Claims

1. A device for determination of alignment errors of structures (6) which are present on a substrate (5) or which have been applied to it for checking of the alignment accuracy and/or of the distortion of the structures (6), with the following features:

- a substrate holder (2) for accommodating the substrate (5) with the structures (6)
- detection means for detecting X-Y positions of first markings (7) on the substrate (5) and/or second markings (11, 11') on the structures (6) by moving the substrate (5) or the detection means in a first coordinate system, wherein an image of the structures (6) is recorded by the detection means, characterized in that

in a second coordinate system which is independent of the first coordinate system ideal X'-Y' structure positions for the structures (6) are given whose respective distance from the X-Y positions of the first markings (7) on the substrate (5) and/or second markings (11, 11') on the structures (6) can be determined by the device, wherein the recorded image of the structures (6) is superimposed with the ideal X'-Y' structure positions for the structures (6).

2. The device as claimed in Claim 1, wherein the detection means comprise at least one optics (3) which can be fixed in the first coordinate system for detection and which can be moved especially at least in the X and Y direction in the first coordinate system, preferably controlled by a control apparatus, especially for setting the origin of the first coordinate system,

3. The device as claimed in Claim 2, wherein the optics (3), especially by focussing and/or moving in one Z direction which is perpendicular to the X and Y direction, has a field of view (13) with which are least one structure (6) at a time can be detected at the same time, preferably less than 17 structures at the same time, even more preferably less than five structures at the same time, ideally exactly one structure at the same time.

4. The device as claimed in at least one of the preceding claims, wherein the second coordinate system is a coordinate system which is defined in the computer and with reference to which a structure position field with the X'-Y' structure positions is defined.

5. The device as claimed in at least one of the preceding claims, wherein alignment means, especially in the form of a receiving apparatus (1) which accommodates the substrate holder (2) and which can moved at least in the X and Y direction of the first coordinate system, are intended for alignment of the substrate (5) which is fixed on the substrate holder (2) relative to the second coordinate system, especially by detecting the first markings and/or second markings (7, 11, 11') on the substrate (5) with the detection means.

6. The device as claimed in at least one of the preceding claims, wherein the X-Y positions and/or the X'-Y' structure positions can be stored especially jointly in a position map which is assigned especially to the second X-Y coordinate system or which is correlated with it.

7. A method for determination of alignment errors of structures (6) which are present on a substrate (5) or which have been applied to it for checking of the alignment accuracy and/or of the distortion of the structures (6), with the following steps, especially the following sequence:

- detection of X-Y positions of first markings (7) on the substrate (5) and/or second markings (11, 11') on the structures (6) by detection means by moving the substrate (5) or the detection means in a first coordinate system, wherein an image of the structures (6) is recorded by the detection means, characterized in that

in a second coordinate system which is independent of the first coordinate system X'-Y' structure positions for the structures (6) are given whose respective distance from the X-Y positions of the first markings (7) on the substrate (5) and/or second markings (11, 11') on the structures (6) is determined, wherein the recorded image of the structures (6) is superimposed with the ideal X'-Y' structure positions for the structures (6).

8. The method as claimed in Claim 7, wherein at least one structure (6) at a time is detected at the same time, preferably less than 17 structures at the same time, even more preferably less than five structures at the same time, ideally exactly one structure at the same time.

9. The method as claimed in one Claims 7 or 8, wherein the detection means are moved by means of an optics receiver which is assigned to the first ~~X-Y~~ coordinate system for setting the origin of the first coordinate system at least in the X and Y direction and are then fixed in a first coordinate system for detection.

10. The method as claimed in at least one of Claims 7 to 9, wherein an alignment of the substrate (5) which is fixed on the substrate holder (2) relative to the second ~~X-Y~~ coordinate system takes place by alignment means, especially in the form of a receiving apparatus which accommodates the substrate holder (2) and which can be moved at least in the X and Y direction of the first ~~X-Y~~ coordinate system, especially by detection of the first markings (7) on the substrate (5) with the detection means.

11. The method as claimed in at least one of Claims 7 to 10, wherein the X-Y positions and/or the ~~X-Y~~ X'-Y' structure positions are stored especially jointly in a position map which is assigned especially to the second ~~X-Y~~ coordinate system or which is correlated with it.