

# AGS10000 Series

## Linear Motor Gantries

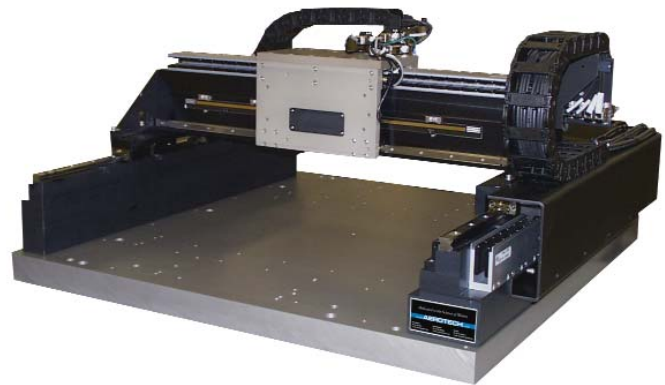
High velocity to 3 m/s and high acceleration to 3 g

High-power linear brushless servomotors

Customizable Z- and theta-axes

Noncontact linear encoders

Optional machine base and risers



The AGS10000 series of Cartesian gantry systems puts Aerotech's core technologies and extensive manufacturing capability to work for you, providing outstanding performance and versatility in a wide range of automation platforms.

AGS10000 systems can be found in production plants around the world, in applications including high-speed pick-and-place, automated assembly, vision inspection, dispensing stations, and high-accuracy inspection.

### Linear Motor/Linear Encoder

Aerotech's high-performance BLM series brushless linear servomotors drive the AGS10000 to speeds of 3 m/s and accelerations of 3 g. Both single and dual forcer designs are available. Feedback is from a rugged noncontact optical linear encoder. Resolution options range from 5 nm to 1.0  $\mu\text{m}$ . Optimized to account for thermal expansion, the design ensures high accuracy under all operating conditions.

### Rugged Design

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

### Cable Management System

Extensive R&D has resulted in an optimized cable management system (CMS) that has been field proven to be the industry's most reliable design. Large bend radii and high-flex cables ensure that the AGS10000 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, and machine bases that are designed to accommodate the entire electronics subsystem.

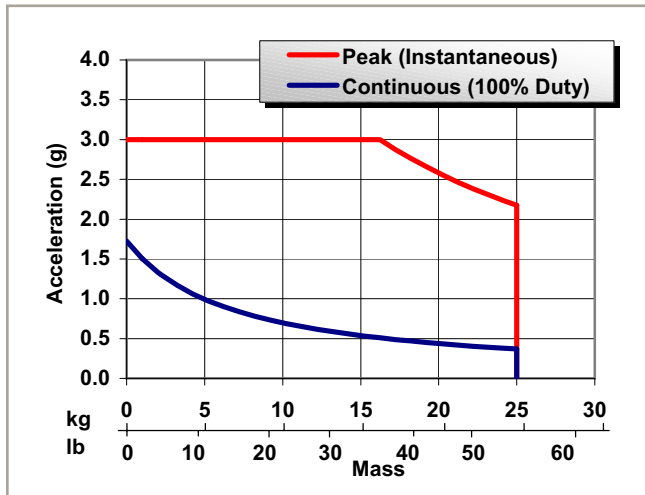
Aerotech manufactures a wide range of high-performance amplifiers and advanced motion controllers that are optimized for high-performance automation applications.

# AGS10000 Series SPECIFICATIONS

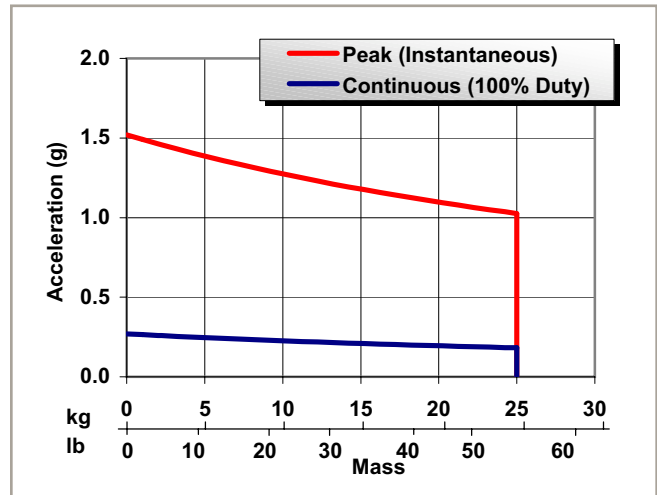
Basic Model		AGS10500-500	AGS10750-750	AGS11000-1000
Total Travel		500 mm x 500 mm (20 in x 20 in)	750 mm x 750 mm (30 in x 30 in)	1000 mm x 1000 mm (40 in x 40 in)
Drive System		Linear Brushless Servomotor — BLM-325-A (lower axis); BLM-264-A (upper axis)		
Feedback		Noncontact Linear Encoder		
Resolution <sup>(1)</sup>		0.005 µm - 1.0 µm (0.2 µin - 40 µin)		
Maximum Travel Speed <sup>(2)</sup>		3 m/s (120 in/s)		
Maximum Linear Acceleration		3 g (30 m/s <sup>2</sup> ) (1152 in/s <sup>2</sup> ) (no-load)		
Maximum Load <sup>(3)</sup>		25.0 kg (55.1lb)		
Continuous Force <sup>(4,5)</sup>	Lower Axis	Air Cooling (20 psi)	316 N (70.9 lb)	
		No Air	246 N (55.3 lb)	
	Upper Axis	Air Cooling (20 psi)	276 N (62.0 lb)	
		No Air	207 N (46.4 lb)	
Peak Force <sup>(5)</sup>	Lower Axis	1264 N (284 lb)		
	Upper Axis	1106 N (248 lb)		
Accuracy <sup>(6,7)</sup>		±5.0 µm (±200 µin)		
Repeatability		±2.0 µm (±80 µin)		
Orthogonality		5 arc sec		
Nominal System Weight (Gantry only)		131.0 kg (288.8 lb)	179.0 kg (394.6 lb)	227.0 kg (500.4 lb)
Material		Aluminum		
Finish	Stage	Black Anodize		
	Table	Hard Coating (62 Rockwell hardness); ESD optional		

Notes:

1. With encoder multiplier.
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 requirements.
4. Thermal limitations of positioning stage with respect to performance may limit continuous force output.
5. Force may be limited by amplifier output.
6. Measured at center of travel.
7. Available with Aerotech controllers.



Acceleration vs. Mass  
(AGS10000 Upper Axis with BLM-264-A motor)

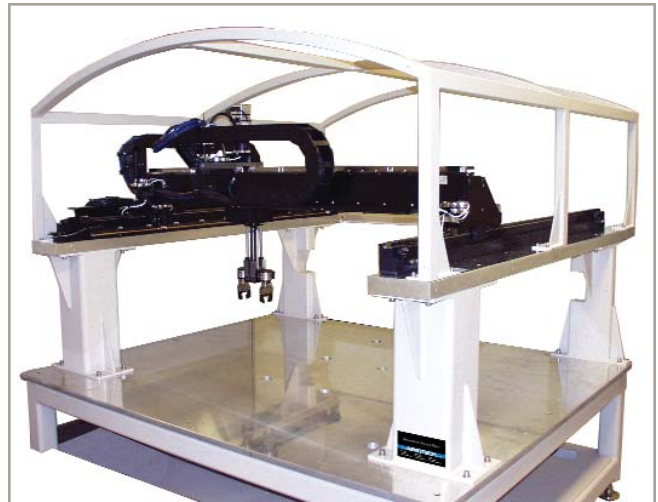


Acceleration vs. Mass  
(AGS10000 Lower Axis with BLM-325-A motor)

## AGS10000 Series



*AGS10000 shown on optional machine base with integral controller and drive chassis.*

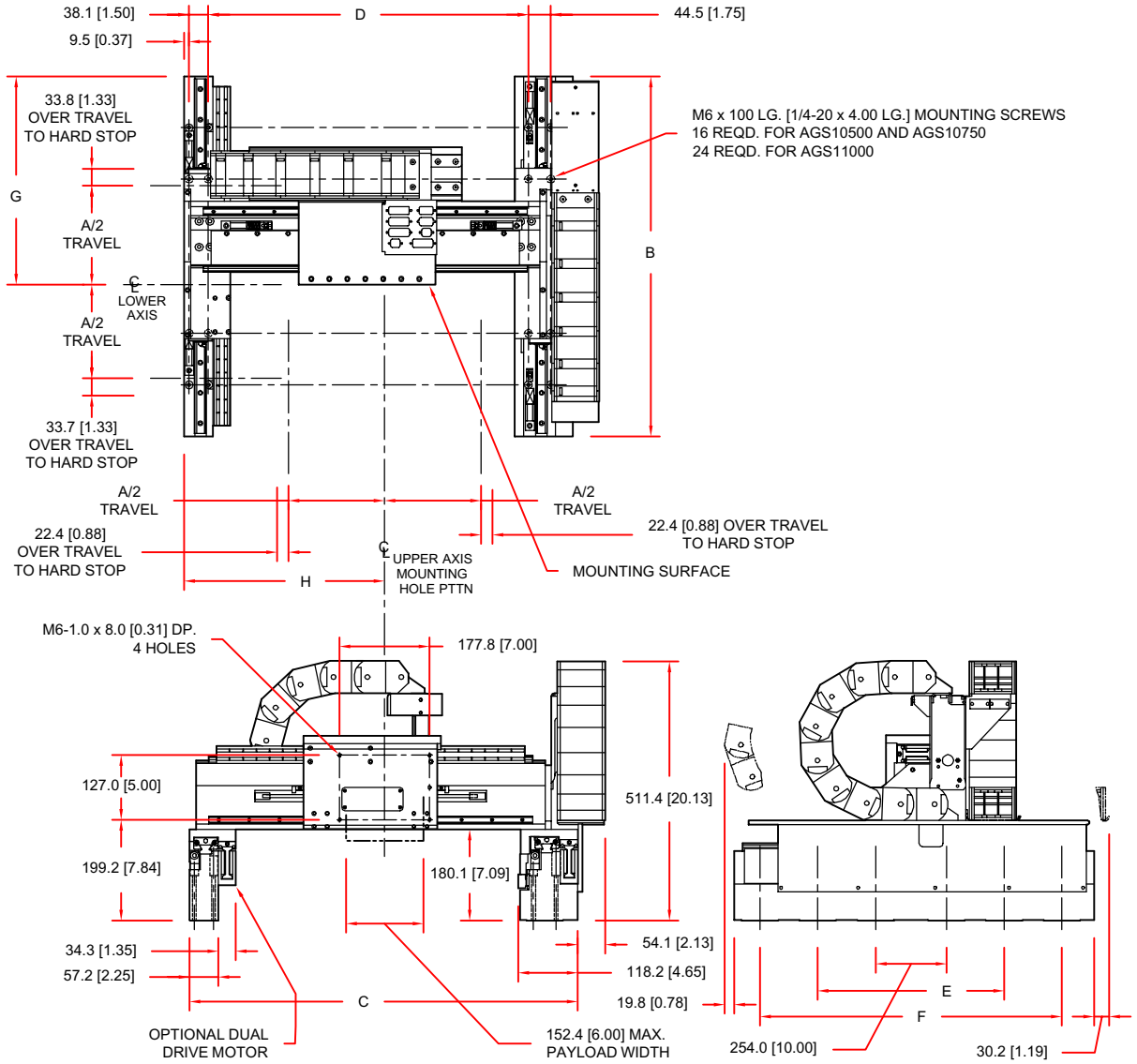


*AGS10000 shown with optional risers and z-axis mechanics for a packaging application.*

# AGS10000 Series DIMENSIONS

Gantries

AGS10000 Series



Dimensions - millimeters [inches]								
Basic Model	A	B	C	D	E	F	G	H
AGS10500-500	500 [19.69]	939.8 [37.00]	913.2 [35.95]	777.9 [30.63]	584.2 [23.00]	-	527.8 [20.78]	446.1 [17.57]
AGS10750-750	750 [29.53]	1190.0 [46.85]	1163.3 [45.80]	1028.0 [40.47]	812.8 [32.00]	-	652.8 [25.70]	571.1 [22.49]
AGS11000-1000	1000 [39.37]	1430.0 [56.70]	1413.1 [55.64]	1277.9 [50.31]	762.0 [30.00]	1092.2 [43.00]	777.8 [30.63]	696.1 [27.41]

## AGS10000 Series ORDERING INFORMATION

### Ordering Information

AGS10	500	-500	-10	-10	-LT50X5	-LT50X5	-BP
Series	X-Travel (mm) (Lower Axis)	Y-Travel (mm) (Upper Axis)	X-Motor (Lower Axis)	Y-Motor (Upper Axis)	X-Encoder (Lower Axis)	Y-Encoder (Upper Axis)	Base Plate
	-500-500	-500-500	-10	-10	-LTxxAS	-LTxxAS	-BPR
	-750-750	-750-750	-10X2		-LTxxX5	-LTxxX5	
	-1000-1000	-1000-1000			-2LTxxAS		
					-2LTxxX5		

### AGS10000 Series Linear Motor Gantry

AGS10500-500	500 mm x 500 mm (20 in x 20 in) cartesian gantry with linear motor, linear encoder, and limits
AGS10750-750	750 mm x 750 mm (30 in x 30 in) cartesian gantry with linear motor, linear encoder, and limits
AGS11000-1000	1000 mm x 1000 mm (40 in x 40 in) cartesian gantry with linear motor, linear encoder, and limits
AGSxxxx-yyyy	Other travels available; please consult factory

### Motor

-10	Brushless linear motor — BLM-325-A (lower X-axis); BLM-264-A (upper Y-axis)
-10X2	Dual brushless linear motor – dual BLM-325-A (lower X-axis only)

### Limits

-NC	Normally closed end of travel limit switches (STANDARD)
-NO	Normally open end of travel limit switches

### Standard Linear Encoders

-LT50AS	Linear encoder for AGS10500-500; amplified sine output
-LT50X5	Linear encoder for AGS10500-500; 1.0 micron line driver output
-LT75AS	Linear encoder for AGS10750-750; amplified sine output
-LT75X5	Linear encoder for AGS10750-750; 1.0 micron line driver output
-LT100AS	Linear encoder for AGS1100-1000; amplified sine output
-LT100X5	Linear encoder for AGS1100-1000; 1.0 micron line driver output
-2LT50AS	Dual linear encoder for AGS10500-500; amplified sine output; (lower X-axis only)
-2LT50X5	Dual linear encoder for AGS10500-500; 1.0 micron line driver output; (lower X-axis only)
-2LT75AS	Dual linear encoder for AGS10750-750; amplified sine output; (lower X-axis only)
-2LT75X5	Dual linear encoder for AGS10750-750; 1.0 micron line driver output; (lower X-axis only)
-2LT100AS	Dual linear encoder for AGS1100-1000; amplified sine output; (lower X-axis only)
-2LT100X5	Dual linear encoder for AGS1100-1000; 1.0 micron line driver output; (lower X-axis only)

### Base Plate

-BP500-500	Aluminum baseplate for AGS10500-500
-BP750-750	Aluminum baseplate for AGS10750-750
-BP1000-1000	Aluminum baseplate for AGS11000-1000
-BPR500-500	Aluminum baseplate for AGS10500-500 with 150 mm (6 in) risers
-BPR750-750	Aluminum baseplate for AGS10750-750 with 150 mm (6 in) risers
-BPR1000-1000	Aluminum baseplate for AGS11000-1000 with 150 mm (6 in) risers

### Accessories (to be ordered as separate line item)

Z	100 mm (4 in) travel z-stage
THETA	360° travel theta axis
MB500-500	Steel weldment machine base for AGS10500-500
MB750-750	Steel weldment machine base for AGS10750-750
MB1000-1000	Steel weldment machine base for AGS11000-1000