DESCRIPTION

Title of Invention: TEMPERATURE CONTROL SYSTEM AND PLASMA PROCESSING SYSTEM

Technical Field

[0001]

Exemplary embodiments of the present disclosure relate to a temperature control system and a plasma processing system.

Background Art

[0002]

JP2001-44176A described below describes a plasma processing apparatus in which a temperature-controlled medium is circulated by a chiller unit through a flow path in a substrate support that supports a substrate to control a temperature of the substrate.

Citation List

Patent Documents

[0003]

PTL 1: JP2001-44176A

Summary of Invention

Technical Problem

[0004]

The disclosure provides a technique for reducing a size of a unit forming a temperature control system in a plasma processing system.

Solution to Problem

[0005]

In one exemplary aspect, a temperature control system is provided. The temperature control system includes a first segment, a second segment, and a connector. The first segment includes a first temperature control circuit and a first case. The first temperature control circuit includes a first heat exchanger configured to exchange heat with a first temperature-controlled medium. The first case accommodates the first temperature control circuit therein. The second segment includes a first tank, a first pump, and a second case. The first tank and the first pump are provided in a first circulation system configured to circulate the first temperature-controlled medium through a first flow path in a first member of the plasma processing apparatus. The second case accommodates the first tank and the first pump therein. In the first circulation system, the first tank is connected between the first flow path and the first pump, and the first heat exchanger is connected between the first pump and the first flow path. The connector is a part of the first circulation system, is disposed between the first segment and the second segment, and is connected between the first pump and the heat exchanger.

[0005a]

In another aspect, there is provided a plasma processing system including: a plasma processing apparatus; and a temperature control system, wherein the plasma processing

apparatus includes a chamber, and a first member providing a first flow path therein, and the temperature control system includes a first segment that includes a first temperature control circuit and a first case accommodating the first temperature control circuit therein, the first temperature control circuit including a first heat exchanger configured to exchange heat with a first temperature-controlled medium, a second segment that includes a first tank and a first pump in a first circulation system configured to circulate the first temperature-controlled medium through the first flow path and includes a second case accommodating the first tank and the first pump therein, in the first circulation system, the first tank being connected between the first flow path and the first pump, and the first heat exchanger being connected between the first pump and the first flow path, and a connector that is a part of the circulation system, is disposed between the first segment and the second segment, and is connected between the first pump and the first heat exchanger.

Advantageous Effects of Invention

[0006]

According to exemplary embodiments, a technique for reducing a size of a unit forming a temperature control system in a plasma processing system is provided.

BRIEF DESCRIPTION OF DRAWINGS

[0007]

[FIG. 1] FIG. 1 is a diagram illustrating an example of a configuration of a plasma processing system.

[FIG. 2] FIG. 2 is a diagram illustrating an example of a configuration of a capacitively-coupled plasma processing apparatus.

[FIG. 3] FIG. 3 is a diagram schematically illustrating a temperature control system according to one exemplary embodiment.

[FIG. 4] FIG. 4 is a diagram schematically illustrating a temperature control system according to another exemplary embodiment.

[FIG. 5] FIG. 5 is a diagram schematically illustrating a temperature control system according to still another exemplary embodiment.

[FIG. 6] FIG. 6 is a cross-sectional view illustrating an upper electrode which is an example of a second member in a temperature control system according to still another exemplary embodiment.

[FIG. 7] FIG. 7 is a diagram schematically illustrating a temperature control system according to still another exemplary embodiment.

Description of Embodiments

[0008]

Hereinafter, various exemplary embodiments will be described in detail with reference to the drawings. Further, like reference numerals will be given to like or corresponding parts throughout the drawings.

[0009]

FIG. 1 is a diagram illustrating an example of a configuration of a plasma processing system. In one embodiment, the plasma processing system includes a plasma processing