ROTATING TEMPERATURE CONTROLLED SUBSTRATE PEDESTAL FOR FILM UNIFORMITY

ABSTRACT OF THE DISCLOSURE

Substrate processing systems are described. The systems may include a processing chamber, and a substrate support assembly at least partially disposed within the chamber. The substrate support assembly is rotatable by a motor yet still allows electricity, cooling fluids, gases and vacuum to be transferred from a non-rotating source outside the processing chamber to the rotatable substrate support assembly inside the processing chamber. Cooling fluids and electrical connections can be used to raise or lower the temperature of a substrate supported by the substrate support assembly. Electrical connections can also be used to electrostatically chuck the wafer to the support assembly. A rotary seal or seals (which may be low friction O-rings) are used to maintain a process pressure while still allowing substrate assembly rotation. Vacuum pumps can be connected to ports which are used to chuck the wafer. The pumps can also be used to differentially pump the region between a pair of rotary seals when two or more rotary seals are present.

Figure 1