Cartesian Robots
Maximize your Application’s Throughput

- Minimal Tracking Error
- Flexible Design
- Lowest Cost of Ownership
- Configurable
Aerotech supplies cartesian robots for many of the world’s largest manufacturers. These systems are carefully engineered to provide superior performance in a variety of applications. With our extensive line of products, Aerotech can deliver the ideal gantry customized to meet your unique application requirements.

## Cartesian Robot Comparison Table

<table>
<thead>
<tr>
<th>Product Family</th>
<th>Cartesius-HD</th>
<th>Cartesius-LM</th>
<th>AGS1000</th>
<th>AGS10000</th>
<th>ASGS15000</th>
<th>AGS15000</th>
<th>ABG10000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relative Performance</strong></td>
<td>Good</td>
<td>Good</td>
<td>Better</td>
<td>Better</td>
<td>Better</td>
<td>Best</td>
<td>Best</td>
</tr>
<tr>
<td><strong>Maximum Travel</strong></td>
<td>1500 mm x 600 mm</td>
<td>1500 mm x 500 mm</td>
<td>500 mm x 500 mm</td>
<td>1500 mm x 1500 mm</td>
<td>800 mm x 800 mm</td>
<td>1500 mm x 1300 mm</td>
<td>1000 mm x 1000 mm</td>
</tr>
<tr>
<td><strong>Drive System</strong></td>
<td>Ball Screw with Brushless Rotary Servomotor</td>
<td>Noncontact Linear Motor</td>
<td>Noncontact Linear Motor; Dual-Driven Lower Axis</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Maximum Resolution</strong></td>
<td>To 0.1 μm</td>
<td>To 0.01 μm</td>
<td>To 1 nm</td>
<td>To 0.25 nm</td>
<td></td>
<td></td>
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<tr>
<td><strong>Maximum Travel Speed</strong></td>
<td>1.4 m/s</td>
<td>2 m/s</td>
<td>2 m/s</td>
<td>3 m/s</td>
<td>2 m/s</td>
<td>3 m/s</td>
<td>1 m/s</td>
</tr>
<tr>
<td><strong>Maximum Acceleration</strong></td>
<td>1 g (10 m/s²)</td>
<td>3 g (30 m/s²)</td>
<td>2 g (20 m/s²)</td>
<td>3 g (30 m/s²)</td>
<td>2 g (20 m/s²)</td>
<td>5 g (50 m/s²)</td>
<td>0.5 g (5 m/s²)</td>
</tr>
<tr>
<td><strong>Finish</strong></td>
<td>Black Anodized/Hard Coat Surfaces; ESD Optional</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Recommended Controller</strong></td>
<td>Ensemble/Soloist</td>
<td>A3200/Ensemble</td>
<td>A3200</td>
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</tr>
</tbody>
</table>
Configurable Options
Maximize Flexibility

Travel Length
Fully configurable and custom travel lengths up to 2000 mm x 1750 mm ensure each gantry is right-sized for its application, from compact to extended travel.

Z Axis
Linear motor or ball-screw vertical axis allows for component pick and place, tool height adjustment, and laser focus adjustment.

Riser Height
Configurable riser height permits seamless integration of conveyor systems, process equipment, or automated part handling equipment.

Cable Management Systems
Integration of customer cables, including signals for sensors, vision, autofocus height sensors, or fiber laser beam delivery simplify final assembly.
“T” Style Cartesian Robots

Cartesius-HD and Cartesius-LM Series

Component Inspection

Component Assembly

PCB Marking

- High speed (up to 1.4 m/s with ball screw and 2 m/s with linear motor) ensures high-throughput
- Multiple configurations maximize application flexibility (XY, XYZ, XYZθ)
- Economical T-style robot for most cost-effective performance
Compact Gantry Series
AGS1000 Series

- Compact design offers superior performance, minimizing machine footprint
- Powerful linear motors enable high accelerations and micron-level dynamic tolerances
- Custom finishes minimize static charge buildup for ESD-sensitive applications

Fuel-Cell Manufacturing
Device Assembly
Dispensing
Printed Electronics
Component Inspection
High Performance Gantries
AGS10000 Series

Printed Electronics
High-Speed Component Pick and Place
Component Inspection
Photovoltaic Manufacturing

- Linear motors allow up to 3 g acceleration and 3 m/s velocity, minimizing process time
- Components designed for minimal maintenance ensuring reliable operation in 24/7 environments
- Cable management terminations provided at the workpiece simplify integration
High Performance Gantries
AGS15000 Series

- Optimized design improves geometric tolerances at high speeds
- Up to 5 g acceleration maximizes throughput
- Advanced thermal design ensures consistent accuracy and performance over time
- Pneumatic counter-balanced linear motor vertical axis for precise, high-bandwidth focusing of processing head
- Mounting surfaces on bridge structure enable attachment of optics for free-space laser delivery systems or galvo scanners

Stencil Cutting
Flat-Panel Processing
Laser Cutting
Laser Welding
Laser Micromachining
Sealed Gantries
ASGS15000 Series

Laser Cutting

Laser Micromachining

• Sealed design protects internal components for use in harsh environments
• Optimized design and stiff mounting surfaces permit micron-level dynamic accuracies at high speeds
• Aerotech's Position Synchronized Output (PSO) fires a configurable event trigger in real-time directly from the encoder position, maximizing process speed
Ultimate Performance
Gantries
ABG10000 Series

- Air-bearing linear axes provide exceptional velocity stability
- All axes are fully preloaded to maximize mechanical stiffness
- Superior pitch, roll, yaw, straightness, and flatness characteristics for ultimate performance

Robocasting
Profiling
Flat-Panel Inspection
Value-Added Options

Available on all Cartesian Robots:

- Weldment with Optional Skins or Doors
- Isolation Systems
- Integrated Electronics
- IO
- ESTOP
- Integrated Pneumatics
- Support Arm with Monitor, Keyboard, and Mouse
- Enclosures
- Aerotech’s Enhanced Throughput Module (ETM)
Software

Use preconfigured Aerotech user interface modules or develop your own front-end and applications with .NET, C#, C++, and LabVIEW®.

Award-Winning Controllers

**Automation 3200**
- Up to 32 tasks
- PC-based
- RS-274 G-code
- Advanced features for demanding applications
- 1 to 32 axes of coordinated motion
- Scanner control for marking
- Tightly integrated laser functionality
- Retrofit package

**Ensemble**
- Up to 4 tasks
- Stand-alone 1- to 10-axis controller
- Versatile, cost-effective, coordinated motion
- PWM or linear drives (10-150 A peak)
- Brushless, brush, or stepper motors
- Desktop or panel mount
- .NET, C++, or LabVIEW®

**Soloist**
- Elegant, economical, single-axis controller
- Stand-alone
- PWM or linear drives (10-150 A peak)
- .NET, C#, VB.NET®, LabVIEW®
- Ethernet, USB