

ABSTRACT

COIL DEVICE FOR GENERATING PLASMA AND SEMICONDUCTOR EQUIPMENT

The present disclosure provides a coil device for generating plasma in semiconductor process equipment and the semiconductor process equipment. The device includes a coil structure and a fixed cooling assembly for fixing and cooling the coil structure. The fixed cooling assembly includes a fixed body made of insulation material. A cooling space is formed in the fixed body. The coil structure is fixedly arranged in the cooling space. An inlet opening and an outlet opening communicating with the cooling space are arranged at the fixed body. The inlet opening is configured to transfer the cooling gas into the cooling space. The outlet opening is configured to exhaust the cooling gas out of the cooling space. A turbulence structure is further arranged in the cooling space and is configured to change a gas flow direction in the cooling space to improve uniformity of the gas distribution in the cooling space. The coil device and the semiconductor process equipment of the present disclosure can be configured to improve cooling efficiency and the cooling uniformity for the coil and reduce the oxidation speed of the coil. Thus, the application lifetime of the coil can be extended.

Fig. 4