



PLASMA DISCHARGE TRUING APPARATUS AND  
FINE-MACHINING METHODS USING THE APPARATUS

ABSTRACT

A conductive grindstone 12, a circular disk-like discharge electrode 14 with an outer rim 14a that can access a machining surface 12a of the grindstone, an electrode rotating device 16, a position controlling device 18 that controls the relative position between the outer rim of the electrode and the grindstone, a voltage applying device 20 for applying voltage pulses between the grindstone and the electrode, and a mist-supplying device 22 that supplies pressurized conductive mist between the grindstone and the electrode are provided. The pressurized conductive mist is a mixture of a low-conductivity aqueous solution and compressed air. A plasma discharge is generated between the grindstone and the electrode by means of this pressurized conductive mist, and the grindstone is subjected to truing. In this way, grindstone essentricity and deflection can efficiently be removed, the grindstone does not deform, high-accuracy truing is achieved, the power supply can be compact with a small power output, no complicated control circuit or control device is needed, and consumable parts such as the electrode can easily be manufactured and remachined.