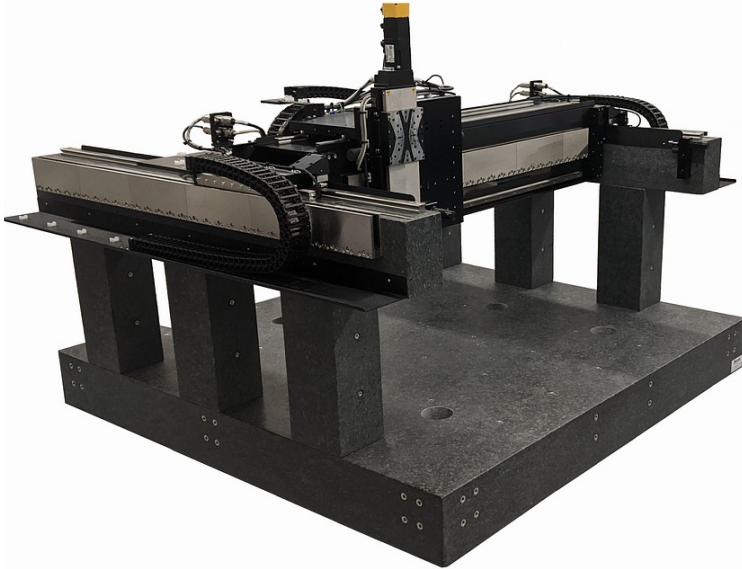


# MGS Heavy Duty XY / XYZ Gantry Positioning System, Linear Motors

High Precision, Robust Design with Recirculating Ball Bearing Guides for High Load Capacity.



## A-352

- Overhead moving XY gantry w/ Z-option
- Long travel ranges, to 1m x 2m
- Precision recirculating ball bearing guides
- Absolute measuring linear encoders
- Sub-micrometer precision
- High-performance ironless linear motors
- Various travel ranges. Options and customized adaptations
- Flexible modular platform

### Gantry Stages – Multi-Axis Cartesian Linear Robots

The MGS gantry precision motion system has been designed to maximize throughput for applications requiring multi-axis overhead motion. This XY / XYZ stage is ideal for 3D printing, assembly, pick-and-place, alignment, inspection, and industrial automation applications.

The MGS gantry stage uses preloaded linear mechanical bearings which are designed to provide optimized stiffness and precision. Optional stainless steel guide rails can be delivered.

The gantry axis incorporates dual 3-phase linear motors and dual linear encoders. Ironless linear motors provide smooth motion and no cogging or attractive forces. The linear motor and linear encoders are noncontact devices, so there is no friction, backlash, wear, or maintenance concerns.

The A-352 is coupled with industry-leading motion controllers and drive modules from ACS that offer superior servo performance for accurate tracking and advanced control algorithms to improve dynamic performance and error compensation, and a wide suite of software development tools.

### Options and customized adaptations

- Base made of granite with custom features and sizes
- Adjustable work height
- Systems for reducing vibration
- Additional drag chains
- Performance of the linear motors
- Liquid cooling of the linear motors

### Application fields

Scanning, Digital printing, Electronics assembly and inspection, AOI (Automatic Optical Inspection), Automation.

## Gantry Specifications

Motion	Unit	Bridge axis	Gantry axis
Travel range	mm	500, 750, 1000	500, 750, 1000, 1500, 2000
Guide		Recirculating ball bearing guide (lubrication and surface finish can be customized)	
Drive		1 × Ironless 3-phase linear motor	2 × Ironless 3-phase linear motor
Measuring system		Absolute linear encoder, 1 nm sensor resolution, BiSS-C, steel measuring scale	2 × Absolute linear encoder, 1 nm sensor resolution, BiSS-C, steel measuring scale
Load capacity	kg	30 (max)	
Positioning accuracy, calibrated <sup>(1)</sup>	µm	±4	
Bidirectional repeatability	µm	±2	
XY orthogonality	µrad	25	
Max. velocity, unloaded <sup>(2)</sup>	m/s	2	1
Moved mass	kg	4.5	Depending on the travel range of the bridge axis: 500mm: 50 750mm: 65 1000mm: 80

<sup>(1)</sup> Accuracy values assume short time duration and do not consider the long-term effects of thermal drift on the stage.

<sup>(2)</sup> Depends on the motor selected, controller performance, duty cycle, load, and other application-specific parameters.

Drive properties	Unit	Spec (per motor coil)
Nominal voltage	V DC	70
Peak voltage	V DC	300
Force Constant, RMS	N/A	27.5
Nominal force	N	210
Peak force	N	720
Nominal current, RMS	A	7.6
Peak current, RMS	A	26.2
Back EMF phase-phase	V·s/m	22.5
Resistance phase-phase	Ω	1.7
Inductance phase-phase	mH	1.4

Miscellaneous	
Materials	Hardcoat aluminum Guide rails made of steel, cleanroom grease (guide rails made of stainless steel on request) Mounting hardware made of stainless steel

## Ordering Information

### **A-352 MGS basic configuration**

Mechanical XY gantry system, recirculating ball bearing guides, 3-phase linear motors, absolute linear encoder, travel range to 1000 mm × 2000 mm (please specify in the request)

### **A-352 factory option: L-511 as Z axis**

Modified L-511 linear stage with synchronous servo motor and holding brake, 50 to 150 mm travel range

### **A-352 factory option: V-408 as Z axis**

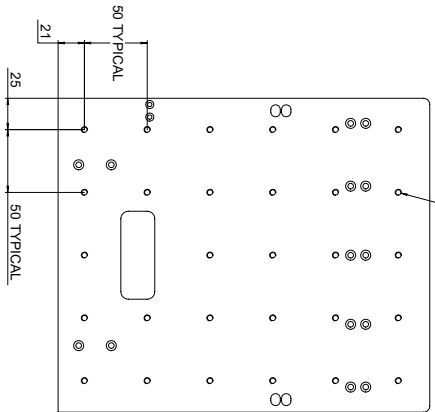
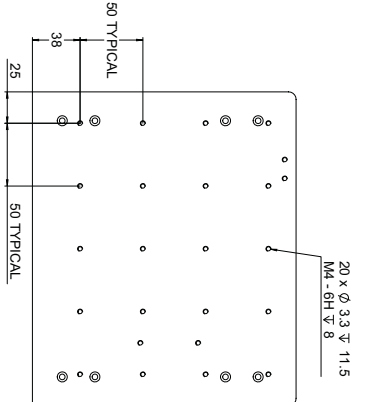
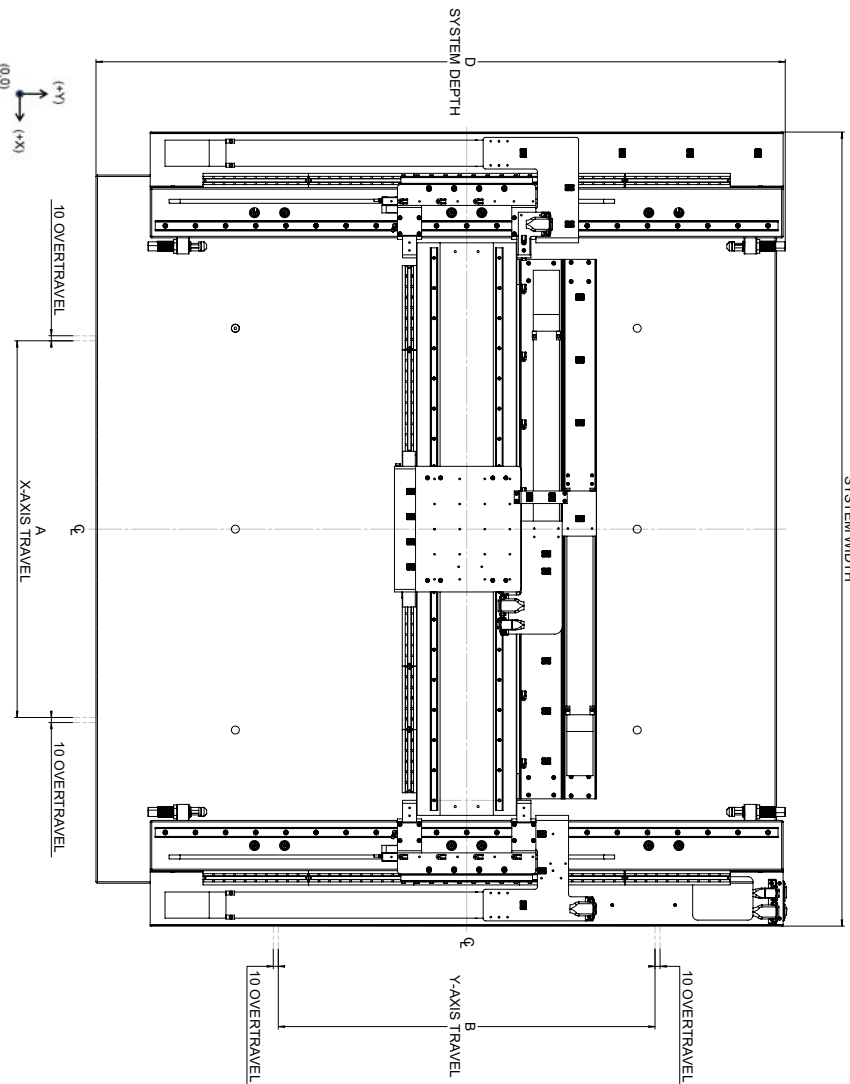
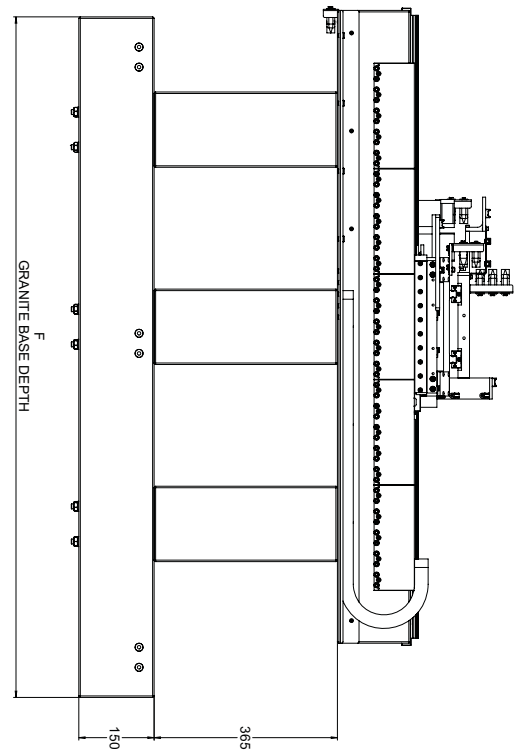
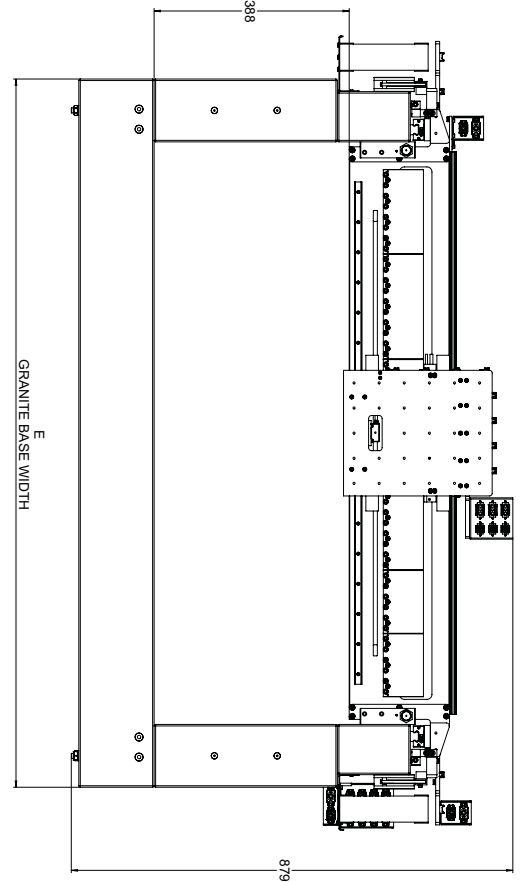
Modified V-408 linear stage with 3-phase linear motor, holding brake, and pneumatic weight force compensation, 50 mm travel range

### **A-352 factory option: Additional drag chains**

The A-352 can be equipped with additional drag chains to accommodate additional cables and hoses of the customer's setup.

### **A-352 factory option: Motor cooling**

For applications with a high duty cycle and high accelerations can be equipped with liquid-cooled linear motors. Individual liquid cooling is also possible for the linear motor of the bridge axis. An external radiator is necessary.



MODEL	TRAVEL	A	B	C	D	E	F
A-352 CC	750 x 750	750	750	1590	1470	1415	1380
A-352 CD	750 x 1000	750	1000	1590	1720	1415	1610
A-352 CE	750 x 1500	750	1500	1590	2220	1415	2110
A-352 CF	750 x 2000	750	2000	1590	2720	1415	2610
A-352 DC	1000 x 750	1000	750	1840	1470	1665	1380
A-352 DD	1000 x 1000	1000	1000	1840	1720	1665	1610
A-352 DE	1000 x 1500	1000	1500	1840	2220	1665	2110
A-352 DF	1000 x 2000	1000	2000	1840	2720	1665	2610

A-352 Gantry, robotic precision motion and positioning system, dimensions in mm