GANTRIES **AGS10000 SERIES**

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 µm. 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 shown with optional z-axis.

PRODUCT HIGHLIGHTS

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

AGS10000 Series **Specifications**

Basic Model			AGS10000-500-500	AGS10000-750-750	AGS10000-1000-1000
Total Travel			500 mm x 500 mm	750 mm x 750 mm	1000 mm x 1000 mm
Maximum Travel Speed[1]			3 m/s		
Maximum Linear Acceleration			3 g (30 m/s^2)(no-load)		
Maximum Load[2]			25.0 kg		
Continuous Force[3,4]	Lower Axis	Air Cooling (20 psi)	316 N		
		No Air	246 N		
	Upper Axis	Air Cooling (20 psi)	276 N		
		No Air	207 N		
Peak Force[4]	Lower Axis		1264 N		
	Upper Axis		1106 N		
Accuracy[5,6]			±5.0 µm		
Repeatability			±2.0 µm		
Orthogonality			5 arc sec		
Nominal System Weight (Gantry Only)[7]			131.0 kg	179.0 kg	227.0 kg
Moving Mass[7]	Lower Axis		53 kg	62 kg	70 kg
	Upper Axis		9 kg		
Material			Aluminum		
Finish	Stage		Black anodize		
	Table		Hard coating (62 Rockwell hardness), ESD optional		

1 Maximum speed based on stage capability; maximum speed 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 controllers.
7 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.

AEROTECH

AGS10000 Series **Details**
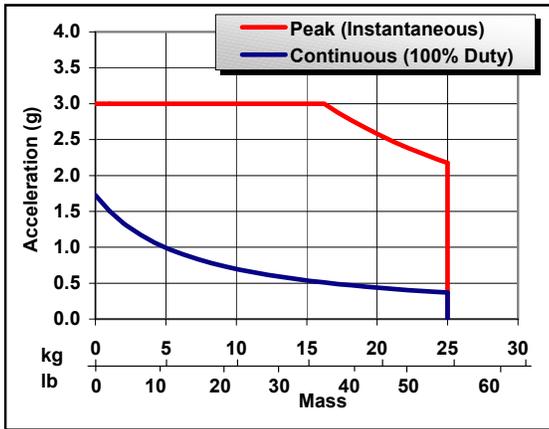
Acceleration vs. Mass (AGS10000 upper axis with BLM-264-A motor)
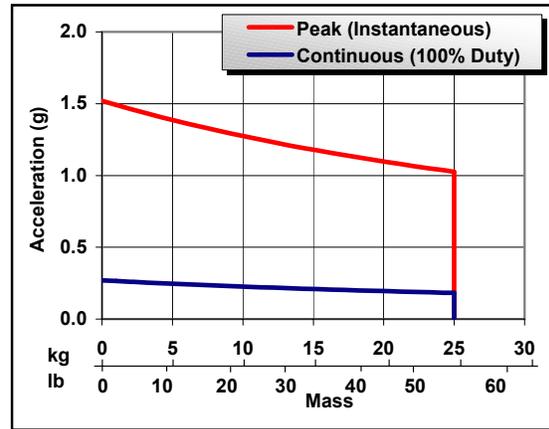
Acceleration vs. Mass (AGS10000 lower axis with BLM-325-A motor)
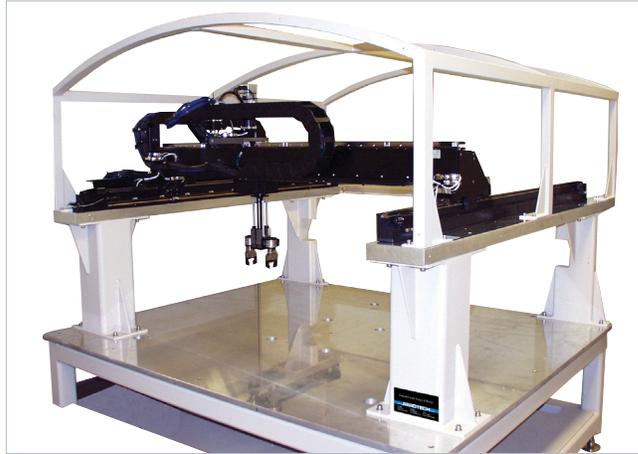
AGS10000 shown with optional risers and z-axis mechanics for a packaging application.

AGS10000 Series **Dimensions**

TO CUSTOMER WORKPOINT

GANTRY WORKING AREA

SYSTEM ENVELOPE

16X M6X1.0 TAPPED HOLES

OPTIONAL LIFTING COMPONENTS INCLUDED WITH SYSTEM

505 TYP. GANTRY HEIGHT

50 TYP. (MAY VARY PER CUSTOMER APPLICATION)
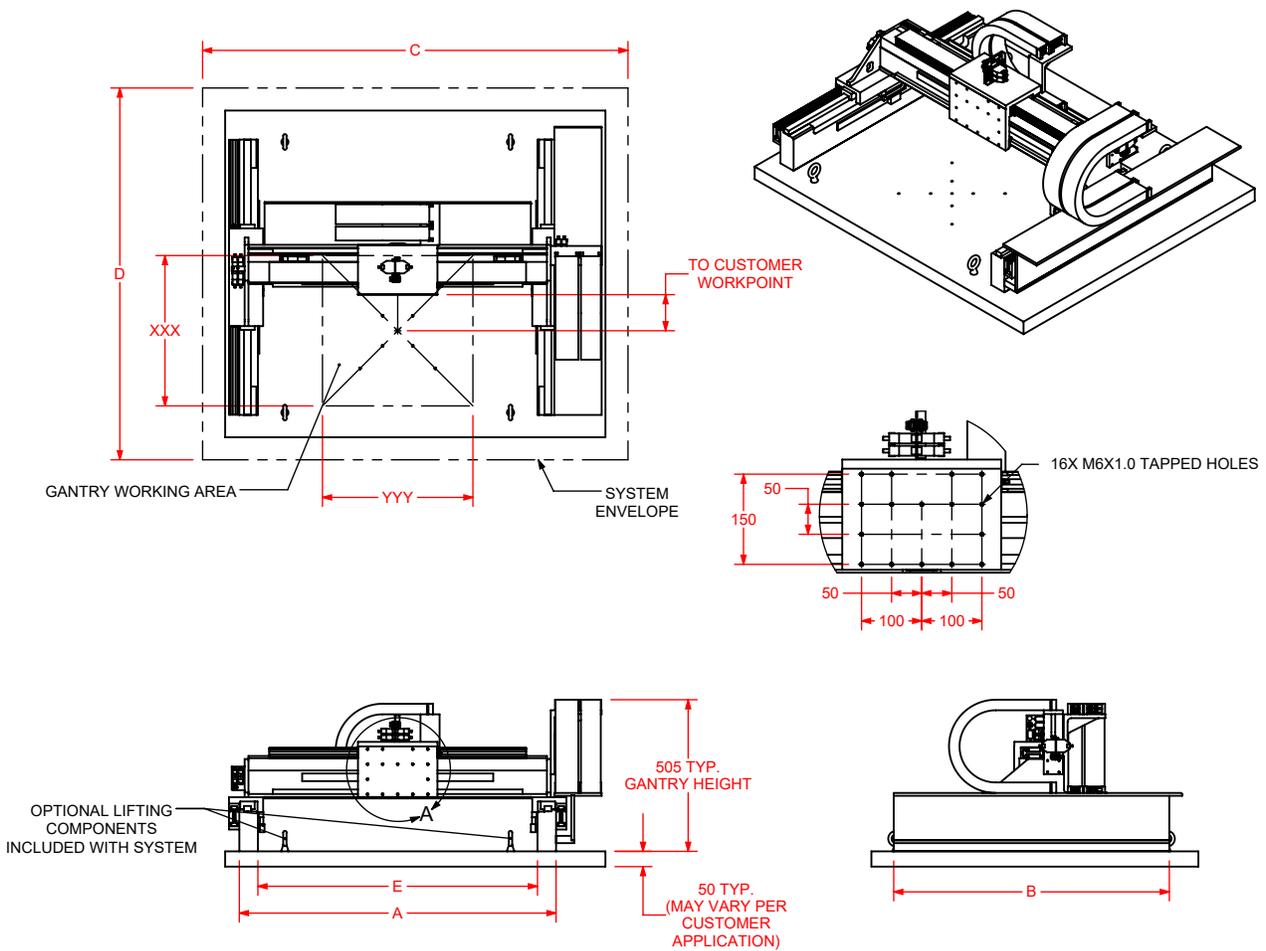
"XXX" LOWER-AXIS NOMINAL TRAVEL	"YYY" UPPER-AXIS NOMINAL TRAVEL	"A" GANTRY WIDTH	"B" GANTRY DEPTH	"C" SYSTEM WIDTH	"D" SYSTEM DEPTH	"E" GANTRY SPAR SPACING
500	500	1017.5 - 1092.5	872.5 - 967.5	1360 - 1460	1190 - 1290	892.5 - 967.5
750	750	1267.5 - 1342.5	1122.5 - 1217.5	1610 - 1710	1440 - 1540	1142.5 - 1217.5
1000	1000	1517.5 - 1592.5	1372.5 - 1467.5	1860 - 1960	1690 - 1790	1392.5 - 1467.5

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
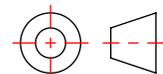
AGS10000 Series **Ordering Information**

AGS10000 Series Linear Motor Gantry

AGS10000-XXXX-YYYY   AGS10000 Linear Motor Gantry system, XXXX mm lower-axis travel, YYYY mm upper-axis travel

Feedback (Required)

-E1   Lower axis: dual incremental linear encoders, 1 Vpp output
Upper axis: single incremental linear encoder, 1 Vpp output
-E2   Lower axis: dual incremental linear encoders, 0.1 µm digital TTL output
Upper axis: single incremental linear encoder, 0.1 µm digital TTL output

Lifting (Optional)

-LF   Lifting hardware provided with system assembly

Performance Grade (Required)

-PL6   Standard performance, plots for accuracy-only included

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. This is typically used for spare parts, replacement parts, or items that will not be used or shipped together (ex: stage only). These components may or may not be part of a larger system.