

(B1) forming the multilayer reflection film and protection film on said one main surface,

(B2) inspecting a defect in the multilayer reflection film and protection film formed in the step (B1), obtaining positional information of a detected defect on the basis of
5 coordinates defined with reference to the coordinate reference mark, and saving the positional information into a recording medium,

(C1) after the step (B2), forming the absorber film on the protection film, and

(C2) inspecting a defect in the absorber film formed in the step (C1), obtaining positional information of a detected defect on the basis of coordinates defined with
10 reference to the coordinate reference mark, and saving the positional information into a recording medium.

In another aspect, there is provided a method of manufacturing a reflective mask blank comprising a substrate, and a multilayer reflection film for EUV light reflection, a protection film, and an absorber film for EUV light absorption formed on one main surface
15 of the substrate in this order from the substrate side, and a conductive film formed on another main surface of the substrate, the method comprising the steps of:

(A1) forming the conductive film on said another main surface,

(A2) forming a coordinate reference mark on said another main surface side,

(B1) forming the multilayer reflection film and protection film on said one main
20 surface,

(B2) inspecting a defect in the multilayer reflection film and protection film formed in the step (B1), by measuring a warpage or deflection of the substrate as a flatness by function for adjusting focus of an optical system for detection of the coordinate reference mark, obtaining position of the defect and correcting the position of the defect, then,
25 obtaining positional information of a detected defect on the basis of coordinates defined with reference to the coordinate reference mark, and saving the positional information into a recording medium,

(C1) after the step (B2), forming the absorber film on the protection film, and

(C2) inspecting a defect in the absorber film formed in the step (C1) by measuring a warpage or deflection of the substrate as a flatness by function for adjusting focus of an optical system for detection of the coordinate reference mark, obtaining position of the defect and correcting the position of the defect, then, obtaining positional information of a
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detected defect on the basis of coordinates defined with reference to the coordinate reference mark, and saving the positional information into a recording medium.

Preferably, in the step (A2), the coordinate reference mark is formed on the conductive film formed in the step (A1).

5 Preferably, the method further includes the step of measuring a flatness of the substrate after the step (B1) and before the step (B2) and/or the step of measuring a flatness of the substrate after the step (C1) and before the step (C2).

10 Preferably, when defects are detected in the step (B2), the step (B2) includes the steps of creating a processing sequence for the defects, and saving the processing sequence into the recording medium along with the positional information, typically, the processing sequence is a priority for processing the defects, the priority determined on the basis of printability of the detected defects.

15 In another aspect, the invention provides a reflective mask blank including a substrate, and a multilayer reflection film for EUV light reflection, a protection film, and an absorber film for EUV light absorption formed on one main surface of the substrate in this order from the substrate side, and a conductive film formed on another main surface of the substrate, wherein

 a coordinate reference mark is formed on the conductive film.

20 In a further aspect, the invention provides a set of a reflective mask blank and a recording medium,

 the reflective mask blank, as a main component, including a substrate, and a multilayer reflection film for EUV light reflection, a protection film, and an absorber film for EUV light absorption formed on one main surface of the substrate in this order from the

CLAIMS:

1. A method of manufacturing a reflective mask blank comprising a substrate, and a multilayer reflection film for EUV light reflection, a protection film, and an absorber film
5 for EUV light absorption formed on one main surface of the substrate in this order from the substrate side, and a conductive film formed on another main surface of the substrate, the method comprising the steps of:

(A1) forming the conductive film on said another main surface,

(A2) forming a coordinate reference mark on said another main surface side,

10 (B1) forming the multilayer reflection film and protection film on said one main surface,

(B2) inspecting a defect in the multilayer reflection film and protection film formed in the step (B1), by measuring a warpage or deflection of the substrate as a flatness by function for adjusting focus of an optical system for detection of the coordinate reference mark, obtaining position of the defect and correcting the position of the defect, then,
15 obtaining positional information of a detected defect on the basis of coordinates defined with reference to the coordinate reference mark, and saving the positional information into a recording medium,

(C1) after the step (B2), forming the absorber film on the protection film, and

20 (C2) inspecting a defect in the absorber film formed in the step (C1) by measuring a warpage or deflection of the substrate as a flatness by function for adjusting focus of an optical system for detection of the coordinate reference mark, obtaining position of the defect and correcting the position of the defect, then, obtaining positional information of a detected defect on the basis of coordinates defined with reference to the coordinate
25 reference mark, and saving the positional information into a recording medium.

2. The method of claim 1, wherein in the step (A2), the coordinate reference mark is formed on the conductive film formed in the step (A1).

30 ~~3. The method of claim 1 or 2, further comprising the step of measuring a flatness of the substrate after the step (B1) and before the step (B2).~~

4. ~~The method of any one of claims 1 to 3, further comprising the step of measuring a flatness of the substrate after the step (C1) and before the step (C2).~~

5 53. The method of ~~any one of claims claim~~ 1 to 4, wherein when defects are detected in the step (B2), the step (B2) comprises the steps of creating a processing sequence for the defects, and saving the processing sequence into the recording medium along with the positional information.

10 64. The method of claim 53, wherein the processing sequence is a priority for processing the defects, the priority determined on the basis of printability of the detected defects.

15 ~~7. A reflective mask blank comprising a substrate, and a multilayer reflection film for EUV light reflection, a protection film, and an absorber film for EUV light absorption formed on one main surface of the substrate in this order from the substrate side, and a conductive film formed on another main surface of the substrate, wherein a coordinate reference mark is formed on the conductive film.~~

20 ~~8. A set of a reflective mask blank and a recording medium, the reflective mask blank, as a main component, comprising a substrate, and a multilayer reflection film for EUV light reflection, a protection film, and an absorber film for EUV light absorption formed on one main surface of the substrate in this order from the substrate side, and a conductive film formed on another main surface of the substrate, a coordinate reference mark being formed on the conductive film, the recording medium being recorded positional information of a defect on the basis of coordinates defined with reference to the coordinate reference mark.~~

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30 ~~9. The reflective mask blank of claim 8 wherein the recording medium is further recorded a priority for processing the defects, the priority determined on the basis of printability of the detected defect.~~

~~10. A method of manufacturing a reflective mask comprising the steps of:~~

~~preparing the set of a reflective mask blank and a recording medium of claim 9,—
configuring coordinate system with reference to the coordinate reference mark
formed on the reflective mask blank and determining positions of the defects of the
reflective mask blank in the coordinate system with reference to the positional information
of the defects stored in the recording medium,—
preparing a drawing pattern data to form an absorber pattern by patterning the
absorber film,—
evaluating availability of processing the defect by remaining the absorber film as
the absorber pattern in accordance with the priority stored in the recording medium in
sequence, and
forming the absorber pattern by etching and removing a part of the absorber film of
the reflective mask blank so as to remain the absorber pattern at the position of the defect
that has been evaluated as a processable defect in accordance with the position of the
defect in the coordinate system.—~~

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