to the functional surface, in the present example the surface with the embossing structures. Publication US 20090101037A1 discloses a device and a method for measuring the distance between two surfaces. With the measurement at a single position, however, a wedge error cannot be compensated for.

The wedge error compensation between substrates to be bonded has become ever more important in recent years, so that an attempt has been made to adopt the concepts from lithography into bonding technology.

A major problem in the prior art consists in the fact that there are no devices or methods revealed, with the aid of which the wedge error compensation can be carried out with the required speed. The throughput is of decisive importance for economic success especially in the case of bonding. A further drawback consists in the fact that most substrates that are used for bonding are non-transparent for electromagnetic radiation used, in particular for visible light and infrared. It is true that silicon wafers are infrared-transparent, but the infrared transparency is ruined again by metallic coatings which are routinely deposited on silicon wafers.

Embodiments of the present invention disclose a device and a method for the alignment of substrates which at least partially eliminate, in particular completely eliminate the drawbacks listed in the prior art. In addition, an improved device and an improved method for the alignment of substrates, in particular by the compensation of a wedge error between the substrates, are to be shown. In particular, a device and a method are to be shown, with which a wedge error compensation can be carried out more quickly and more efficiently during the processing of substrates, in particular during the bonding. Furthermore, a device and a method are to be shown,

with which non-transparent substrates, in particular for electromagnetic radiation, for visible light and for infrared, can be aligned.

All combinations of at least two features stated in the description, the claims and/or the drawings also fall within the scope of the invention. In the case of stated value ranges, values also lying within the stated limits are also deemed to be disclosed as limiting values and can be claimed in any combination.

Accordingly, a first aspect of the invention relates to a device for the alignment of substrates, in particular of wafers, including:

- a first substrate holder for accommodating a first substrate on a first substrate holder surface,

- a second substrate holder for accommodating a second substrate on a second substrate holder surface,

- wherein the first substrate holder surface is facing towards the second substrate holder surface, and

- wherein the first substrate holder comprises at least three inner distance sensors for measuring first distances to the first substrate, in particular to a substrate surface of the first substrate,
characterised in that

- the first substrate holder comprises at least three outer distance sensors for measuring second distances to the second substrate holder surface of the second substrate holder.

Furthermore, a second aspect of the invention relates to a method for the alignment of substrates, in particular of wafers, in particular with the device for the alignment of substrates, with the following steps, in particular in the following sequence:

i) accommodating of a first substrate on a first substrate holder surface of a first substrate holder,

ii) accommodating of a second substrate on a second substrate holder surface of a second substrate holder, wherein the first substrate holder surface is facing towards the second substrate holder surface,

iii) measurement of first distances between at least three inner distance sensors of the first substrate holder and the first substrate, in particular to a substrate surface of the first substrate,

iv) measurement of second distances between at least three outer distance sensors of the first substrate holder and the second substrate holder surface of the second substrate holder.

In an embodiment of the invention, provision is made such that in each case one of the at least three inner distance sensors and in each case one of the at least three outer distance sensors together form a distance sensor pair, wherein preferably the inner distance sensor and the outer distance