

AGS1500 Series

Linear Motor Gantries

Optimized design for precise contouring in a compact footprint

Velocity to 3 m/s and acceleration to 5 g

High power brushless linear servomotors for smooth motion

Travels up to 500 mm X 500 mm available

Optional electroless nickel for ESD protection

Customizable Z and θ axes for flexible configurations

Noncontact linear encoders

Configurable cable management system allows for integration of fiber lasers, cameras, air lines, etc. for multiple applications

24/7 Operation Around the World

The AGS1500 series of Cartesian gantry systems is designed for ultra-precision, high-dynamic contouring, providing outstanding performance and versatility in a wide range of automation platforms. The planar design minimizes dynamic pitch errors at the workpoint.

AGS1500 systems can be found in production plants around the world, in applications including precision micromachining, stencil cutting, fuel cell manufacturing, solder-ball placement, printed electronics, high-speed pick-and-place, automated assembly, vision inspection, dispensing stations, and high-accuracy inspection. The AGS1500 is based on the industry-leading AGS15000 gantry, and maintains many of the same leading-edge characteristics.

High Speed/High Acceleration

Aerotech's high-performance BLMC and BLM series brushless linear servomotors drive the AGS1500 to speeds of 3 m/s and accelerations of 5 g. Dual linear motors and encoders are included on the lower axis for the highest level of performance and precision. The rugged noncontact



optical linear encoders offer resolutions to 1 nm when coupled with Aerotech's controllers.

Rugged Design

The linear motor is a noncontact device, resulting in no backlash, wear, or maintenance. The bearings are preloaded linear motion guides with wiper seals and grease fittings, and are mounted to provide optimized dynamic stiffness and load distribution.

The AGS1500 design keeps the linear motors and linear encoders to the outside of the work area. This design makes the gantry less susceptible to debris-induced damage.

Long-Lasting Cable Management System

The cable management system (CMS) is optimized and field-proven as the industry's most reliable design. Large bend radii and high-flex cables ensure that the AGS1500 provides millions of cycles of maintenance-free operation. In the unlikely event of a component failure, a modular design ensures that part replacement is fast and easy.

All customer cabling and pneumatics can be routed through the system e-chain. Connectors are provided at the workpiece and at the opposite end of the e-chain, greatly simplifying final machine integration.

Turnkey Operation

Aerotech's years of experience manufacturing precision positioning and control systems can be leveraged by acquiring a turnkey system. Typical options include Z-theta mechanisms, risers to accommodate automated parts handling equipment, brackets for flying optics components, isolation systems, and machine bases that are designed to accommodate the entire controls and electronics subsystems.

System Controllers

Aerotech manufactures a wide range of amplifiers and advanced motion controllers that are optimized for high-performance automation applications.

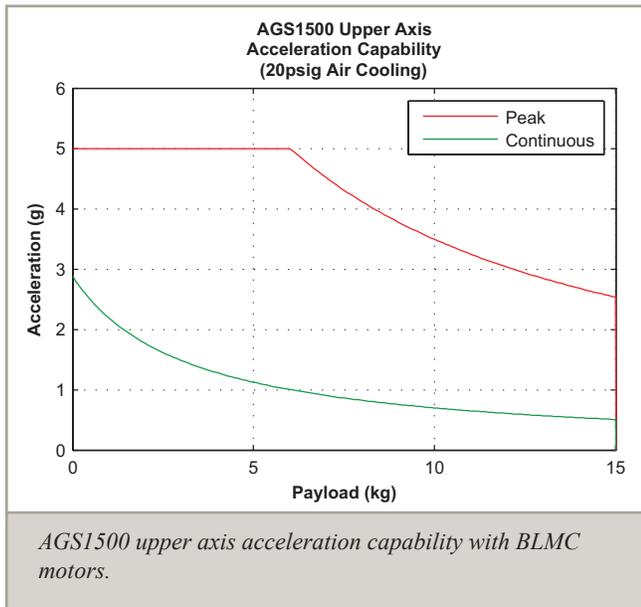
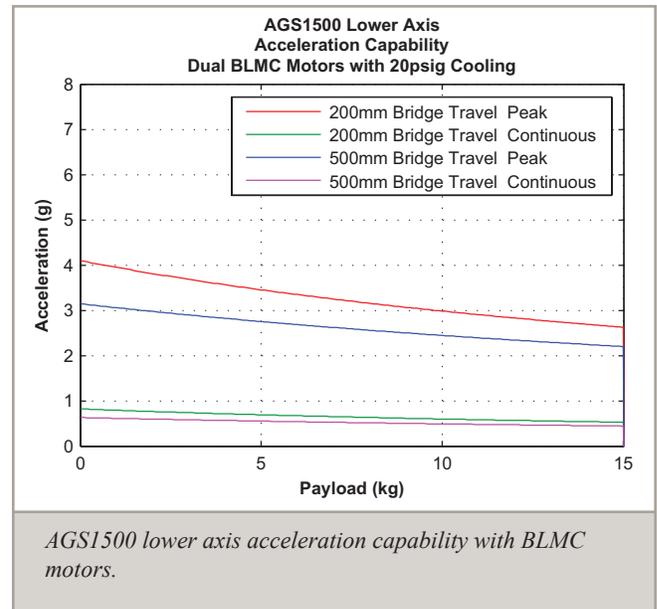
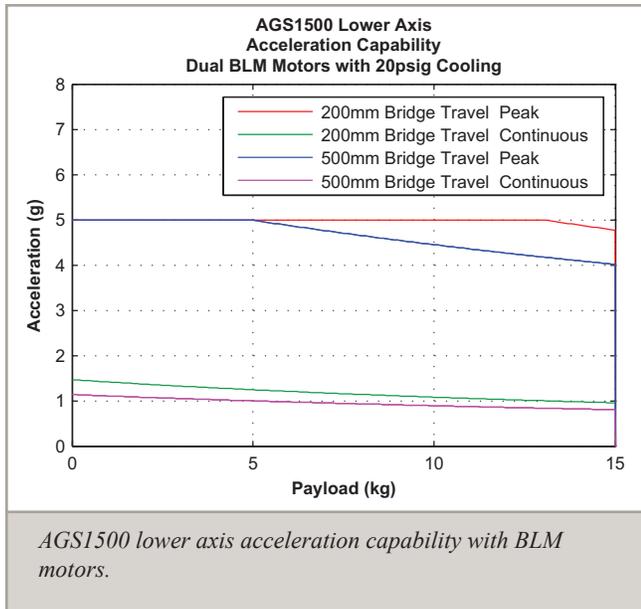
AGS1500 Series SPECIFICATIONS

Basic Model	AGS1500-200-200	AGS1500-300-300	AGS1500-400-400	AGS1500-500-500
Total Travel	200 mm x 200 mm	300 mm x 300 mm	400 mm x 400 mm	500 mm x 500 mm
Bus Voltage	Up to 340 VDC			
Maximum Travel Speed ⁽²⁾	3 m/s			
Maximum Linear Acceleration	5 g (no load)			
Maximum Load ⁽³⁾	15.0 kg			
Accuracy ⁽⁴⁾	±1.0 µm	±1.25 µm	±1.25 µm	±1.5 µm
Repeatability	±0.3 µm	±0.4 µm	±0.4 µm	±0.5 µm
Orthogonality	5 arc sec			
Nominal System Weight (Gantry Only) ⁽⁵⁾	50 kg	65 kg	80 kg	95 kg
Moving Mass ⁽⁵⁾	Lower Axis	29.0 kg	31.0 kg	34.0 kg
	Upper Axis	3.2 kg		
Material	Aluminum			
Finish	Stage	Black Anodize, ESD Optional		
	Carriage	Black Hard Coat, ESD Optional		

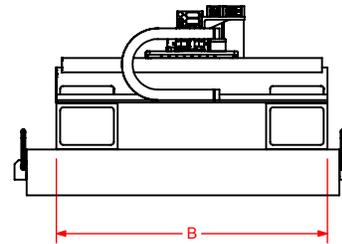
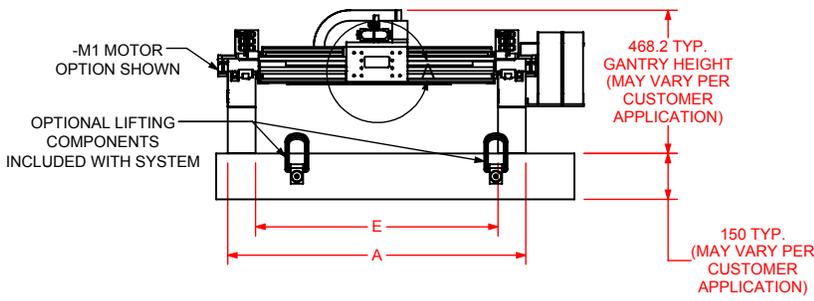
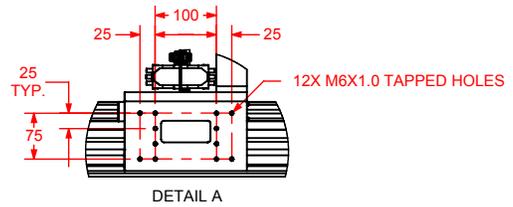
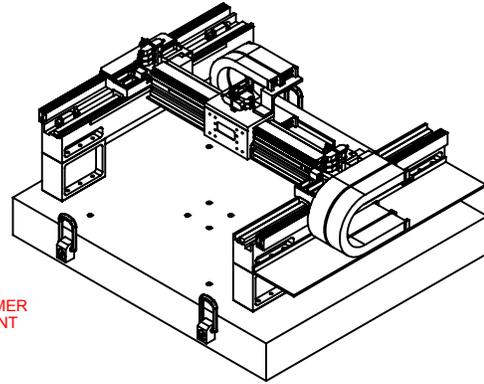
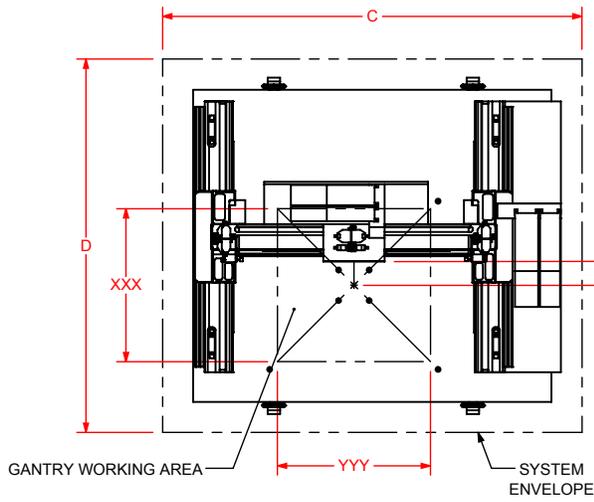
Notes:

1. Air cooling options available.
2. Maximum speed based on stage capability; maximum application velocity may be limited by system data rate and system resolution.
3. Maximum load based on bearing capability; maximum application load may be limited by acceleration and dynamic requirements.
4. Measured at center of travel, single axis under static conditions.
5. Values shown are approximations only and will vary based on customer requirements including, but not limited to, nominal gantry travel, maximum system velocity, quantity and size of customer cables and hoses, and customer payload mass and size.

AGS1500 Series SPECIFICATIONS



AGS1500 DIMENSIONS

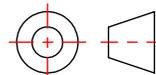


"XXX" LOWER-AXIS NOMINAL TRAVEL	"YYY" UPPER-AXIS NOMINAL TRAVEL	"A" GANTRY WIDTH	"B" GANTRY DEPTH	"C" SYSTEM WIDTH	"D" SYSTEM DEPTH	"E" GANTRY SPAR SPACING
250	250	686.5 - 761.5	598 - 673	1082.5 - 1157.5	933.5 - 1008.5	504.5 - 579.5
500	500	936.5 - 1011.5	848 - 923	1332.5 - 1407.5	1183.5 - 1258.5	754.5 - 829.5

NOTES:

1. IN THE TABLE ABOVE, COMMON NOMINAL TRAVEL LENGTHS ARE SHOWN FOR REFERENCE. OTHER NOMINAL TRAVEL LENGTHS AND NOMINAL TRAVEL COMBINATIONS ARE AVAILABLE.
2. "A", "B", "C", AND "D" DIMENSIONAL RANGES ARE SHOWN FOR REFERENCE ONLY AND MAY VARY BASED ON THE CUSTOMER'S APPLICATION.
3. SYSTEM DIMENSIONS WILL VARY BASED ON CUSTOMER REQUIREMENTS INCLUDING, BUT NOT LIMITED TO:
 - NOMINAL GANTRY TRAVEL
 - MAXIMUM SYSTEM VELOCITY
 - REQUIRED CLEARANCE FROM WORK SURFACE
 - QUANTITY AND SIZE OF CUSTOMER CABLES AND HOSES
 - CUSTOMER PAYLOAD MASS AND SIZE
4. GANTRY SYSTEM IS EQUIPPED WITH ELECTRICAL AND MECHANICAL TRAVEL LIMITS BEYOND NOMINAL TRAVEL DISTANCE.
5. CONTACT AEROTECH FOR APPLICATION SPECIFIC DIMENSIONS.

DIMENSIONS: MILLIMETERS



AGS1500 Series ORDERING INFORMATION

AGS1500 Direct-Drive Cartesian Gantry System

AGS1500-XXX-YYY AGS1500 linear motor gantry system, XXX mm lower-axis travel, YYY mm upper-axis travel

Motor (Required)

-M1	Lower axis: dual BLMC-267-A brushless linear motor Upper axis: single BLMC-192-A brushless linear motor
-M2	Lower axis: dual BLM-264-A brushless linear motor Upper axis: single BLMC-192-A brushless linear motor

Feedback (Required)

-E1	Lower axis: dual incremental linear encoder, 1 Vpp Upper axis: single incremental linear encoder, 1 Vpp
-E2	Lower axis: dual incremental linear encoder, 0.1 μ m digital TTL Upper axis: single incremental linear encoder, 0.1 μ m digital TTL

Lifting (Optional)

-LF	Lifting hardware provided with system assembly
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Performance Grade (Required)

-PL6	Standard performance - plots for accuracy-only included
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Integration (Required)

Aerotech offers both standard and custom integration services to help you get your system fully operational as quickly as possible. The following standard integration options are available for this system. Please consult Aerotech if you are unsure what level of integration is required, or if you desire custom integration support with your system.

-TAS	Integration - Test as system Testing, integration, and documentation of a group of components as a complete system that will be used together (ex: drive, controller, and stage). This includes parameter file generation, system tuning, and documentation of the system configuration.
-TAC	Integration - Test as components Testing and integration of individual items as discrete components that ship together. This is typically used for spare parts, replacement parts, or items that will not be used together. These components may or may not be part of a larger system.