METHOD AND APPARATUS FOR PROVIDING AN ELECTROSTATIC CHUCK WITH REDUCED PLASMA PENETRATION AND ARCING

ABSTRACT

A method and apparatus for providing a fluid distribution element for an electrostatic chuck that reduces plasma formation and arcing within heat transfer fluid passages. One embodiment comprises a plate and a dielectric component, where the dielectric component is inserted into the plate. The plate is adapted to be positioned within a channel to define a plenum, wherein the dielectric component provides at least a portion of a fluid passage coupled to the plenum. A porous dielectric layer, formed upon the dielectric component, provides at least another portion of a fluid passage coupled to the plenum. In other embodiments, the fluid distribution element comprises various arrangements of components to define a fluid passage that does not provide a line-of-sight path from the support surface for a substrate to a plenum.

Fig. 1