

【CLAIMS】

1. A vision inspection module 50 for performing a vision inspection of a semiconductor device 1 having a polygonal plane shape, the vision inspection module 50 comprising:

a single image acquisition unit 100 configured to acquire a first plane image for a first plane of the semiconductor device 1 and side surface images for side surfaces of polygonal sides of the semiconductor device 1; and

an optical system configured to form a first optical path L1 for enabling the first plane image for the first plane of the semiconductor device 1 to reach the single image acquisition unit 100, and a plurality of second optical paths L2 for enabling each of the side surface images for the side surfaces of the polygonal sides of the semiconductor device 1 to reach the single image acquisition unit 100

wherein the optical system includes a sub reflection member 311 installed corresponding to each side surface of the polygonal sides of the semiconductor device 1 to reflect a side surface image of each side surface of the polygonal sides of the semiconductor device 1 parallel to the first optical path L1,

wherein the optical system further includes a focal length correction unit 400 that is installed in the optical system to correct a focal length difference of the first optical path L1 and the second optical path L2,

wherein the focal length correction unit 400 includes a medium unit 410 that consists of a transparent material that transmits light,

wherein the focal length correction unit 400 is installed between the sub reflection member 311 and the single image acquisition unit 100 of the second optical path L2,

wherein the sub reflection member 311 have a reflective surface that reflects the

side surface image of each side surface of the polygonal sides of the semiconductor device 1,

wherein the focal length correction unit 400 includes a frame unit 420 detachably coupled to a structure 520, the frame unit 420 in which the medium unit 410 is detachably installed,

wherein the frame unit 420 is detachably coupled to the structure 520 by a magnetic force.

2. The vision inspection module 50 of any one of claims 1, wherein the optical system further includes:

a main reflection member 211 configured to reflect the first plane image for the first plane toward the single image acquisition unit 100.

3. The vision inspection module 50 of claim 2, wherein the main reflection member 211 consists of a semi-transparent material that transmits light and includes an illuminator 540 configured to emit light to the first plane and each side surface of the polygonal sides of the semiconductor device 1 at the other surface of a reflective surface that reflects the first plane image.

4. The vision inspection module 50 of claim 3, wherein the focal length correction unit 400 is installed in at least one of between each side surface of the polygonal sides of the semiconductor device 1 and the main reflection member 211 of the second optical path L2 and between the main reflection member 211 and the single image acquisition unit 100 of the second optical path L2.

5. A device inspection system comprising:

a loading unit 10 configured to load and linearly move a tray 2 on which a plurality of semiconductor devices 1 are put;

a vision inspection module 50 installed on one side of the loading unit 10 perpendicular to a transfer direction of the tray 2 in the loading unit 10 to perform a vision inspection on the semiconductor device 1;

a first guide rail 68 disposed perpendicularly to a movement direction of the tray 2 in the loading unit 10;

a first transfer tool 61 coupled to the first guide rail 68 to move along the first guide rail 68 and configured to pick up and transfer a device from the loading unit 10 to the vision inspection module 50 to perform a vision inspection; and

unloading units 31, 32, and 33 configured to receive the trays 2 on which the semiconductor devices 1 after the vision inspection are put from the loading unit 10 and sort semiconductor devices 1 on a corresponding tray 2 according to a vision inspection result,

wherein the vision inspection module 50 is the vision inspection module according to any one of claims 1.