

【ABSTRACT】

The present invention provides a high-pressure substrate processing apparatus comprising: an inner chamber having a reaction space in which a substrate to be processed is disposed; an outer chamber disposed so as to contain the inner chamber; a gas supply module configured to supply a reaction gas for processing the substrate to be processed to the reaction space at a first pressure higher than the atmospheric pressure, and to supply a protective gas to a protective space between the outer chamber and the inner chamber at a second pressure configured in relation to the first pressure; a rotational driving module comprising a power generating unit for generating rotational power, a power transfer unit formed to transfer the rotational power to the substrate to be processed such that the substrate to be processed is rotated, and a sealing unit for sealing the gap between the inner chamber and the power transfer unit, the sealing unit being affected by the pressure difference between the first and second pressures; and a control module configured to control the gas supply module so as to maintain the pressure difference between the first and second pressures to be smaller than a maximum allowable pressure difference of the sealing unit.

FIG. 2