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

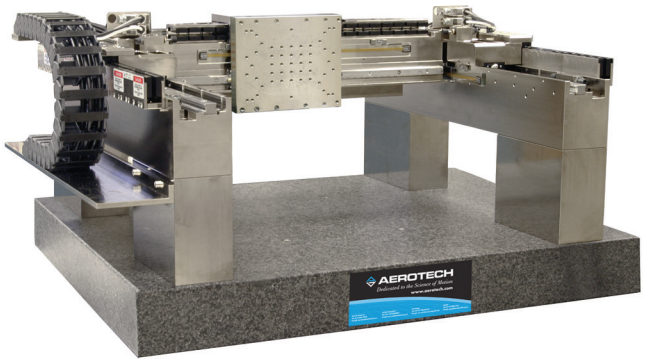
24/7 Operation Around the World

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

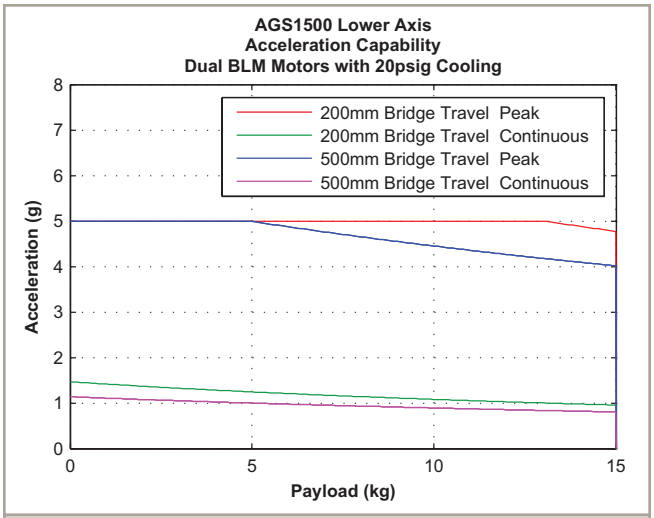
Aerotech manufactures a wide range of amplifiers and advanced motion controllers that are optimized for high-performance automation applications.

AGS1500 Series SPECIFICATIONS

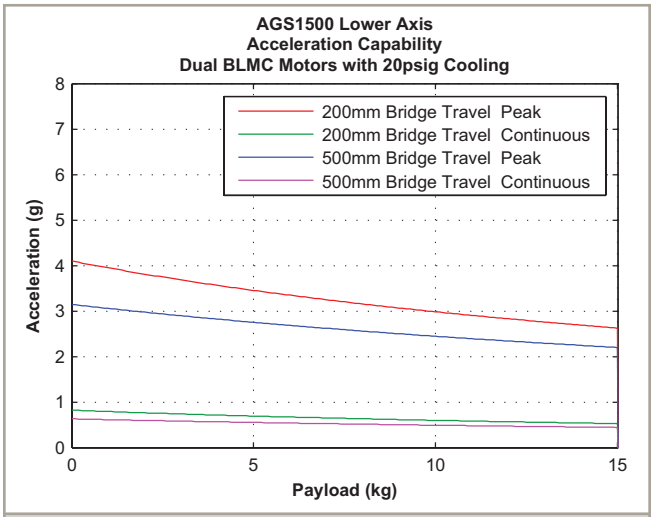
Basic Model		AGS1500-200-200	AGS1500-300-300	AGS1500-400-400	AGS1500-500-500
Total Travel		200 mm x 200 mm	300 mm x 300 mm	400 mm x 400 mm	500 mm x 500 mm
Bus Voltage		Up to 340 VDC			
Maximum Travel Speed[2]		3 m/s			
Maximum Linear Acceleration		5 g (no load)			
Maximum Load[3]		15.0 kg			
Accuracy[4]		±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			
Moving Mass	**Lower Axis**	29.0 kg	31.0 kg	34.0 kg	37.0 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.

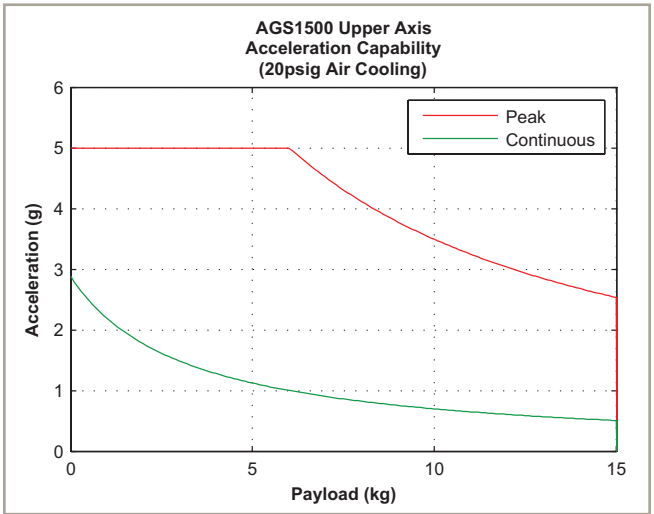
AGS1500 Series SPECIFICATIONS



AGS1500 lower axis acceleration capability with BLM motors.

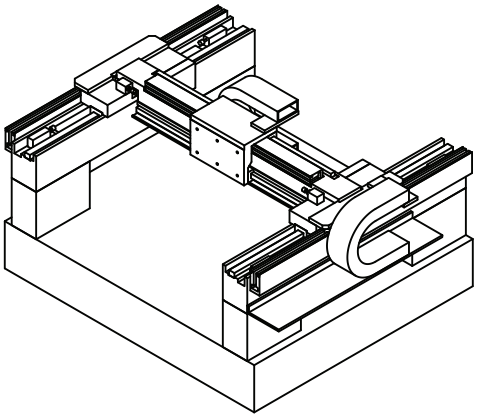


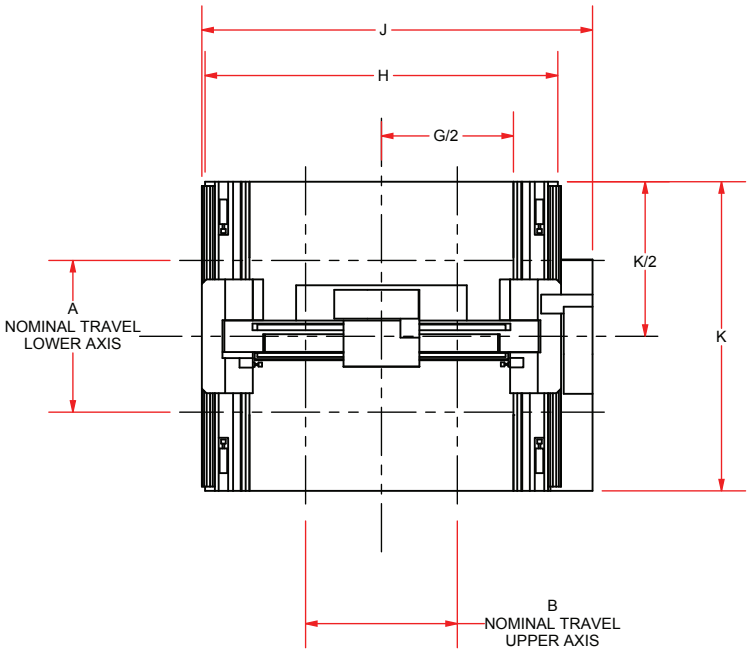
AGS1500 lower axis acceleration capability with BLMC motors.

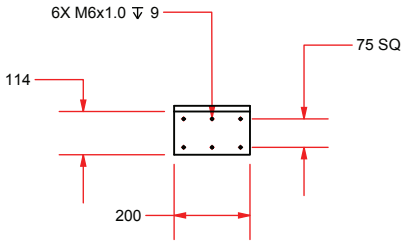


AGS1500 upper axis acceleration capability with BLMC motors.

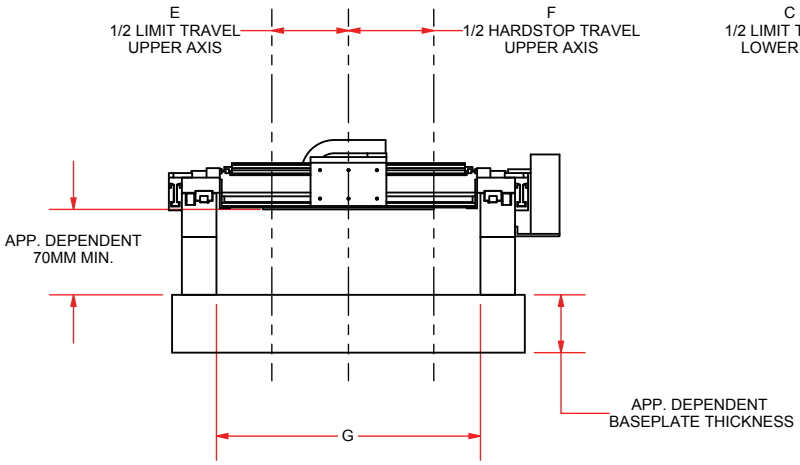
AGS1500 DIMENSIONS

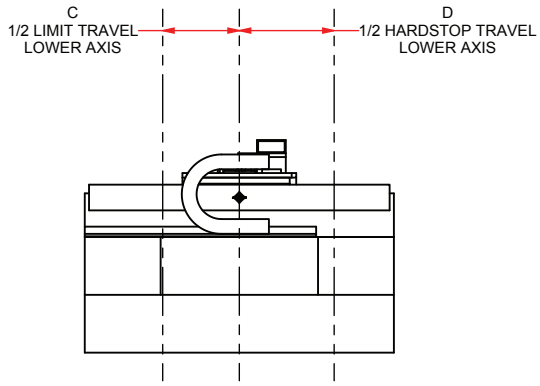






UPPER AXIS CARRIAGE
CUSTOMER MOUNTING INTERGFACE





	DIMENSIONS (MM)										
BASIC MODEL	A	B	C	D	E	F	G	H	J		K
AGS1500-200-200	200	200	102	150	102	125	496	730	825	830*	615
AGS1500-300-300	300	300	152	200	152	175	596	830	925	930*	715
AGS1500-400-400	400	400	202	250	202	225	696	930	1025	1030*	815
AGS1500-500-500	500	500	252	300	252	275	796	1030	1125	1130*	915

NOTE: ALL DIMENSIONS ARE FOR TYPICAL MODELS. DIMENSIONS MAY VARY BASED ON CUSTOMER REQUIREMENTS INCLUDING BUT NOT LIMITED TO: MAX PROCESS SPEED, REQUIRED CLEARANCE FROM WORK SURFACE, NUMBER OF CUSTOMER CABLES, AND PAYLOAD. CONTACT AEROTECH FOR APPLICATION SPECIFIC DIMENSIONS.

NOTE: MODEL SHOWN WITH BLMC MOTORS.
DIMENSIONS FOLLOWED WITH " * " INDICATE DIMENSIONS FOR MODEL WITH BLM MOTORS

AGS1500 Series ORDERING INFORMATION

AGS1500 Series Linear Motor Gantry

AGS1500-200-200	200 mm x 200 mm (8 in x 8 in) cartesian gantry with linear motor, linear encoder, and limits
AGS1500-300-300	300 mm x 300 mm (12 in x 12 in) cartesian gantry with linear motor, linear encoder, and limits
AGS1500-400-400	400 mm x 400 mm (16 in x 16 in) cartesian gantry with linear motor, linear encoder, and limits
AGS1500-500-500	500 mm x 500 mm (20 in x 20 in) cartesian gantry with linear motor, linear encoder, and limits
AGSxxxx-yyyy	Other travels available; please consult factory

Motor

-10X2	Dual brushless linear motor – dual BLMC-267-A (lower X-axis only)
-10HX2	Dual brushless linear motor – dual BLM-264-A (lower X-axis only)
-10	Brushless linear motor — BLMC-192-A (upper Y-axis only)

Standard Linear Encoders

-LT20AS	Dual linear encoder for lower axis; linear encoder for upper axis; amplified sine output; for AGS1500-200-200
-LT20X50	Dual linear encoder for lower axis; linear encoder for upper axis; 0.1 micron line driver output; for AGS1500-200-200
-LT30AS	Dual linear encoder for lower axis; linear encoder for upper axis; amplified sine output; for AGS1500-300-300
-LT30X50	Dual linear encoder for lower axis; linear encoder for upper axis; 0.1 micron line driver output; for AGS1500-300-300
-LT40AS	Dual linear encoder for lower axis; linear encoder for upper axis; amplified sine output; for AGS1500-400-400
-LT40X50	Dual linear encoder for lower axis; linear encoder for upper axis; 0.1 micron line driver output; for AGS1500-400-400
-LT50AS	Dual linear encoder for lower axis; linear encoder for upper axis; amplified sine output; for AGS1500-500-500
-LT50X50	Dual linear encoder for lower axis; linear encoder for upper axis; 0.1 micron line driver output; for AGS1500-500-500

Base Plate

-GB200-200	Granite baseplate for AGS1500-200-200
-GB300-300	Granite baseplate for AGS1500-300-300
-GB400-400	Granite baseplate for AGS1500-400-400
-GB500-500	Granite baseplate for AGS1500-500-500
-GR200-200	Granite baseplate for AGS1500-200-200 with 150 mm (6 in) risers
-GR300-300	Granite baseplate for AGS1500-300-300 with 150 mm (6 in) risers
-GR400-400	Granite baseplate for AGS1500-400-400 with 150 mm (6 in) risers
-GR500-500	Granite baseplate for AGS1500-500-500 with 150 mm (6 in) risers

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.

AGS1500 Series ORDERING INFORMATION

Accessories (to be ordered as separate line item)

Z100	100 mm (4 in) travel z-stage
Z100LM	Pneumatic-counterbalanced 100 mm (4 in) travel linear motor z-stage
Z150	150 mm (6 in) travel z-stage
Z150LM	Pneumatic-counterbalanced 150 mm (6 in) travel linear motor z-stage
THETA	360° travel theta axis
MB200-200	Steel weldment machine base for AGS1500-200-200
MB300-300	***Steel weldment machine base for AGS1500-300-300***
MB400-400	***Steel weldment machine base for AGS1500-400-400***
MB500-500	***Steel weldment machine base for AGS1500-500-500***