Claims

1. A method for determining the pressure distribution for wafer bonding of a first substrate to a second substrate, with the following steps, especially with the following sequence;

- placing a measurement layer (7, 7', 7") between a first tool (1) for holding the first substrate and an opposite second tool (5) which is aligned to the first tool (1) for bonding of the substrates,
- deformation of the measurement layer (7, 7', 7") by bringing the tools (1, 5) closer to one another,
- optical measurement of the deformation of the measurement layer (7, 7', 7") and
- computation of the pressure distribution based on the measurement of the deformation.

2. The method as claimed in Claim 1, wherein between the measurement layer (7, 7', 7") and the first tool (1) and/or between the measurement layer (7, 7', 7") and the second tool (5) wafers (2, 4) are introduced which are especially aligned to one another.

3. The method as claimed in one of the preceding claims, wherein the shape of the measurement layer (7, 7', 7") is measured before deformation, especially after the measurement layer (7, 7', 7") is introduced.

4. The method as claimed in one of the preceding claims, wherein the measurement layer (7, 7', 7") consists of a fluid, especially curable material which can preferably by plastically deformed after curing.

5. The method as claimed in one of the preceding claims, wherein there are dispensers (8) for defined distribution of the measurement layer (7, 7', 7") between the first tool (1) and the second tool (5).

6. The method as claimed in one of the preceding claims, wherein the deformation is measured at a plurality of positions along the measurement layer (7, 7', 7"), especially optically.

7. The method as claimed in one of the preceding claims, wherein the measurement layer (7, 7', 7") is produced by application of droplets, especially on the wafer (2).

8. The method as claimed in Claim 2, wherein an adhesion-reducing layer (9) is introduced between the measurement layer (7, 7', 7") and at least one of the wafers (2, 4).

9. A device for determining the pressure distribution for wafer bonding of a first substrate to a second substrate, with:

- introducing means (8) for introducing or applying a measurement layer (7, 7', 7") between a first tool (1) and an opposite second tool (5) which is aligned to the first tool (1),
- deformation means (1, 5) for deformation of the measurement layer (7, 7', 7") by moving the tools (1, 5) toward one another,
- optical measurement means for measuring of the deformation of the measurement layer (7, 7', 7") and
- computation means for computing the pressure distribution based on the measuring of the deformation.

10. A method for determining the pressure distribution for wafer bonding of a first substrate to a second substrate, with the following steps, especially with the following sequence;

- placing a measurement layer (7, 7', 7") between a first tool (1) for holding the first substrate and an opposite second tool (5) which is aligned to the first tool (1) for bonding of the substrates,
- deformation of the measurement layer (7, 7', 7") parallel to the surface of the substrate by bringing the tools (1, 5) closer to one another,
- optical measurement of the deformation of the measurement layer (7, 7', 7") and
- computation of the pressure distribution based on the measurement of the deformation.