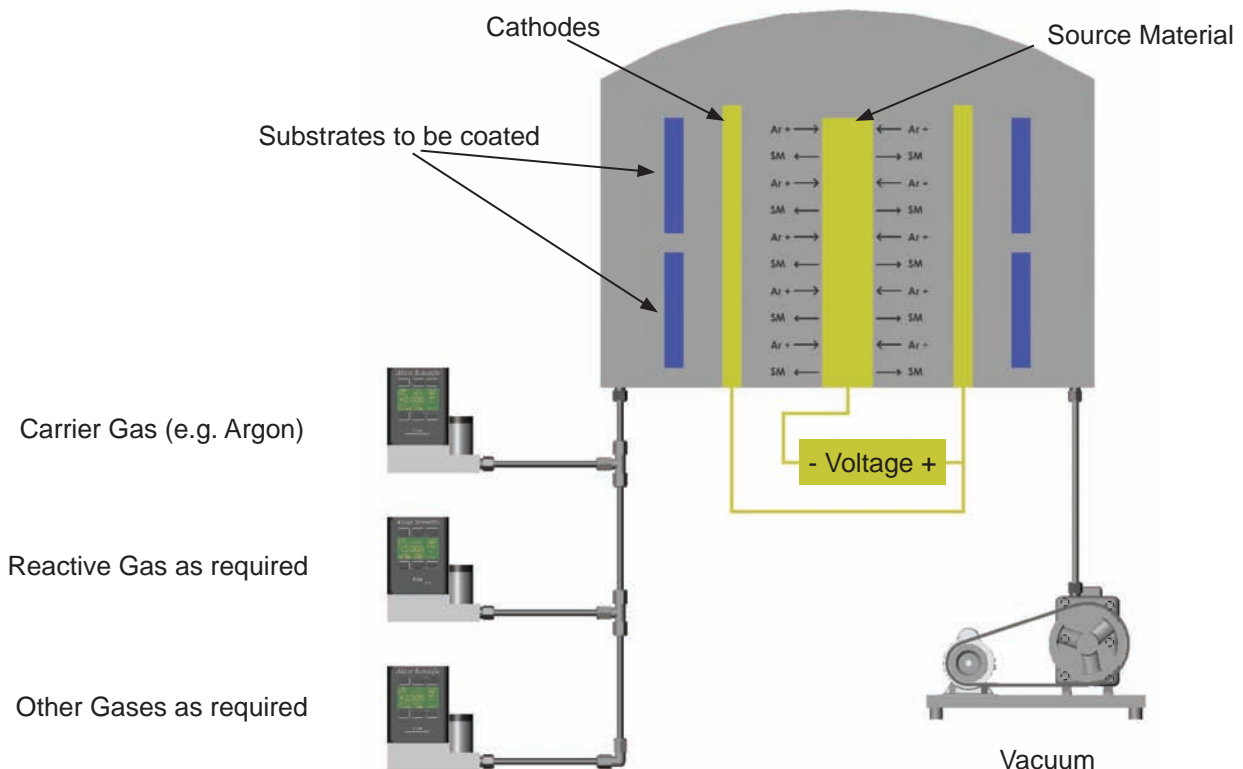
In the process of sputtering, a plasma gas (typically argon) is used to fill a vacuum chamber which contains a target lattice and a substrate. The amount of plasma gas within the chamber is critical to control of the number of atoms released from the target lattice.

In reactive sputtering, reactive gasses like oxygen and nitrogen are added to the chamber (usually for coating substrates with compound atoms like titanium oxide).

Proper partial pressures of reactive gasses must be maintained within the chamber to prevent target poisoning.

Fast response times and fine flow resolution are crucial to this application.

For longer cathode arrays and sputtering applications using multiple gas sources, multiple mass flow controllers can be controlled from one serial connection or through analog input/output.



Alicat Advantages:

- ▶ Relative Insensitivity to Process & Ambient Temperature and Pressures Changes.
- ▶ Downstream Valves provide full compatibility with High Vacuum Process Chambers.
- ▶ 25-100 millisecond control times. ▶ Tune the PID in the field for your specific application.
- ▶ Selectable Loop controls allow you to control Mass Flow, Volumetric flow, or Absolute Pressure with the same device, while simultaneously measuring Mass Flow, Temperature, Volumetric Flow, and Absolute Pressure.
- ▶ Multi-Drop RS-232 communications allows communication and set-point control with up to 26 Alicat devices from a single computer serial port.
- ▶ Gas Select[™] field selectability for more than 30 of the most common gases and blends