Aerotech has created the most powerful, flexible, and easy-to-use positioning systems in the world and has delivered equipment on all seven continents. As scientists and researchers ourselves, we understand that cutting-edge research demands the best tools available to minimize uncertainty and maximize flexibility. As technology evolves, what was good enough yesterday won't be sufficient tomorrow, and Aerotech has been innovating to stay ahead of the curve for more than 40 years.

The Most Precise Positioning Systems in the World

ANT95-50-L-PLUS
1 nm step plot. Best-in-class resolution and exceptional in-position stability for large travel stages.

Scalable Products and Processes

Aerotech offers a full product line of motion control and positioning equipment with industrial-grade products and large-quantity manufacturing capability, making the commercialization process easier.

Powerful, Flexible, Easy-to-Use Controls

- Plug-and-play controller with StageID to detect what motor is connected and automatically configure itself appropriately
- Interface via LabVIEW®, MATLAB®, C, ASCII, EPICS, TANGO, or the included Windows® GUI
- Straightforward, English-language command syntax
- Full coordinated motion capability
- EasyTune™ sets servo gains with one click

Worldwide Service and Support

Service and support offices are located in North America, Europe, and Asia and offer support in five languages. Wherever you are, Aerotech is there to help.

Fast Delivery

Aerotech stocks common components for quick turnaround in less than two weeks.

Vacuum and Cleanroom Compatible

Almost any product can be specially prepared for 10⁻⁸ Torr vacuum or class 100 cleanroom environments.

Fast Delivery from in-stock items, or fully customized developments to fit your application.
Nanopositioners – Piezo
- Nanometer-level precision
- High-precision, closed-loop operation
- Best-in-class stiffness and linearity

Powerful Controls, Drives, and Software
- Compact, coordinated motion
- Software-based and stand-alone controls for up to 32 axes
- Ethernet or USB communication
- Fast, easy setup and operation
- A complete suite of software tools

Nanopositioners – Direct-Drive
- Nanometer-level precision
- Travel lengths up to 160 mm and 360°
- High-precision servomotors

Micropositioners
- Micron-level precision
- X, Y, Z, and rotary motion in hundreds of possible combinations
- DC brush or stepper motor drives

See examples of custom systems at www.aerotech.com
QNP-L Series Piezo Nanopositioners

QNP-L Series

- High-precision, frictionless flexure guidance system
- Proprietary piezo multi-layer stack actuator
- Closed-loop travel options of 100, 250, and 500 µm
- High-positioning resolution and linearity with direct-metrology capacitive sensor options
- Mounting compatibility with other QNP-series piezo nanopositioners
- Open-loop and vacuum versions

<table>
<thead>
<tr>
<th>Features</th>
<th>QNP-40-100L</th>
<th>QNP-50-250L</th>
<th>QNP-60-500L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closed-Loop Travel</td>
<td>100 µm</td>
<td>250 µm</td>
<td>500 µm</td>
</tr>
<tr>
<td>Open-Loop Travel</td>
<td>120 µm</td>
<td>300 µm</td>
<td>600 µm</td>
</tr>
<tr>
<td>Linearity</td>
<td>0.01%</td>
<td>0.01%</td>
<td>0.007%</td>
</tr>
</tbody>
</table>

QNP-HD Series Piezo Nanopositioners

QNP-HD Series

- Closed-loop travels from 10 µm to 40 µm
- Direct-drive actuation enables fast response times and higher throughput processes
- High-precision, frictionless flexure guidance
- Long device lifetime
- Superior positioning resolution and linearity with direct-metrology capacitive sensor option
- Open-loop and vacuum versions

<table>
<thead>
<tr>
<th>Features</th>
<th>QNP-HD-30-10L</th>
<th>QNP-HD-30-25L</th>
<th>QNP-HD-30-40L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closed-Loop Travel</td>
<td>10 µm</td>
<td>25 µm</td>
<td>40 µm</td>
</tr>
<tr>
<td>Open-Loop Travel</td>
<td>11.5 µm</td>
<td>32 µm</td>
<td>Coming Soon</td>
</tr>
<tr>
<td>Linearity</td>
<td>0.03%</td>
<td>0.02%</td>
<td>Coming Soon</td>
</tr>
</tbody>
</table>
**QNP-XY Series Piezo Nanopositioners**

**QNP-XY Series**
- High-precision, frictionless flexure guidance system
- Proprietary piezo multi-layer stack actuator
- Closed-loop travel options of 100, 250, and 500 µm
- High-positioning resolution and accuracy with direct-metrology capacitive sensor options
- Mounting compatibility with other QNP-series piezo nanopositioners (L and Z)
- Open-loop and vacuum versions

<table>
<thead>
<tr>
<th>Features</th>
<th>QNP-40-100XY</th>
<th>QNP-50-250XY</th>
<th>QNP-60-500XY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closed-Loop Travel</td>
<td>100 µm x 100 µm</td>
<td>250 µm x 250 µm</td>
<td>500 µm x 500 µm</td>
</tr>
<tr>
<td>Open-Loop Travel</td>
<td>120 µm x 120 µm</td>
<td>300 µm x 300 µm</td>
<td>600 µm x 600 µm</td>
</tr>
<tr>
<td>Linearity</td>
<td>0.01%</td>
<td>0.01%</td>
<td>0.007%</td>
</tr>
</tbody>
</table>

**QNP-Z Series Piezo Nanopositioners**

**QNP-Z Series**
- High-precision, frictionless flexure guidance system
- Proprietary piezo multi-layer stack actuator
- Closed-loop travel options of 100, 250, and 500 µm
- High-positioning resolution and accuracy with direct-metrology capacitive sensor options
- Mounting compatibility with other QNP-series piezo nanopositioners (L and XY)
- Open-loop and vacuum versions

<table>
<thead>
<tr>
<th>Features</th>
<th>QNP-40-100Z</th>
<th>QNP-50-250Z</th>
<th>QNP-60-500Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closed- Loop Travel</td>
<td>100 µm</td>
<td>250 µm</td>
<td>500 µm</td>
</tr>
<tr>
<td>Open- Loop Travel</td>
<td>140 µm</td>
<td>300 µm</td>
<td>600 µm</td>
</tr>
<tr>
<td>Linearity</td>
<td>0.01%</td>
<td>0.01%</td>
<td>0.007%</td>
</tr>
</tbody>
</table>
QFOCUS QF1 Microscope-Objective Piezo Nanopositioner

**QFOCUS QF1**

- 100 µm closed-loop and 120 µm open-loop travels (custom travels available)
- High-stiffness and dynamics resulting in outstanding step-and-settle and scanning performance
- High-precision, frictionless flexure guidance
- Long device lifetime
- Superior positioning resolution and linearity with direct-metrology capacitive sensor option
- Variety of threaded adapters for quick and easy attachment to the microscope and objective
- Clear aperture to 29 mm

### QFOCUS QF1 Series

<table>
<thead>
<tr>
<th>Features</th>
<th>QFOCUS QF1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closed-Loop Travel</td>
<td>100 µm</td>
</tr>
<tr>
<td>Open-Loop Travel</td>
<td>120 µm</td>
</tr>
<tr>
<td>Linearity</td>
<td>0.01%</td>
</tr>
</tbody>
</table>

**High-Speed Coordinated Motion for Both Piezos and Servos**

Aerotech’s A3200 distributed motion control platform allows control of up to 32 axes of piezo, servo, or stepper motor stages with no integration headaches, special communication protocols, or custom software. The powerful A3200 control package includes a host of features and diagnostic capabilities like single or multi-axis Position Synchronized Output (PSO) for real-time event triggering, and advanced control features that improve tracking error and overall process throughput. Since piezo stages are treated as just another axis in our control architecture, the end result is simple and less costly integration, higher-throughput systems, and a powerful controller in command of every part of the motion system. The Ensemble QDe, Ensemble QL/QLe, and Ndrive QL/QLe allow you to easily network piezo drives with servo stages AND perform tightly coordinated motion with all of these axes.
The Ensemble QLAB is a high-performance multi-axis nanopositioning piezo stage controller for control of up to four axes of motion. Using the processing power of a dual-core 456 MHz, double precision, floating-point DSP, the QLAB provides exceptional performance for a wide variety of applications. The front panel interface allows an operator to quickly execute simple operations such as jogging and moving to fixed positions. For more complex operations, the Ensemble QLAB has onboard memory for storing programs that can be accessed from the front panel or through remote control.

Stand-Alone, Multi-Axis Piezo Motion Controller

- Control one- to four-axes of piezo nanopositioning stages in open- or closed-loop operation
- High-precision 20-bit sensor resolution for capacitive sensor feedback in closed-loop operation
- Advanced control features such as learning control, harmonic cancellation, and command shaping improve tracking error and overall process throughput
- Configurable, high-resolution analog input for external feedback sensor integration or command generation
- Touch screen with intuitive menu-driven interface for quick and easy access to system functionality
- Ethernet and USB 2.0 communication interfaces
- ASCII-based command protocol for Windows® or Linux remote control
- Advanced Windows®-based remote diagnostics, tuning, and programming interface software
- Program in AeroBasic™ using Aerotech’s IDE or create custom remote interfaces with Microsoft .NET including C#, VB.NET, Managed C++, or LabVIEW®

### Ensemble QLAB Specifications

<table>
<thead>
<tr>
<th>Features</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Axes</td>
<td>1 to 4</td>
</tr>
<tr>
<td>Processor</td>
<td>Dual-core 456 MHz, Double Precision, Floating Point DSP</td>
</tr>
<tr>
<td>Power Supply</td>
<td>100-240 VAC; 50/60 Hz</td>
</tr>
<tr>
<td>Voltage Output</td>
<td>-30 to +150 V</td>
</tr>
<tr>
<td>Sensor Type</td>
<td>Open-Loop or Capacitive Sensor (Closed Loop)</td>
</tr>
<tr>
<td>Sensor Resolution</td>
<td>20 Bit</td>
</tr>
<tr>
<td>Continuous Power Output</td>
<td>20 Watts per Channel; 80 Watts Total</td>
</tr>
<tr>
<td>Peak Current Output</td>
<td>300 mA per Channel</td>
</tr>
</tbody>
</table>
Ensemble QDe Desktop Piezo Drive

**Ensemble QDe**
- Networkable with any Ensemble drive to control up to ten axes of piezo and/or servomotor stages
- Multi-axis Position Synchronized Output (PSO) for real-time triggering of events
- High-precision 20-bit sensor resolution for capacitive sensor feedback
- Thermally-stable feedback circuit design
- Configurable 18-bit analog input for external feedback sensor integration or command generation

Ensemble QL/QLe Panel-Mount Piezo Drive

**Ensemble QL/QLe**
- Networkable with any Ensemble drive to control up to ten axes of piezo and/or servomotor stages
- Single or multi-axis Position Synchronized Output (PSO) for real-time triggering of events
- Available with high-precision (to 20-bit) sensor resolution for capacitive sensor feedback
- Thermally-stable feedback circuit design option
- Configurable analog input (to 18-bit) for external feedback sensor integration or command generation
- Advanced control features such as learning control, harmonic cancellation, and command shaping improve tracking error and overall process throughput
- Ethernet and USB 2.0 communication interfaces

Ndrive QL/QLe Digital Panel-Mount Piezo Drive

**Ndrive QL/QLe Digital Panel-Mount Piezo Drive**
- Designed to be used with the Automation 3200 (A3200) motion controller
- Real-time distributed control architecture allows synchronized motion control on up to 32 axes of piezo and/or servomotor stages
- Deterministic FireWire® high-speed serial communication protocol
- Single- or multi-axis Position Synchronized Output (PSO) for real-time triggering of events
- Available with high-precision (to 20-bit) sensor resolution for capacitive sensor feedback
- Configurable analog input (to 18-bit) for external feedback sensor integration or command generation
Ensemble® LAB Servo/Stepper Controller

Ensemble® LAB is designed for applications where ease of operation is desired without sacrificing overall system capability. The front-panel interface allows an operator to quickly execute simple operations such as jogging, homing, and moving to fixed positions. For more complex operations the Ensemble LAB has onboard memory for storing programs that can be accessed from the front panel or through remote control.

- Up to 4 axes of brush, stepper, or brushless AC motors
- Aerotech’s FlashConfig feature automatically configures axis parameters based on the connected stage type
- Touch screen with intuitive menu-driven interface for quick and easy access to system functionality
- Joystick input for manual control of motor positions
- Ethernet and USB 2.0 communication interfaces
- ASCII-based command protocol for Windows® or Linux remote control
- Advanced Windows®-based remote diagnostics, tuning, and programming interface software
- Program in AeroBasic™ using Aerotech’s IDE or create custom remote interfaces with Microsoft .NET including C#, VB.NET, Managed C++, or LabVIEW®
- Standard quadrature or optional analog sin/cos encoder feedback with up to 65,536X interpolation
- Programmable micro-step resolution of up to 20,000X for smooth low-speed operation
- Linear and arc motion with constant velocity or point-to-point interpolation

Aerotech’s FlashConfig feature allows for true plug-and-play capability by identifying the connected stages and configuring all operational parameters including axis calibration information.

Ensemble LAB is compatible with both EPICS and TANGO for synchrotron and research lab applications.
Aerotech’s ANT95-L series stages are the world’s first nanometer-level positioning systems with greater than 25 mm travel. The ANT95-L and ANT95-L-PLUS crossed-roller stages are the best-in-class in combining speed, accuracy, resolution, repeatability, reliability, and size, and are offered in two accuracy grades. These linear stages exhibit up to 5 g acceleration, 500 mm/s velocity, enhanced load capacity, and are available with standardized, universal base-mounting patterns that allow their use in a wide range of configurations.

**ANT95-L**
- Nanometer-level performance in a large travel format
- High resolution (1 nm), repeatability (±75 nm), and accuracy (±250 nm)
- In-position stability of <1 nm
- Anti-creep crossed-roller bearings
- High dynamic performance

### Mechanical Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>ANT95-25-L-PLUS</th>
<th>ANT95-50-L-PLUS</th>
<th>ANT95-75-L-PLUS</th>
<th>ANT95-100-L-PLUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel</td>
<td>25 mm</td>
<td>50 mm</td>
<td>75 mm</td>
<td>100 mm</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±250 nm</td>
<td>±250 nm</td>
<td>±275 nm</td>
<td>±275 nm</td>
</tr>
</tbody>
</table>

The ANT130-L series stages offer nanometer-level performance in travels up to 160 mm. With its low profile and outstanding performance, the ANT130-L is the ultimate solution for high-accuracy alignment, inspection, positioning, and measurement stations.

**ANT130-L**
- Nanometer-level performance in a large travel format
- High resolution (1 nm), repeatability (±75 nm), and accuracy (±250 nm)
- In-position stability of <1 nm
- Anti-creep crossed-roller bearings
- High dynamic performance
- Large selection – 8 models in travel and accuracy

### Mechanical Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>ANT130-035-L-PLUS</th>
<th>ANT130-060-L-PLUS</th>
<th>ANT130-110-L-PLUS</th>
<th>ANT130-160-L-PLUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel</td>
<td>35 mm</td>
<td>60 mm</td>
<td>110 mm</td>
<td>160 mm</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±250 nm</td>
<td>±250 nm</td>
<td>±300 nm</td>
<td>±300 nm</td>
</tr>
</tbody>
</table>

ANT stages are unmatched in sheer performance. To get the most out of them, use the Dynamic Controls Toolbox and advanced algorithms to optimize motion at the nanometer level.

2-Axis Linear Direct-Drive Nanopositioners

Aerotech’s ANT series stages are the world’s first nanometer-level positioning systems with greater than 25 mm travel. The ANT95-XY crossed-roller-bearing, linear motor, dual-axis stage continues the evolution of the ANT series of stages. The ANT95-XY is a three-piece design that allows travel in two dimensions (X and Y). The sleek design provides an extremely low profile of only 60 mm. The stage comes with proprietary direct-drive motor technology, noncontact linear encoders, limits, integrated cable management system, and three accuracy grades (BASE/PLUS/ULTRA).

**ANT95-XY**
- Integrated, low-profile, XY linear motor stage
- 25 mm x 25 mm or 50 mm x 50 mm travel
- Nanometer-level performance in a large travel format
- High resolution (1 nm), repeatability (±75 nm), and accuracy (±250 nm) per axis
- In-position stability of <1 nm
- Anti-creep crossed-roller bearings
- High dynamic performance

<table>
<thead>
<tr>
<th>Mechanical Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
</tr>
<tr>
<td>Travel</td>
</tr>
<tr>
<td>Accuracy</td>
</tr>
</tbody>
</table>

The ANT130-XY series stages offer nanometer-level performance in travels up to 160 mm. The ANT130-XY is a three-piece design that allows travel in two dimensions (X and Y). The sleek design provides an extremely low profile of only 85 mm. The stage comes with proprietary direct-drive motor technology, noncontact linear encoders, limits, integrated cable management system, and three accuracy grades (BASE/PLUS/ULTRA).

**ANT130-XY**
- Integrated low-profile XY linear motor stage
- Nanometer-level performance in a large travel format
- High resolution (1 nm), repeatability (75 nm), and accuracy (250 nm) per axis
- In-position stability of <1 nm
- Anti-creep crossed-roller bearings
- High dynamic performance

<table>
<thead>
<tr>
<th>Mechanical Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
</tr>
<tr>
<td>Travel</td>
</tr>
<tr>
<td>Accuracy</td>
</tr>
</tbody>
</table>

Large-scale manufacturing and worldwide support. All ANT stages, MPS stages, and control electronics can be produced in large quantities for commercialized, production-level applications. Aerotech also has service locations around the world available to answer questions and perform diagnostics.
Rotary and Goniometric Servo Positioners

The ANT95-R and ANT130-R direct-drive rotary stages are designed as part of Aerotech’s nano Motion Technology product family. Our rotary stages offer unprecedented in-position stability (0.005 arc sec) and sub 0.01 arc-sec incremental motion performance, and are offered in two grades of accuracy.

ANT95-R and ANT130-R

- 0.01 arc sec resolution
- 0.005 arc sec in-position stability
- Outstanding error motion specifications
- Multi-axis configurations
- High dynamic performance
- Both limited and unlimited rotation
- 95 mm and 130 mm diameters

### Mechanical Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>ANT95-360-R</th>
<th>ANT95-360-R-PLUS</th>
<th>ANT130-360-R</th>
<th>ANT130-360-R-PLUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotation Angle</td>
<td>±360° Continuous</td>
<td>±360° Continuous</td>
<td>±360° Continuous</td>
<td>±360° Continuous</td>
</tr>
<tr>
<td>Accuracy</td>
<td>10 arc sec</td>
<td>3 arc sec</td>
<td>10 arc sec</td>
<td>3 arc sec</td>
</tr>
</tbody>
</table>

Aerotech’s ANT-20G goniometers represent a significant breakthrough in the high-accuracy angular alignment of components. This unique design utilizes Aerotech’s best-in-class direct-drive noncontact motor technology. When used with Aerotech’s controllers, the ANT-20G series provides an industry-leading positioning speed of 150 degrees per second.

**ANT-20G**

- Noncontact, non-cogging, frictionless direct-drive for zero backlash or hysteresis
- High speed (150 degrees/s)
- High resolution (0.05 arc sec)
- Excellent in-position stability
- Large 20° rotation angle
- Orthogonal mounting of two cradles provides rotation about the same point
- No maintenance
- Compact design

### Mechanical Specifications

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotation Angle</td>
<td>20°</td>
<td>20°</td>
<td>20°</td>
<td>20°</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±18 arc sec</td>
<td>±10 arc sec</td>
<td>±8 arc sec</td>
<td>±6 arc sec</td>
</tr>
</tbody>
</table>

Aerotech rotary and goniometer stages can be combined with our linear stages to form multi-axis systems. This maximizes flexibility from any given piece of hardware.
Aerotech’s ANT series stages are the world’s first nanometer-level positioning systems with greater than 25 mm travel. The ANT95-L-Z and ANT130-L-Z crossed-roller stages are the best-in-class in combining speed, accuracy, resolution, repeatability, reliability, and size, and are offered in two accuracy grades. Our new ANT130-L-ZS provides even greater travel (up to 160 mm) an a dual-counterbalance, low-profile design.

**ANT95-L-Z, ANT130-L-Z, and ANT130-L-ZS**

- Nanometer performance in a large travel format (25, 35, 50, 60, and 160 mm)
- High resolution (2 nm), repeatability (±75 nm), and accuracy (±275 nm)
- ANT130-L-ZS travels ideal for split-axis applications
- Surface mount available
- In-position stability of <2 nm
- Anti-creep crossed-roller bearings
- High dynamic performance

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel</td>
<td>25 mm</td>
<td>50 mm</td>
<td>35 mm</td>
<td>60 mm</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±300 nm</td>
<td>±300 nm</td>
<td>±300 nm</td>
<td>±300 nm</td>
</tr>
</tbody>
</table>

Aerotech’s ANT series stages are the world’s first nanometer-level positioning systems with multi-millimeter travel. The ANT95-3-V and ANT130-5-V are linear-motor-driven wedge-style vertical lift stages. The stages are designed to be seamlessly integrated with other stages in the ANT family for superior multi-axis performance and are offered in two accuracy grades.

**ANT95-3-V and ANT130-5-V**

- Nanometer performance with 3 or 5 mm vertical travel
- High resolution (1 nm), repeatability (±100 nm), and accuracy (±200 nm)
- In-position stability of <1 nm
- Anti-creep crossed-roller bearings
- High dynamic performance

<table>
<thead>
<tr>
<th>Model</th>
<th>ANT95-3-V</th>
<th>ANT95-3-V-PLUS</th>
<th>ANT130-5-V</th>
<th>ANT130-5-V-PLUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel</td>
<td>3 mm</td>
<td>3 mm</td>
<td>5 mm</td>
<td>5 mm</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±2 µm</td>
<td>±200 nm</td>
<td>±2 µm</td>
<td>±200 nm</td>
</tr>
</tbody>
</table>

**EasyTune™**: one-click servo tuning for fast, easy setup.
Linear Micropositioners

The MPS50SL is a compact, high-performance linear positioning stage that is perfect for the confines of the laboratory while providing the high reliability required in a production environment. It is the ideal choice for measurement, testing, accurate alignment, and component assembly in space-constrained applications.

**MPS50SL**
- Compact 50 mm width with travel to 50 mm
- Precision-ground ball-screw or lead-screw drive
- DC servo or stepper motor
- Crossed-roller bearings
- High resolution (0.1 µm), repeatability (±0.75 µm), and accuracy (±1.5 µm)
- High-vacuum models/versions
- Compact multi-axis configurations

**Mechanical Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>MPS50SL-025</th>
<th>MPS50SL-050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel</td>
<td>25 mm</td>
<td>50 mm</td>
</tr>
<tr>
<td>Accuracy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ball Screw</td>
<td>±3.0 µm</td>
<td>±4.0 µm</td>
</tr>
<tr>
<td>Standard</td>
<td>±1.5 µm</td>
<td>±1.5 µm</td>
</tr>
<tr>
<td>Calibrated</td>
<td>±4.0 µm</td>
<td>±6.0 µm</td>
</tr>
<tr>
<td>±2.0 µm</td>
<td>±2.5 µm</td>
<td></td>
</tr>
<tr>
<td>Lead Screw</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The MPS75SL is a compact, high-performance linear positioning stage that is perfect for the confines of the laboratory while providing the high-reliability required in a production environment. It is the ideal choice for measurement, testing, accurate alignment, and component assembly.

**MPS75SL**
- Compact 75 mm width with travel to 100 mm
- Precision ground ball-screw drive
- DC servo or stepper motor
- Anti-creep crossed-roller bearings
- High resolution (0.1 µm), repeatability (±0.75 µm), and accuracy (±1.0 µm)
- High-vacuum models/versions
- Optional bellows waycovers
- Compact multi-axis configurations

**Mechanical Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>MPS75SL-025</th>
<th>MPS75SL-050</th>
<th>MPS75SL-075</th>
<th>MPS75SL-100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel</td>
<td>25 mm</td>
<td>50 mm</td>
<td>75 mm</td>
<td>100 mm</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±2.5 µm</td>
<td>±3.0 µm</td>
<td>±3.5 µm</td>
<td>±4.0 µm</td>
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<tr>
<td>±1.0 µm</td>
<td>±1.5 µm</td>
<td>±1.5 µm</td>
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</tbody>
</table>

MPS stages are designed to work with the Ensemble LAB controller. Easy setup and operation with powerful, flexible programming and diagnostics capability.
The MPS50GR and MPS75GR rotary stages provide accurate positioning performance in a low-profile and compact footprint. They are perfect for the confines and requirements of the laboratory and are also applicable for use in manufacturing environments. MPS-GR stages are ideal for optics, measurement, alignment, and other demanding applications.

MPS-GR

- Low profile and compact with aperture
- Precision worm-gear drive
- DC servo or stepper motor
- Continuous 360° rotary positioning
- Graduated tabletop

- High-vacuum capable
- Optional lens-mount adapter
- Compact multi-axis configurations with linear and other MPS series stages

**Mechanical Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>MPS50GR</th>
<th>MPS75GR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel</td>
<td>360° Continuous</td>
<td>360° Continuous</td>
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<tr>
<td>Accuracy Standard</td>
<td>250 arc sec</td>
<td>200 arc sec</td>
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<tr>
<td>Calibrated</td>
<td>80 arc sec</td>
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Almost any Aerotech stage can be prepared for use in vacuum levels of $10^{-3}$ Torr, $10^{-6}$ Torr, or $10^{-8}$ Torr.

Aerotech’s MPS-SV series lift stages provide high-performance elevation motion in a compact, cost-effective design. Offered in two sizes (MPS50SV and MPS75SV), these lift stages are perfect for applications ranging from laboratory research to production processes. Multi-axis stage configurations can be assembled easily with other MPS linear and rotary stages using the multitude of adapter brackets and mounting compatibility inherent in the entire MPS stage family.

MPS-SV

- Compact, high-performance elevation stage
- Precision-ground ball screw or lead screw
- DC or stepper motor options

- High-vacuum capable
- Precision crossed-roller bearings
- Multi-axis configurations available with MPS linear and rotary stages

**Mechanical Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>MPS50SV-5</th>
<th>MPS75SV-5</th>
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<tr>
<td>Travel</td>
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<td>Accuracy Ball Screw Standard</td>
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<td>HALAR</td>
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<td>Lead Screw Standard</td>
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<td>HALAR</td>
<td>±1.25 µm</td>
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Applications

Femtosecond Micromachining

Microstructuring with Galvo

Additive Manufacturing

Apparatus for Bose-Einstein Condensation
Application Expertise

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<tr>
<th>Spectroscopy</th>
<th>Micromachining</th>
<th>Tomography</th>
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<tr>
<td>Micromachining</td>
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<td>Flat Panel</td>
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<td>Optics</td>
<td>Bose-Einstein Condensate</td>
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<td>Medical</td>
<td>Laser Processing</td>
<td>Fiber Bragg Grating</td>
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<td>Photovoltaic</td>
<td>Test and Inspection</td>
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<td>Additive Manufacturing</td>
<td>Electronic Manufacturing</td>
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<td>Micro and Nano Processing</td>
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<tr>
<td></td>
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<td>General Lab Applications</td>
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</table>
Capabilities in Other Markets

Electronics Manufacturing and Assembly

Speed, accuracy, and reliability are the key requirements for pick-and-place machines, stencil cutting machines, printed circuit board assembly, and other electronic manufacturing and assembly equipment. Since 1970 Aerotech has exceeded the most stringent criteria used to judge electronic manufacturing and assembly equipment, and we continue to raise the standard with our advanced motion technologies by addressing industry-specific challenges in pick-and-place machines, stencil cutting machines, and printed circuit board assembly systems.

Visit aerotech.com to download a pdf of our brochure Motion and Automation for Test, Measurement and Inspection, or to order a hard copy.

Medical Device Manufacturing and Life Sciences

Aerotech manufactures high-performance motion systems and components for medical and life sciences applications including stent cutting, medical laser welding systems for cardiac pacemakers and catheters, IOL and contact lens manufacturing, DNA sequencing, blood sequencing, haptic mills and drills, x-ray machines, magnetic resonance scanners, and CAT scanners. We can customize a medical laser welding system for any need.

Visit aerotech.com to download a pdf of our brochure Automation Solutions for Medical Device Manufacturing and Life Sciences, or to order a hard copy.

Control Systems

Aerotech motion controllers, motors, and drives are utilized in our own positioning systems and by end users and OEMs worldwide. From our Automation 3200 software-based motion controller that can control up to 32 axes, to the Soloist single-axis servo controller, to the Ensemble multi-axis stand-alone motion controller, we provide a variety of options to suit your application.

Visit aerotech.com to download a pdf of our brochure Integrated Automation Solutions, or to order a hard copy.

Laser Processing

Aerotech has extensive experience in providing motion components and subsystems for laser processes such as cutting, welding, marking, etching, and micromachining. These processes are the key to advancing technology in markets such as photovoltaic manufacturing, aerospace, and medical device manufacturing.

Visit aerotech.com to download a pdf of our brochure Capabilities in Laser Processing and Micromachining, or to order a hard copy.
Defense and Aerospace

Aerotech has manufactured thousands of high-accuracy systems including many for high vacuum ($10^{-6}$ Torr) and cleanroom environments. Our equipment is used for testing electro-optic systems, high-performance laser processing, materials testing and manufacturing, target tracking, satellite sensor calibration and verification, inertial guidance testing, scanning, optical pointing, and repeatability and life-cycle testing for quality control. Custom systems are available with minimal development time.

Visit aerotech.com to download a pdf of our brochure Advanced Motion Systems for Defense, Aerospace, and National Security, or to order a hard copy.

Government and Education Research and Development

The breadth of Aerotech’s product line offers solutions for the wide-ranging requirements of academic and government R&D. Our nanopositioners provide the accuracy required not only for photonics experiments, but also for micro- and nanomachining workstations. Aerotech’s multi-axis rotary positioners and gimbals offer the high precision needed for defense, satellite, and space science research. Unique applications call for unique solutions, and Aerotech can provide custom-engineered systems to meet your needs.

Visit aerotech.com to download a pdf of our brochure nano Motion Technology, or to order a hard copy.

Precision Manufacturing

Aerotech’s industrial manufacturing components and subsystems are used in applications encompassing drilling, EDM, grinding, turning, boring, broaching, gear cutting, tapping/threading, turning centers, lathes, machining centers, and station-type machines. Furthermore, Aerotech products can also accomplish other multidimensional processes such as routing, water-jet cutting, knife cutting, CNC machining, and electrochemical machining.

Visit aerotech.com to download a pdf of our brochure Motion Control for Precision Manufacturing, or to order a hard copy.

General Automation

Aerotech has manufactured top-quality automation products since 1970. The breadth of our product line, including automated nanopositioners, planar air-bearing systems, high-speed gantries, linear and rotary and lift stages, brushless linear and rotary servomotors and drives, single- and multi-axis motion controllers, goniometers, and gimbals/optical mounts, makes Aerotech unique among motion control manufacturers. Aerotech is Dedicated to the Science of Motion.