

AGS20000 Series

Linear Motor Gantries

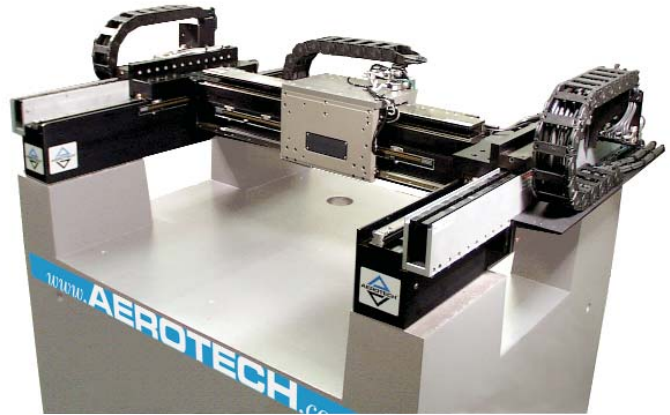
High velocity to 3 m/s and high acceleration to 5 g

Dual Y-axis, high-power, BLMH linear brushless servomotors

Dual Y-axis linear encoders

Optimized mechanical structure for high servo bandwidth

Highest throughput gantry in the world



The AGS20000 series was designed to be the most powerful and accurate Cartesian gantry in the world. Dual high-power linear motors were coupled with dual lower-axis linear encoders, resulting in a stage that not only offers unparalleled speeds/accelerations, but is also capable of extreme accuracies and repeatabilities.

Linear Motor/Linear Encoder

Aerotech's high power BLMH series brushless linear servomotors propel the AGS20000 to speeds of 3 m/s and accelerations of 5 g. Lower axis feedback is from a pair of rugged noncontact optical linear encoders. Synchronization of the dual lower forcers is accomplished through proprietary software on-board Aerotech's state-of-the-art UNIDEX® controller family.

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.

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 AGS20000 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.

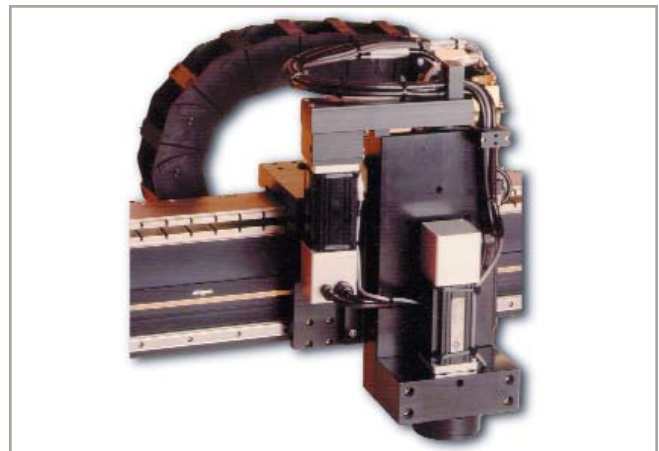
All customer cabling and pneumatics can be routed through the system e-chain. Connectors are provided at the

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 polymer and steel 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.



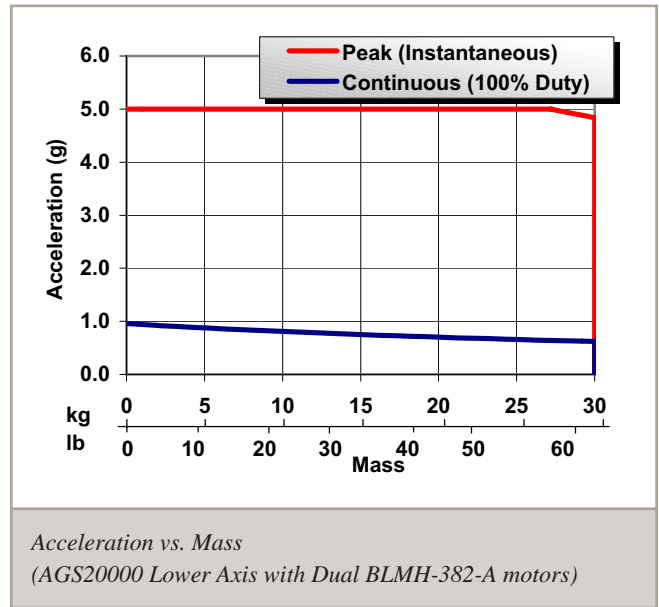
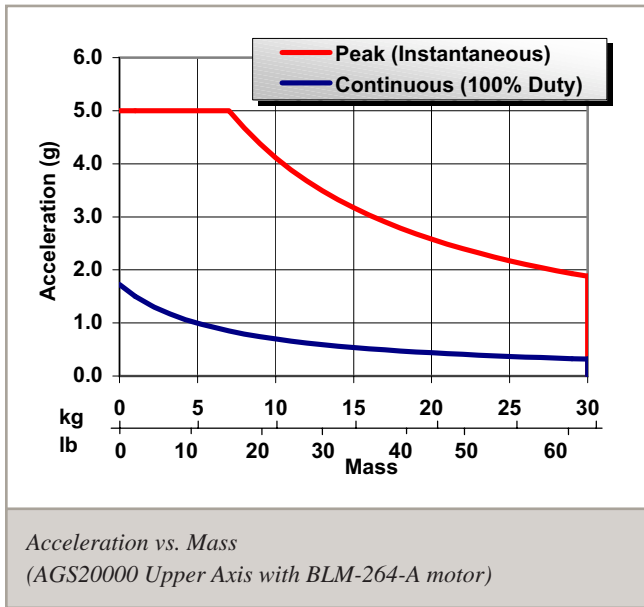
Available options include Z-theta mechanisms. An example is shown here.

AGS20000 Series SPECIFICATIONS

Basic Model		AGS20500-500	AGS20750-750	AGS21000-1000
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 — Dual BLMH-382-A (lower axis); BLM-264-A (upper axis)		
Feedback		Noncontact Linear Encoder		
Resolution		0.005 µm - 1.0 µm (0.2 µin - 40 µin)		
Maximum Speed ⁽¹⁾		3 m/s (120 in/s)		
Maximum Linear Acceleration		5 g - 50 m/s ² (1920 in/s ²) (no-load)		
Maximum Load ⁽²⁾		30.0 kg (66.1 lb)		
Continuous Force ^(3,4)	Lower Axis	Air Cooling (20 psi)	1644 N (370.0 lb)	
		No Air	942 N (212.0 lb)	
	Upper Axis	Air Cooling (20 psi)	276 N (62.0 lb)	
		No Air	207 N (46.4 lb)	
Peak Force ⁽⁴⁾	Lower Axis	3288 N (740.0 lb)		
	Upper Axis	1106 N (248 lb)		
Accuracy ⁽⁵⁾⁽⁶⁾		±3.0 µm (±120 µin)		
Repeatability		±1.0 µm (±40 µin)		
Orthogonality		5 arc sec		
Nominal System Weight (Gantry only)		179.0 kg (394.6 lb)	237.0 kg (522.5 lb)	295.0 kg (650.4 lb)
Material		Aluminum		
Finish	Stage	Black Anodize		
	Table	Hard Coating (62 Rockwell hardness Teflon® Impregnated)		

Notes

1. Maximum speed based on stage capability; maximum application velocity may be limited by system data rate and system resolution.
2. Maximum load based on bearing capability; maximum application load may be limited by acceleration requirements.
3. Thermal limitations of positioning stage with respect to performance may limit continuous force output.
4. Force may be limited by amplifier output.
5. Measured at center of travel.
6. Available with Aerotech controller.



AGS20000 Series ORDERING INFORMATION

Ordering Information

AGS20	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	-10X2	-10	-2LTxxAS	-LTxxAS	-PR
	-750-750	-750-750			-2LTxxX5	-LTxxX5	-BPR
	-1000-1000	-1000-1000					

AGS20000 Series Linear Motor Gantry

AGS20500-500	500 mm x 500 mm (20 in x 20 in) cartesian gantry with linear motor, linear encoder and limits
AGS20750-750	750 mm x 750 mm (30 in x 30 in) cartesian gantry with linear motor, linear encoder and limits
AGS21000-1000	1000 mm x 1000 mm (40 in x 40 in) cartesian gantry with linear motor, linear encoder and limits

Motor

-10	Brushless linear motor – BLM-264-A (upper Y-axis only)
-10X2	Dual brushless linear motor – dual BLMH-328-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 AGS20500-500; amplified sine output; (upper Y-axis only)
-LT50X5	Linear encoder for AGS20500-500; 1.0 micron line driver output; (upper Y-axis only)
-LT75AS	Linear encoder for AGS20750-750; amplified sine output; (upper Y-axis only)
-LT75X5	Linear encoder for AGS20750-750; 1.0 micron line driver output; (upper Y-axis only)
-LT100AS	Linear encoder for AGS21000-1000; amplified sine output; (upper Y-axis only)
-LT100X5	Linear encoder for AGS21000-1000; 1.0 micron line driver output; (upper Y-axis only)
-2LT50AS	Dual linear encoder for AGS20500-500; amplified sine output; (lower X-axis only)
-2LT50X5	Dual linear encoder for AGS20500-500; 1.0 micron line driver output; (lower X-axis only)
-2LT75AS	Dual linear encoder for AGS20750-750; amplified sine output; (lower X-axis only)
-2LT75X5	Dual linear encoder for AGS20750-750; 1.0 micron line driver output; (lower X-axis only)
-2LT100AS	Dual linear encoder for AGS21000-1000; amplified sine output; (lower X-axis only)
-2LT100X5	Dual linear encoder for AGS21000-1000; 1.0 micron line driver output; (lower X-axis only)

Base Plate

-BP500-500	Aluminum baseplate for AGS20500-500
-BP750-750	Aluminum baseplate for AGS20750-750
-BP1000-1000	Aluminum baseplate for AGS21000-1000
-BPR500-500	Aluminum baseplate for AGS20500-500 with 150 mm (6 in) risers
-BPR750-750	Aluminum baseplate for AGS20750-750 with 150 mm (6 in) risers
-BPR1000-1000	Aluminum baseplate for AGS21000-1000 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 AGS20500-500
MB750-750	Steel weldment machine base for AGS20750-750
MB1000-1000	Steel weldment machine base for AGS21000-1000