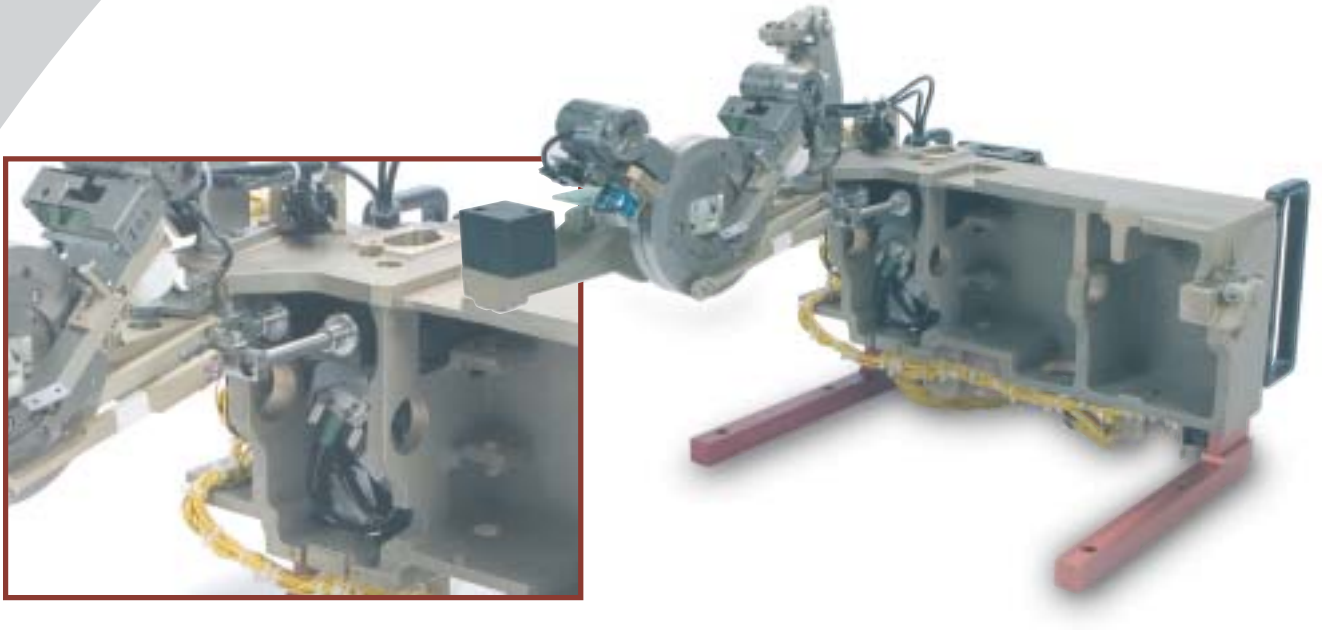
Global Alignment System

Controlled by OS2000



▶ Overview

The new, redesigned Scan Package "Global Alignment System" is automatic calculation and correction of magnification and alignment errors in real-time. Magnification and alignment are measured automatically by gathering data from our 4 point "real-time" measurement system, utilizing sites 1, 5, 6, and 9 on the wafer. Our Global Alignment System is designed to work within our OS2000 Load & Go operating system and is supported as a plug-and-play option.

▶ Features

- No more test wafers
- (4 site real time alignment) in less than a minute; sites 1,5, 6, and 9 are read automatically and corrected in real-time.
- Removes all Magnification and Alignment errors on the first wafer and optionally every wafer thereafter prior to exposure.
- Established processes can increase throughput up to 20 minutes per lot setup since the wafer distortions and alignments are removed automatically during the first wafer setup.
- No more wasted time developing and making corrections 2, 3, or 4 times. Our real-time corrections actually make the changes and verify them by performing a dry run.
- New high-speed encoded actuators smoothly and reliably move scan arms to predetermined locations without damage to the optical alignment.

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▶ Key Benefits

After combining the data and correcting it, the system rechecks it all again in real-time until the desired results are within tolerances. This process eliminates the current need of exposing and waiting for overlay test results by using a send ahead test wafer. In the process of gathering data the carriage test scans and checks for interferences strong enough to shift alignment. The end result is increased wafers out (real time) by eliminating 90% of your current send ahead test wafers.

Our high speed linear actuators quickly and smoothly move the scan arms in and out of place with an accuracy of 6 microns or better, therefore increasing reliability and accuracy of the AFA alignment system. This is a huge benefit that immediately stops damage caused by the banging of the scan arms in and out. The scan arms hold very expensive optical components that are aligned within .2 microns of tolerance. The Do-nothing lens, doublets, fold mirrors, and beam splitters receive continual abuse by being slammed in and out for every wafer exposed. This abuse has a long term negative effect on the system's ability to control overlay and alignment due to misalignment and image degradation.

The old drive train gets completely removed. Since there are many fewer parts in the new scan package, the overall weight is significantly reduced; if you have ever installed one of these you can appreciate the benefit here. The new scan package's only moving parts are the linear actuator and one linkage arm; no other moving parts to fail or cause problems. Drifting targets and a stalled process are a thing of the past.

As a side benefit, removing the abrupt shock waves that the old scan arms send through the projection optics have a positive effect on the systems ability to maintain proper astigmatism longer before a center of curvature correction is necessary.

Beta Squared Lithography specifications subject to change without notification.

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