Claims

1. Sawing device for forming saw-cuts into a semiconductor product, comprising:

- a carrier comprising a holding surface for holding the semiconductor product,
- a saw blade comprising a cutting edge, moveable relative to the carrier,
- a first position sensor for determining the position of a point on a free surface of the semiconductor product held by the carrier relative to said first position sensor,
- a second position sensor for determining the position of a point on the cutting edge of the saw blade relative to said second position sensor, and
- a control unit linked to the first position sensor and the second position sensor, which control unit is configured for controlling the relative movement of the saw blade and the carrier,

wherein the sawing device further comprises a reference for linking the position of the first position sensor to the position of the second position sensor, wherein the control unit is configured to:

- process, with aid of the reference, the positions determined by the first position sensor and the second position sensor into a position of the point on the free surface of the semiconductor product relative to the point on the cutting edge of the saw blade, and
- control the relative movement of the saw blade and the carrier based on said position of the point on the free surface of the semiconductor product relative to the point on the cutting edge of the saw blade, and

wherein the reference is formed by at least one reference surface on the carrier observable by the first position sensor and~~/or~~ the second position sensor, wherein the first position sensor and the second position sensor are configured for determining the position of a point on at least one of the at least one reference surface.

2. Sawing device according to claim 1, **characterised in that** the carrier comprises a reference element protruding past the holding surface, which reference element comprises the at least one reference surface.

3. Sawing device according to claim 1 or 2, **characterised in that** the reference comprises a first reference surface observable by the first position sensor and a second reference surface observable by the second position sensor, wherein the first position sensor is configured for determining the position of a point on the first reference surface of the reference and the second position sensor is configured for determining the position of a point on the second reference surface of the reference.

4. Sawing device according to any of the preceding claims, **characterised in that** an additional reference is formed by a frame connecting the first position sensor to the second position sensor, wherein the distance spanned by the frame between the first position sensor and the second position sensor is known and fixed.

5. Sawing device according to any of the preceding claims, **characterised in that** the first position sensor and the carrier are moveable relative to each other.

6. Sawing device according to any of the preceding claims, **characterised in that** the second position sensor and the saw blade are moveable relative to each other.

7. Sawing device according to any of the preceding claims, **characterised in that** the first position sensor is configured for determining the position of a plurality of points on the free surface of the semiconductor product.

8. Sawing device according to claim 7, **characterised in that** the control unit is configured to process the position of the plurality of points on the free surface of the semiconductor product into a height profile of said free surface, wherein the control unit is adapted to compensate for said height profile in the control of the relative movement of the saw blade and the carrier.

9. Sawing device according to any of the preceding claims, **characterised in that** the second position sensor is configured for determining the position of a plurality of points on the cutting edge of the saw blade.

10. Sawing device according to any of the preceding claims, **characterised in that** at least one of the first position sensor and second position sensor is a distance sensor, in particular a confocal sensor.

11. Method for forming saw-cuts into a semiconductor product, comprising the steps of:

- gripping a semiconductor product with a carrier,
- determining with a first position sensor the position of a point on a free surface of the semiconductor product,
- determining with a second position sensor the position of a point on a cutting edge of a saw blade,
- using a reference to link the position of the first position sensor to the position of the second position sensor,
- processing, with aid of the reference, the positions determined by the first position sensor and the second position sensor into a position of the point on the free surface of the semiconductor product relative to the point on the cutting edge of the saw blade, and
- moving the saw-blade relative to the carrier based on the position of the cutting edge of the saw blade relative to the bottom surface of the semiconductor product, thereby cutting into the free surface of the semiconductor product,

wherein the reference to link the position of the first position sensor to the position of the second position sensor is determined by at least one reference surface on the carrier that is observed by the first position sensor and~~/or~~ the second position sensor, and

wherein the first position sensor and the second position sensor are determining the position of a point ~~in relation to~~on the at least one reference surface.

12. Method according to claim 11, **characterised in that** the position of the reference is determined by the first position sensor and the second position sensor.

13. Method according to claim 11 or 12, **characterised in that** the position of a plurality of points on the free surface of the semiconductor product is determined by the first position sensor.

14. Method according to claim 13, **characterised in that** the plurality of points on the free surface of the semiconductor product are processed into a height profile of said free surface, for which height profile is compensated for in the movement the saw-blade relative to the carrier.

15. Method according to claim 14, **characterised in that** the height profile of the free surface of the semiconductor product is followed by the cutting edge of the saw blade in a continuous fashion.

16. Method according to any of the claims 11-15, **characterised in that** the position of a point on the cutting edge of the saw blade is determined before and after the formation of a saw-cut, wherein the difference in the position of said point on the cutting edge before and after the formation of a saw-cut is used as feed forward information in controlling the relative movement of the saw-blade and the carrier in the formation of a consecutive saw-cut.

17. Method according to any of the claims 11-16, **characterised in that** the sawn semiconductor product is subjected to a control measurement wherein the positions of the saw-cuts are registered.

18. Method according to claim 17, **characterised in that** in the registration of the position of the saw-cuts, at least one of a saw-cut depth, measured at a right angle to the free surface of the semiconductor product, and a saw-cut offset, measured in a plane of the free surface of the semiconductor product, is determined.