

TEMPERATURE CONTROLLED SHOWERHEAD

ABSTRACT OF THE DISCLOSURE

A temperature controlled showerhead for chemical vapor deposition (CVD) chambers enhances heat dissipation to enable accurate temperature control with an electric heater. Heat
5 dissipates by conduction through a showerhead stem and fluid passageway and radiation from a back plate. A temperature control system includes one or more temperature controlled showerheads in a CVD chamber with fluid passageways serially connected to a heat exchanger.

Fig. 3A



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