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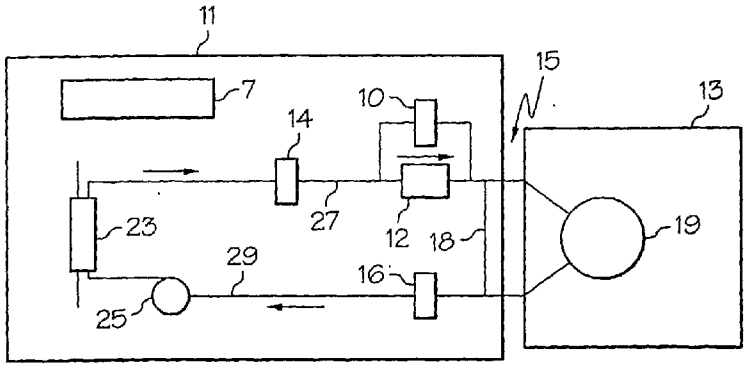
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(54) Title: APPARATUS AND METHOD FOR REDUCING ELECTRICAL NOISE IN A THERMALLY CONTROLLED CHUCK



(57) Abstract: A system and method for controlling temperature of a workpiece such as a semiconductor wafer and the chuck supporting the wafer are described. The system includes a heat exchanger used in controlling temperature of a temperature control fluid. A first fluid carrying path carries the temperature control fluid from the heat exchanger to an outlet, the outlet being connectable to the workpiece chuck to carry the temperature control fluid to the workpiece chuck. A second fluid carrying path carries the temperature control fluid from an inlet to the heat exchanger, the inlet being connectable to the workpiece chuck to carry the temperature control fluid from the workpiece chuck to the temperature control system. A dual-flow are technique is employed such that, when the chuck temperature is in transition, the temperature control fluid is circulated at a relatively high flow rate such that temperature transition of the chuck can be realized at a fast rate. When the temperature of the chuck is being maintained at a set point temperature, the flow rate of the fluid can be reduced such that electrical noise introduced by the motion of the fluid, such as by the triboelectric effect, can be reduced. A capillary tube can be connected between the first fluid carrying path and the second fluid carrying path. First and second valves can be connected in the first and second fluid carrying paths to prevent the flow of fluid into the chuck when the chuck is at high temperature such that motion induced by boiling of the fluid is eliminated.

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