CLAIMS

1. A substrate processing method comprising:

a first step that takes an image of an end face of a reference substrate, whose warp amount is known, over a whole periphery of the reference substrate by means of a camera;

a second step that performs image processing of the image taken in the first step, thereby to obtain shape data of the end face of the reference substrate over a whole periphery of the reference substrate;

a third step that takes an image of an end face of a process substrate over a whole periphery of the process substrate by means of a camera;

a fourth step that performs image processing of the image taken in the third step, thereby to obtain shape data of the end face of the process substrate over a whole periphery of the process substrate;

a fifth step that calculates a warp amount of the process substrate based on the shape data obtained in the second step and the shape data obtained in the fourth step;

a sixth step that supplies a coating liquid to a surface of the process substrate thereby to form a coating film on the surface of the process substrate;

a seventh step that determines a supply position from which an organic solvent is to be supplied to a peripheral portion of the coating film, based on the warp amount calculated in the fifth step, and supplies the organic solvent from the supply position to dissolve the peripheral portion of the coating film and remove the same from the process substrate.

2. The method according to claim 1, further comprising a periphery exposure step that exposes, after the seventh step, the coating film in the peripheral portion of the surface of the process substrate at a predetermined exposure width over the whole periphery of the process substrate, wherein in the periphery exposure step the exposure width is determined based on the warp amount calculated in the fifth step.

3. The method according to claim 1, further comprising:

an eighth step that heats the coating film after the seventh step;

a ninth step that takes, after the eighth step, an image of the end face of the process substrate over the whole periphery of the process substrate by means of a camera;

a tenth step that performs image processing of the image taken in the ninth step, thereby to obtain shape data of the end face of the

process substrate over the whole periphery of the process substrate; and

an eleventh step that calculates a warp amount of the process substrate based on the shape data obtained in the second step and the shape data obtained in the tenth step;

wherein the method does not perform exposure of the process substrate if the warp amount calculated in the eleventh step is greater than a threshold value.

4. The method according to claim 1, further comprising:

an eighth step that heats the coating film after the seventh step;

a ninth step that takes, after the eighth step, an image of the end face of the process substrate over the whole periphery of the process substrate by means of a camera;

a tenth step that performs image processing of the image taken in the ninth step, thereby to obtain shape data of the end face of the process substrate over the whole periphery of the process substrate; and

an eleventh step that calculates a warp amount of the process substrate based on the shape data obtained in the second step and the shape data obtained in the tenth step;

a periphery exposure step that exposes, after the ninth step, the coating film in the peripheral portion of the surface of the process

substrate at a predetermined exposure width over the whole periphery of the process substrate, wherein in the periphery exposure step the exposure width is determined based on the warp amount calculated in the eleventh step.

5. The method according to claim 4, wherein the method does not perform exposure of the process substrate if the warp amount calculated in the eleventh step is greater than a threshold value.

6. The method according to claim 1, wherein:

the reference substrate is flat;

the shape data obtained in the second step is data on a first profile line passing through a center of the end face of the reference substrate;

the shape data obtained in the fourth step is data on a second profile line passing through a center of the end face of the process substrate; and

the fifth step calculates the warp amount of the process substrate based on the data on the first profile line and the data on the second profile line.

7. The method according to claim 1, further comprising:

a peripheral portion imaging step that takes an image of a peripheral portion of a surface of the process substrate by means of a camera; and

an inspecting step that inspects condition of the end face of the process substrate through image processing of the image taken in the fourth step, and inspects condition of the peripheral portion of the surface of the process substrate through image processing of the image taken in the peripheral portion imaging step.

8. A non-transitory storage medium storing a program that makes a substrate processing apparatus execute a substrate processing method according to claim 1.

9. A substrate processing method comprising:

a first step that takes an image of an end face of a reference substrate, whose warp amount is known, over a whole periphery of the reference substrate by means of a camera;

a second step that performs image processing of the image taken in the first step, thereby to obtain shape data of the end face of the reference substrate over a whole periphery of the reference substrate;

a third step that takes an image of an end face of a process substrate over a whole periphery of the process substrate by means of a camera;

a fourth step that performs image processing of the image taken in the third step, thereby to obtain shape data of the end face of the process substrate over a whole periphery of the process substrate;

a fifth step that calculates a warp amount of the process substrate based on the shape data obtained in the second step and the shape data obtained in the fourth step;

a sixth step that supplies a coating liquid to a surface of the process substrate thereby to form a coating film on the surface of the process substrate; and

a periphery exposure step that exposes the coating film in the peripheral portion of the surface of the process substrate at a predetermined exposure width over the whole periphery of the process substrate, wherein in the periphery exposure step the exposure width is determined based on the warp amount calculated in the fifth step.

10. The method according to claim 9, further comprising a seventh step that heats the coating film after the sixth step, wherein the third, fourth and fifth steps are performed after the seventh step.

11. The method according to claim 10, wherein the method does not perform exposure of the process substrate if the warp amount calculated in the fifth step is greater than a threshold value.

12. The method according to claim 9, wherein:

the reference substrate is flat;

the shape data obtained in the second step is data on a first profile line passing through a center of the end face of the reference substrate;

the shape data obtained in the fourth step is data on a second profile line passing through a center of the end face of the process substrate; and

the fifth step calculates the warp amount of the process substrate based on the data on the first profile line and the data on the second profile line.

13. The method according to claim 9, further comprising:

a peripheral portion imaging step that takes an image of a peripheral portion of a surface of the process substrate by means of a camera; and

an inspecting step that inspects condition of the end face of the process substrate through image processing of the image taken in the

fourth step, and inspects condition of the peripheral portion of the surface of the process substrate through image processing of the image taken in the peripheral portion imaging step.

14. A non-transitory storage medium storing a program that makes a substrate processing apparatus execute a substrate processing method according to claim 9.