## CLAIMS

[Claim 1] A method of automatically calibrating a radiation thermometer disposed in a polishing apparatus, comprising:

placing a heating device, to which a measurement body is attached, below the radiation thermometer; and

using a controller of the polishing apparatus coupled to the heating device

to heat a temperature of the measurement body to a plurality of target temperatures,

to measure the temperatures of the measurement body at each target temperature with the radiation thermometer,

to calculate temperature deviation amounts which are differences between each of the target temperatures and temperature output values of the radiation thermometer corresponding to each target temperature, and

to calibrate the radiation thermometer so that all the temperature deviation amounts are within a preset reference range,

wherein calibrating the radiation thermometer is correcting a conversion parameter stored in an analog-digital converter of the radiation thermometer.

[Claim 2] A method of automatically calibrating a radiation thermometer disposed in a polishing apparatus, comprising:

preparing a plurality of heating devices each of which has a measurement body attached thereto; and

using a controller of the polishing apparatus coupled to the plurality of heating devices

to heat a temperature of each measurement body to a predetermined target temperature,

to move each measurement body below the radiation thermometer to measure a temperature of each measurement body at the target temperature with the

radiation thermometer,

to calculate temperature deviation amounts which are differences between each of the target temperatures and temperature output values of the radiation thermometer corresponding to each target temperature, and

to calibrate the radiation thermometer so that all the temperature deviation amounts are within a preset reference range.

[Claim 3] The method according to claim 2, wherein calibrating the radiation thermometer is correcting a conversion parameter stored in an analog-digital converter of the radiation thermometer.

[Claim 4] The method according to any one of claims 1 through 3, further comprising:

after calibrating the radiation thermometer, heating again the temperature of the measurement body to the plurality of target temperatures;

measuring the temperature of the measurement body at each target temperature with the radiation thermometer;

calculating again the temperature deviation amounts; and

checking whether or not all the temperature deviation amounts are within the preset reference range.

[Claim 5] The method according to any one of claims 1 through 4, wherein the measurement body is made of a material having an emissivity similar to an emissivity of the polishing pad.

[Claim 6] A method of automatically calibrating a radiation thermometer disposed in a polishing apparatus, comprising:

placing a heating device to which a plurality of measurement bodies having

known emissivities different from each other are attached, below the radiation thermometer; and

using a controller of the polishing apparatus coupled to the heating device

to heat temperatures of the plurality of measurement bodies to a predetermined target temperature,

to measure the temperatures of the plurality of measurement bodies heated to the predetermined target temperature with the radiation thermometer, respectively,

to calculate temperature deviation amounts which are differences between each of the temperature expectation values to be output from the radiation thermometer when the measurement bodies heated to the predetermined target temperature are measured by the radiation thermometer, and each of the temperature output values of the radiation thermometer, and

to calibrate the radiation thermometer so that all the temperature deviation amounts are within a preset reference range.

[Claim 7] The method according to claim 6, wherein calibrating the radiation thermometer is correcting a conversion parameter stored in an analog-digital converter of the radiation thermometer.

[Claim 8] The method according to claim 6 or 7, further comprising:

after calibrating the radiation thermometer, measuring again the temperatures of the plurality of measurement bodies whose temperature are maintained at the target temperature, with the radiation thermometer;

calculating again the temperature deviation amounts; and

checking whether or not all the temperature deviation amounts are within the preset reference range.

[Claim 9] A calibration system for calibrating a radiation thermometer disposed in a polishing apparatus, comprising:

a heating device to which a measurement body is attached, and which is placed below the radiation thermometer; and

a temperature regulator coupled to the heating device,

wherein the temperature regulator is coupled to a controller disposed in the polishing apparatus, ~~and~~

the controller is configured:

to heat a temperature of the measurement body to a plurality of target temperatures through the temperature regulator,

to measure the temperatures of the measurement body at each target temperature with the radiation thermometer,

to calculate temperature deviation amounts which are differences between each of the target temperatures and temperature output values of the radiation thermometer corresponding to each target temperature, and

to calibrate the radiation thermometer so that all the temperature deviation amounts are within a preset reference range, and

the controller is configured to correct a conversion parameter stored in an analog-digital converter of the radiation thermometer.

[Claim 10] A calibration system for calibrating a radiation thermometer disposed in a polishing apparatus, comprising:

a plurality of heating devices each of which has a measurement body attached thereto;

a temperature regulator coupled to the plurality of heating devices, and

a heating-device moving mechanism configured to move each of the plurality of heating devices below the radiation thermometer,

wherein the temperature regulator and the heating-device moving mechanism are

coupled to a controller disposed in the polishing apparatus, and

the controller is configured

to heat a temperature of each measurement body to a predetermined target temperature,

to use the heating-device moving mechanism to each measurement body below the radiation thermometer,

to measure the temperature of each measurement body at the target temperature with the radiation thermometer,

to calculate temperature deviation amounts which are differences between each of the target temperatures and temperature output values of the radiation thermometer corresponding to each target temperature, and

to calibrate the radiation thermometer so that all the temperature deviation amounts are within a preset reference range.

[Claim 11] The calibration system according to claim 10, wherein the controller is configured to correct a conversion parameter stored in an analog-digital converter of the radiation thermometer.

[Claim 12] The calibration system according to any one of claims 9 through 11, wherein the controller is configured

to, after calibrating the radiation thermometer, heat again the temperature of the measurement body to the plurality of target temperatures;

to measure the temperature of the measurement body at each target temperature with the radiation thermometer;

to calculate again the temperature deviation amounts; and

to check whether or not all the temperature deviation amounts are within the preset reference range.

[Claim 13] The calibration system according to claims 9 through 12, wherein the measurement body is made of a material having an emissivity similar to an emissivity of the polishing pad.

[Claim 14] A calibration system for calibrating a radiation thermometer disposed in a polishing apparatus, comprising:

a heating device to which a plurality of measurement bodies having known emissivities different from each other are attached, and which is placed below the radiation thermometer; and

a temperature regulator coupled to the heating device,

wherein the temperature regulator is coupled to a controller disposed in the polishing apparatus, and

the controller is configure

to heat temperatures of the plurality of measurement bodies to a predetermined target temperature,

to measure the temperatures of the plurality of measurement bodies heated to the predetermined target temperature with the radiation thermometer, respectively,

to calculate temperature deviation amounts which are differences between each of the temperature expectation values to be output from the radiation thermometer when the measurement bodies heated to the predetermined target temperature are measured by the radiation thermometer, and each of the temperature output values of the radiation thermometer, and

to calibrate the radiation thermometer so that all the temperature deviation amounts are within a preset reference range.

[Claim 15] The calibration system according to claim 14, wherein the controller is configured to correct a conversion parameter stored in an analog-digital converter of the

radiation thermometer.

[Claim 16] The calibration system according to claim 14 or 15, wherein the controller is configured

to, after calibrating the radiation thermometer, heat the temperatures of the plurality of measurement bodies to the plurality of target temperatures;

to measure again the temperatures of the plurality of measurement bodies whose temperature are maintained at the target temperature, with the radiation thermometer;

to calculate again the temperature deviation amounts; and

checking whether or not all the temperature deviation amounts are within the preset reference range.