MULTI-PHASE PRESSURE CONTROL VALVE FOR PROCESS CHAMBER

ABSTRACT OF THE DISCLOSURE

A new and improved, multi-phase pressure control valve for facilitating quick and accurate attainment and stabilization of gas pressure inside a semiconductor fabrication process chamber such as an etch chamber or CVD chamber. In one embodiment, the multi-phase pressure control valve is a butterfly-type valve which includes outer and inner vanes that independently control flow of gases from a process chamber to a vacuum pump. The larger-diameter outer vane stabilizes gas pressures within a large range, whereas the inner vane stabilizes pressure within a smaller range. In another embodiment, the multi-phase pressure control valve is a gate-type valve which may include a pivoting outer vane and an inner vane slidably disposed with respect to the outer vane for exposing a central gas flow opening in the outer vane.

FIG. 4