~~Retaining System, Device and Method for Handling Substrate Stacks~~

Claims

1. Retaining system (1, 20) for handling a first substrate (4) that is to be bonded with a second substrate (13) with:

- ~~A~~a retaining surface (1o, 20o) for retaining a first substrate (4), and
- ~~At~~ at least one recess (2, 21), recessed relative to the retaining surface (1o, 20o), for retaining magnetically acting attachment means (5, 5', 5") for securing the first substrate (4) relative to a second substrate (13) that is aligned with the first substrate (4).

wherein the magnetically acting attachment means (5, 5', 5'') is configured to be placed on a holding side (13h) of the second substrate (13), wherein a substrate stack (14) formed from the first substrate (4) and the second substrate (13) is secured with omission of the retaining system (1, 20).

2. Retaining system according to Claim 1, in which the recesses (2, 21) are designed as at least one shelf, arranged on the periphery, with a seating section (2o, 21o) for seating of the magnetically acting attachment means (5, 5', 5") and an installation section (2o, 21o), directed toward the center of the ~~seating~~ retaining surface (1o, 20o), for installation of the magnetically acting attachment means (5, 5', 5").

3. Retaining system according to one of the preceding claims, in which the seating section (2o, 21o) is inclined relative to the ~~seating~~ retaining surface (1o, 20o) by an angle a less than 60°, in particular a less than 45°, preferably a less than 30°, and even more preferably a less than 15°.

4. Retaining system according to one of the preceding claims, in which the recesses (2, 21) are arranged uniformly distributed on the periphery of the retaining surface (1o, 20o).

5. Device for handling a substrate stack (14), consisting of a first substrate (4) and a second substrate (13) aligned relative to the first substrate (4), with magnetically acting attachment means (5, 5', 5") for securing the first substrate (4) relative to the second substrate (13) in an aligned immobilized position, wherein the device comprises a placing system (6) for placing the magnetically acting attachment means (5, 5', 5'') on sides of the substrate stack (14), wherein the sides face away from each other, wherein the substrate stack (14) is secured with omission of a retaining system (1, 20).

6. Device according to Claim 5, whereby the magnetically acting attachment means (5, 5', 5") have at least two pairs of magnetic elements (5p).

7. Device according to Claim 6, whereby each pair of magnetic elements (5p) is formed from a first magnetically active magnetic body (5, 5', 5") and a second, in particular magnetically active, magnetic body (5, 5', 5") that is magnetically attracted by the first magnetic body (5, 5', 5").

8. Device according to Claim 7, whereby the first and/or the second magnetic body(ies) (5, 5', 5") is/are designed in the shape of a sphere.

9. Device according to Claim 7 or 8, whereby the first and/or the second magnetic body(ies) (5, 5', 5") is/are attached to the substrate stack (14) in the immobilized position at least predominantly, in particular exclusively, by the magnetic force produced by the pair of magnetic elements (5p).

10. Device according to one of Claims 5 to 9, whereby the device has a retaining system according to one of Claims 1 to 4.

11. Device according to one of Claims 5 to 10, whereby the device has an alignment system for aligning the first substrate (4) relative to the second substrate (13) as well as a contacting system for bringing the substrates (4, 13) into contact.

12. Device according to one of Claims 5 to 11, whereby the device has a placing system (6) for placing the magnetically acting attachment means (5, 5', 5"), in particular the magnetic bodies (5, 5', 5"), on sides of the substrate stack (14) that are facing away from one another.

13. Method for handling a substrate stack (14) that is to be bonded and that consists of a first substrate (4) and a second substrate (13) that is aligned relative to the first substrate (4), whereby the first substrate (4) is secured in an aligned immobilized position by magnetically acting attachment means (5, 5', 5") for handling the substrate stack (14) relative to the second substrate (13), wherein the magnetically acting attachment means (5, 5', 5'') are placed on holding sides (4h, 13h) of the substrate stack (14), wherein the holding sides (4h, 13h) face away from each other, wherein the substrate stack (14) is secured with omission of a retaining system (1, 20).

14. Method according to Claim 13, whereby the magnetically acting attachment means (5, 5', 5") are placed on holding sides (4h, 13h) of the substrate stack (14) that face away from one another.

15. Substrate stack (14) secured by magnetically acting attachment means (5, 5', 5''), which are placed on holding sides (4h, 13h) of the substrate stack (14), wherein the holding sides (4h, 13h) face away from each other, wherein the substrate stack (14) is secured with omission of a retaining system (1, 20).

16. Substrate stack (14) according to Claim 15, wherein the magnetically acting attachment means (5, 5', 5'') are formed spherically.