Linear Motor Stages from Parker: Custom Application Solutions

As OEM's of various industries, including semiconductor, electronics manufacturing, and life science continue to develop new technology and methods of inspection, their application requirements for motion control solutions are more demanding than ever. Parker's dedicated electromechanical business is an industry leader in solving positioning applications including those that require linear motor stages. From initial design concept to production level manufacturing, Parker supports OEM's by providing the right engineered solution and assisting you along the entire way of the project.

Linear motor stage applications require certain types of precision specifications to obtain the desired results. Parker has the ability to provide industry leading specifications required by the customer with its linear motor stage capabilities including:
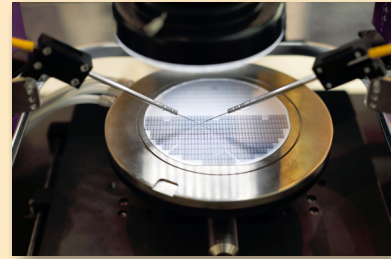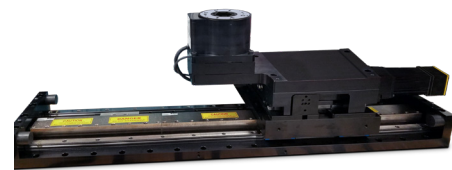
STATIC METROLOGY

Static Metrology is when the sample is not in motion while being measured by the metrology instrument. Key factors for these applications are precise control of settling time and stability. Parker has designed custom linear stages to specifications meeting these requirements including:

- Stability to sub 100nm
- Move and settling times in under 100msec
- Sub-micron repeatability (500nm)

DYNAMIC METROLOGY

Dynamic Metrology is when the sample is in motion while being measured by the metrology instrument. Key factors for these applications are precise control of velocity and the stage's profile (flatness, stiffness, etc). Parker has designed custom linear stages to specifications meeting these requirements including:

- Sub 20 arc-sec Abbe Errors (roll, pitch, yaw)
- Straightness & Flatness (+/- 3 microns)
- Constant Velocity to meet application needs
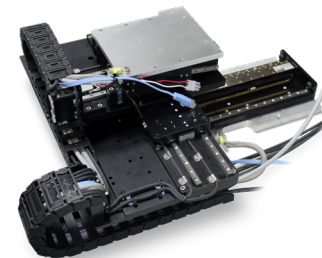
FOCUSING

The final type are applications requiring a motion of axis for focusing on the sample being measured. Usually, this axis has a vertical orientation. Key factors for these applications are having high resolution and stability. Parker has designed custom linear stages to specifications meeting these requirements including:

- Resolution down to 50nm
- Stability to sub 100nm
- Move and settling times in under 100msec
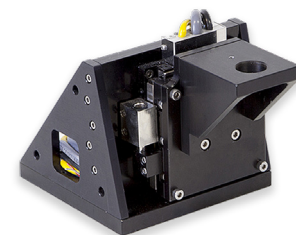
CUSTOM SOLUTIONS

KEY APPLICATIONS

Custom Application Solutions from Parker

Custom Linear Motor Stage Options from Parker

Visit Parker's **linear motor stage microsite** for additional capabilities.

Sample of Custom Stage Solutions
- Single Axis
- XY Stages (including Monolithic and open-framed)
- XYZ Cartesian and Gantries
- Single or Multi-axis with rotation

Sample of Custom Product Design Options
- Custom Carriages – size, multiple on one stage, etc.
- Special coatings (ex. electroless nickel plated or black anodized)
- Special connectors and cable management
- Linear brake (for vertical applications)

Custom Stage Attributes
- High precision, sub-micron positioning (laser interferometer tested)
- High stiffness of system (flatness and straightness)
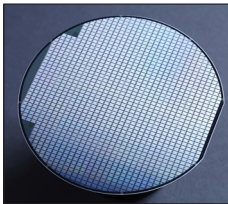- Low velocity ripple
- Low maintenance

Sample of Special Environmental Options
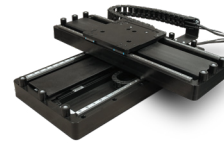- Cleanroom
- Vacuum
- Certain IP Ratings

Design Support from Start to Finish

Parker has the technology and expertise to provide custom solutions specific to each OEM. We synchronize our stage-gate development process with the OEM's own timeline to ensure we meet the technical and timeline requirements. As part of the development process, we also apply our standard Quality Management, Lean Manufacturing, and Supply Chain tools to ensure we meet the customer's reliability, target cost, and production ramp-up requirements. Plus, application and process validation support is available as needed.

SEMICONDUCTOR MARKET APPLICATIONS
- Wafer Inspection System
- Die Pick & Place
- Flat Panel Inspection
- And more

ELECTRONICS MARKET APPLICATIONS
- Electronic device manufacturing
- Laser line scan
- Non-contact inspection
- And more

LIFE SCIENCE MARKET APPLICATIONS
- Microscopy
- Gene/DNA Sequencing
- Laboratory Automation
- Clean Room Assembly