ABNORMAL DISCHARGE SUPPRESSING DEVICE FOR VACUUM APPARATUS

abstract

Provided is a device for suppressing an abnormal discharge of a vacuum apparatus, which performs a filming operation by supplying an electric power from a high-frequency power source to a plasma reaction chamber. The device comprises an electric power control unit for controlling the high-frequency power source on the basis of a deviation between an electric power command value and an electric power feedback value, and a breaking control unit for breaking the electric power supply from the high-frequency power source to the plasma reaction chamber on the basis of the detection of an abnormal discharge in the plasma reaction chamber. The breaking control unit performs a first handling breaking control and a second handling breaking control of different breaking time periods. The first handling breaking control enables the ions to survive in the plasma reaction chamber, and breaks and controls the high-frequency power source within a time period, for which an arcing element disappears. On the other hand, the second handling breaking control breaks and controls the high-frequency power source within a time period, for which abnormal arc ions disappears. As a result, the plasma is stably supplied with the electric power.

Figure 1