

Metrology, Testing and Certification

Every stage that is marked with the Aerotech certified symbol is carefully tested in Aerotech's state-of-the-art metrology lab. The positioning stage or system is certified to meet or exceed the specifications outlined in the catalog. Detailed performance characterization plots are supplied with the system. All equipment is set up and tested with the actual controllers and drivers that ship with the system. In the event that only mechanics are purchased, all stages are tested with appropriate controllers and drivers.



The specifications listed in this catalogue and quoted for systems are the actual values derived by testing under working conditions. All non-certified specifications should be considered approximate and represent typical values. Testing is conducted in a vibration-isolated, environmentally controlled lab at 20°C ±1°C. All catalog specifications are generated on a "per axis" basis.

Linear Stages

The standard specifications certified for linear stages are straightness, flatness, accuracy, and bi-directional repeatability. Plots are provided for each axis showing the values of the specifications along the entire travel range of the stage. Linear stages are mounted to a granite base or mounting fixtures that have a ±0.0002 inch flatness geometrical tolerance. Straightness, flatness, accuracy, and repeatability are measured using a laser interferometer and the respective optics and retroreflectors. Unless otherwise noted, testing is performed at a height of 1.75" above the stage under a no-load condition.

HALAR

High accuracy versions of most stages are available and are specified as the HALAR option. HALAR stages are optimized for the highest levels of performance and are then error mapped. For systems provided with Aerotech controllers, the calibration file is preconfigured on the controller. For third-party controllers that have error mapping capability, the calibration file is provided as an ASCII text file.

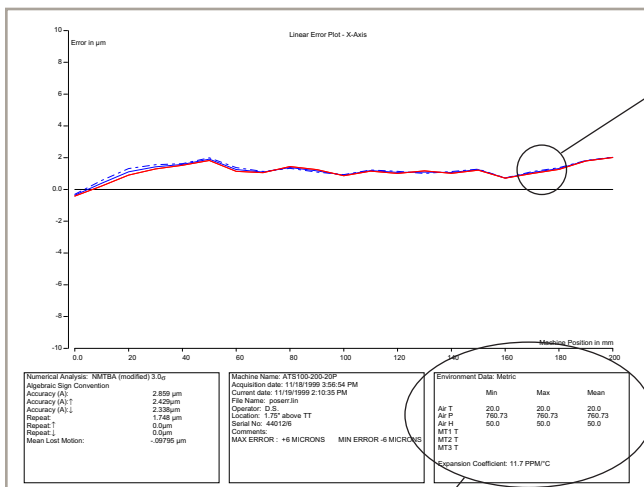
Rotary Stages

The standard specifications certified for rotary stages are accuracy, repeatability, tilt error motion, and orthogonality for two-axis gimbal mounts. All standard testing for rotary stages is performed using an autocollimator. Plots are provided for each axis.

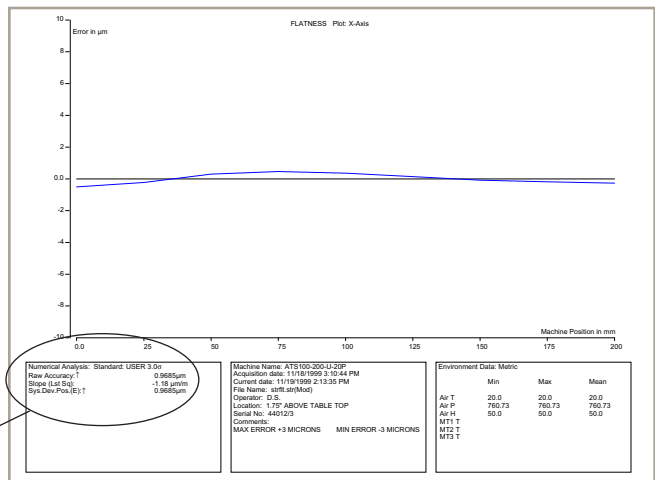
Alternate Testing

Non-standard testing is available and will be quoted per customer requirements. Some examples of non-standard testing are: pitch, yaw, roll, velocity stability, and dynamic straightness. Pitch and yaw testing is done using an autocollimator.

Special testing is available for multi-axis systems to characterize performance in the assembled configuration, at the actual working height with a simulated load. Please consult the factory for more information and pricing.



Accuracy and bidirectional repeatability plotted along the entire travel range providing a detailed characterization of the stage.



Environmental data is sampled and recorded, ensuring accurate data. Numerical analysis provides a summary of stage characteristics.