Furthermore, vibrations of the image acquisition elements are to be minimized, so that the need for refocussing is avoided. Generally, vibrations cause parasitic movements, which cause disruptions in a time frame of microseconds to seconds.

Mechanical faults, which have thermomechanical conversion and/or thermal noises and/or thermal expansion as a cause, lead to parasitic movements. The time intervals in which these mechanical faults arise lie in the second to day range. Accordingly, detection and compensation of the mechanical faults caused is complicated.

All of the listed parasitic movements are known to the person skilled in the art in the field of mechanical engineering and mechatronics. In particular, parasitic movements influence alignment success if they constitute a systematic fault for the alignment.

These systemic faults are objectively caused by the alignment device and measuring methods. For devices in the prior art, the guiding and drive systems of the substrates and the image acquisition elements, together with the positioning and drive systems thereof may be sources of faults.

The image acquisition elements of the devices of the prior art, particularly double microscopes, which can capture a focal plane in the opposite direction, may be located at the end of open consoles. Thus, the fastening of image acquisition takes place on machine frames of what is known as an open C design. Open C designs have a stronger inclination to vibrations, which, primarily in the low-frequency range between 0.1 Hz to 1Hz or between 0.1 Hz to 10 Hz, can only be damped with considerable constructive outlay and cannot be eliminated.

Embodiments of the present invention disclose a method and a device, using which the accuracy of the alignment of the substrates with respect to one another can be improved and the speed of the alignment of two substrates can be increased at the same time. As a result, a more accurate and even more efficient alignment and contacting of the substrates is enabled.

All combinations of at least two features specified in the description, the claims and/or the drawings also fall within the scope of the invention. In the case of value ranges, values lying within the limits mentioned should also be disclosed as limit values and be claimable in any desired combination.

According to a first aspect of the invention, there is provided a method for aligning substrates, wherein a detection of alignment marks takes place and the substrates are aligned with respect to one another in dependence on the detection of the alignment marks, wherein at least two alignment marks are arranged flush with a linear movement of the substrates, wherein the alignment takes place along a single alignment axis, wherein the alignment axis runs parallel to the loading and unloading direction of the substrates.

According to a second aspect of the invention, there is provided a device for aligning substrates and for carrying out the above method, wherein a detection of alignment marks can be carried out and the substrates can be aligned with respect to one another in dependence on the detection of the alignment marks, wherein at least two alignment marks are arranged flush with a linear movement of the substrates, wherein the alignment takes place along a single alignment axis, wherein the alignment axis runs parallel to the loading and unloading direction of the substrates.

Preferably, it is provided that at least three alignment marks are arranged flush with the linear movement of the substrates.

Preferably, it is provided that at least one alignment mark is arranged at or on a substrate holder.

Preferably, it is provided that at least two alignment marks are arranged on a substrate and at least one alignment mark is arranged on the substrate holder,