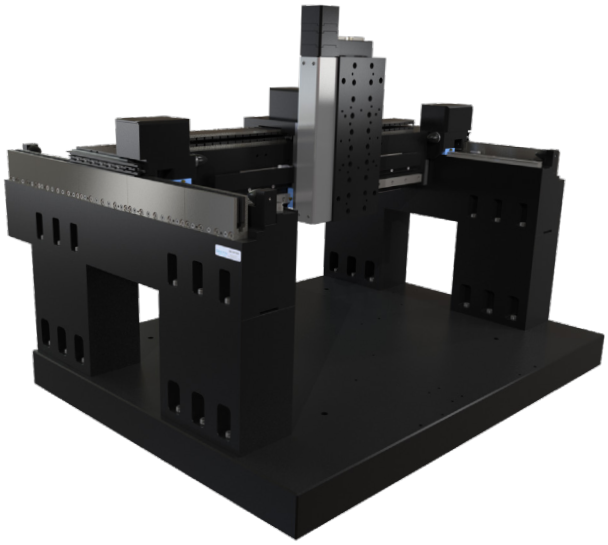
1040 CLASSIC ROAD | APEX, NC 27539
P: 866.906.2709 | F: 919.882.1430
www.griffinmotion.com

Precision XY Gantry with Z Axis

FEATURES

- 300mm X and Y Travel
- 50-150mm Z Travel
- High speed linear motors
- Precision Z ball screw stage with optional brake
- Full cable management for stages and customer application
- Extremely high levels of orthogonality, flatness, and repeatability



Gantry system assemblies are designed for a variety of applications. They combine multiple axis of motion to create a high precision work envelope. This system is built for high duty cycles and long life and can attain high velocities for factory automation and semiconductor processing equipment. The precision Z ball screw stage can be configured for different required travels ranging from 50mm to 150mm. Integrated cable management for both the stage and customer mounted pieces are available.

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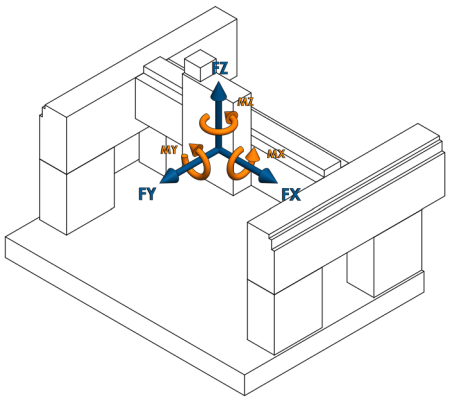
Product Specifications

Encoder Output (X and Y)	1Vpp
Encoder Output (Z)	RS422
Height (mm) with 150mm Z stage	603
Length (mm)	677
Limit Switches	Yes
Linear X and Y Accuracy +/- (µm)*	15
Linear X and Y Repeatability +/- (µm)	2
Linear Z Accuracy +/- (µm)*	10
Linear Z Repeatability +/- (µm)	2
Linear X and Y Velocity (mm/s)	4000
Linear Z Velocity (mm/s)	150
Stage Mass (kg)	160
Squareness (arc-sec)*	15
Width (mm)	800



LOAD DIRECTIONS

*Higher accuracy possible with calibration and proper contols

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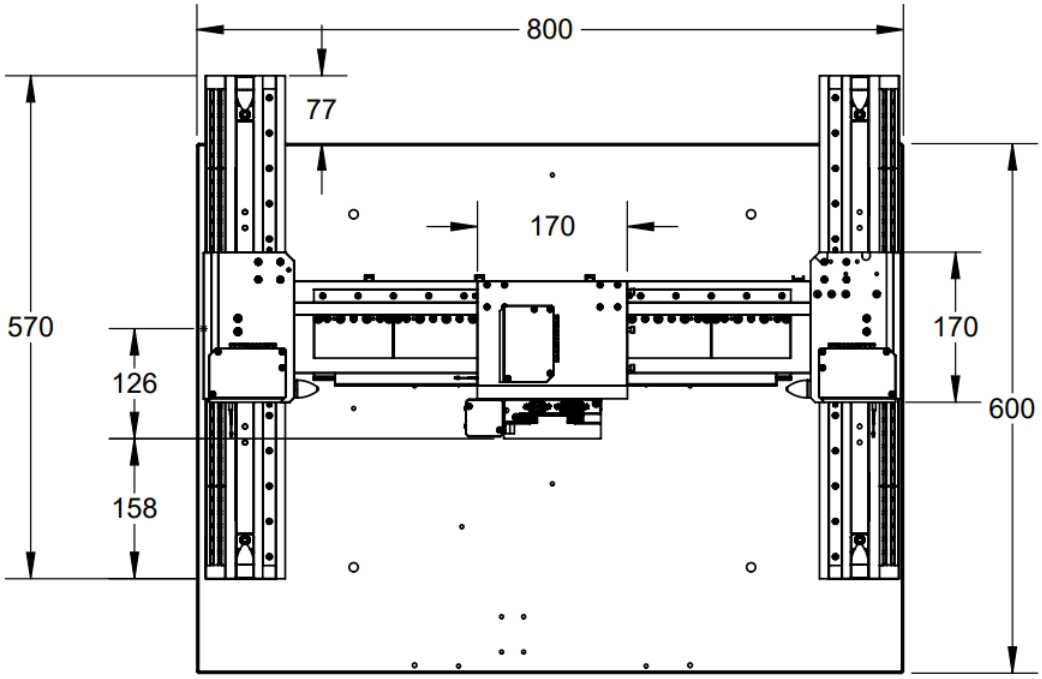
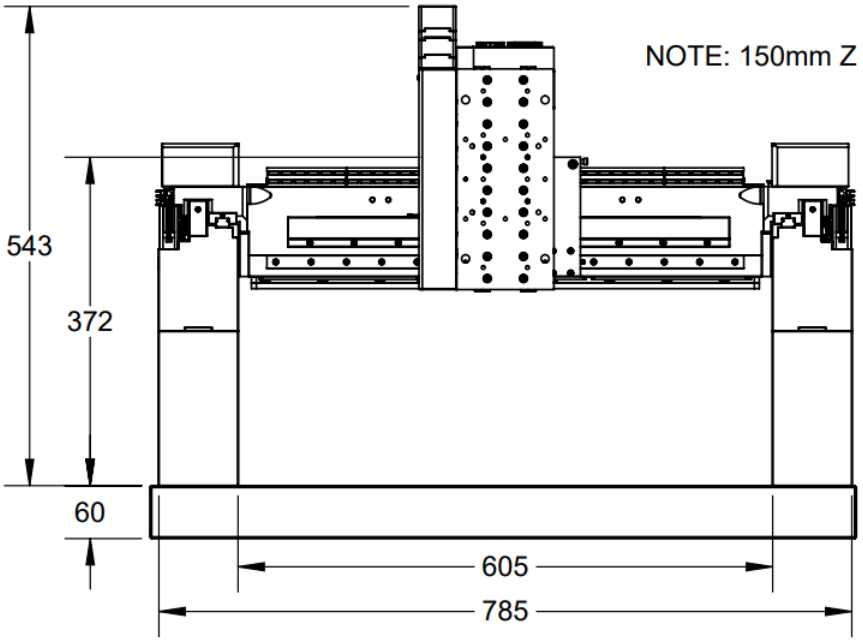
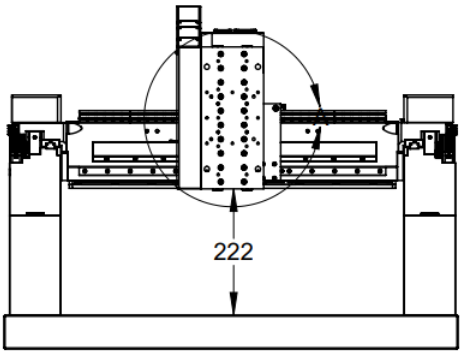
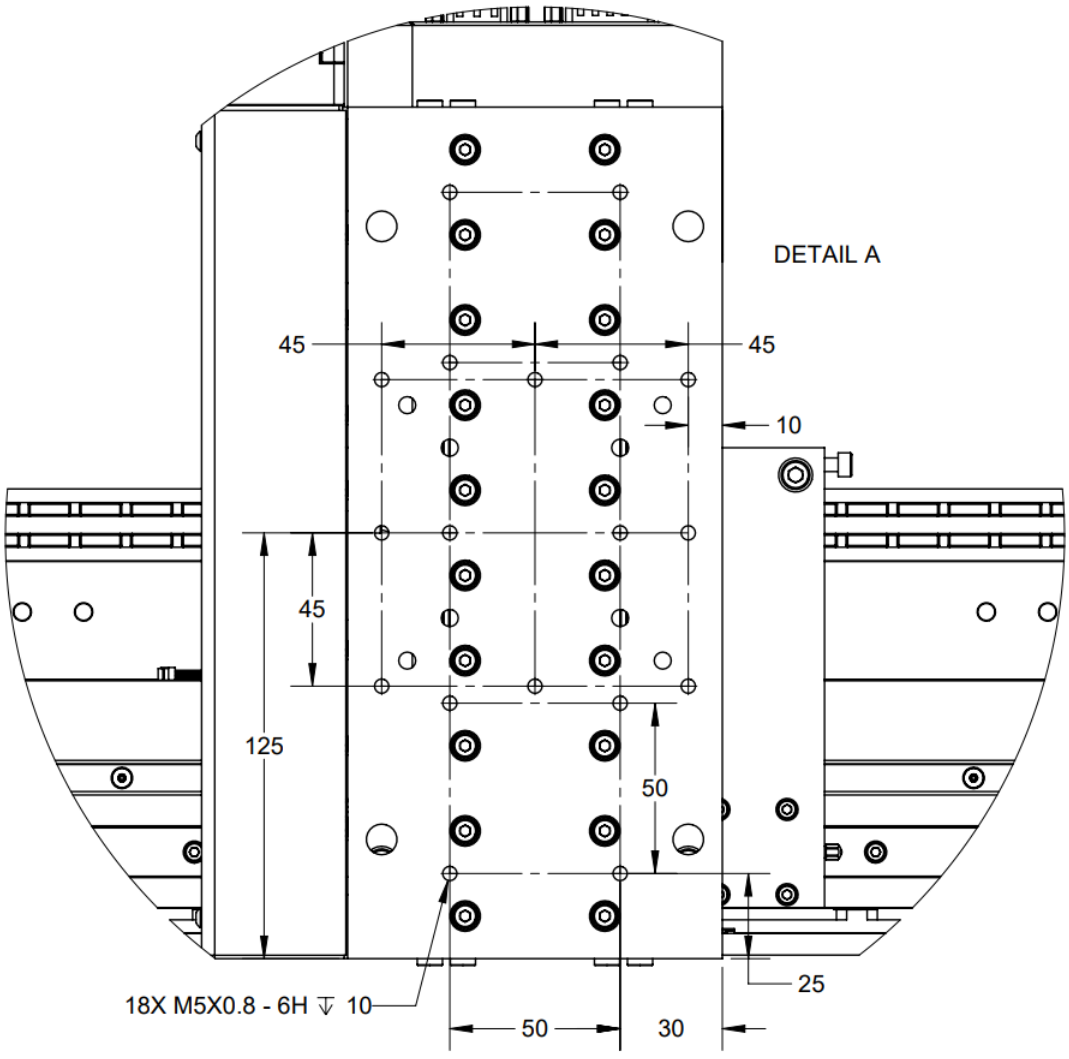
Mechanical Specifications





Mounting Pattern





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Electrical Pinout

Note: All axes use 26 postion DSUB feedback connector. X, Y and YY use 5W5 style DSUB connector for motor signals. Z axis uses 9 position DSUB for motor.

X, Y and YY AXES
Feedback Connector
(DSUB26HD MALE)

PIN	NAME
1	+5V
2	SIN+
3	COS+
4	IDX+
5	LIM+
6	*
7	*
8	*
9	*
10	*
11	SIN-
12	COS-
13	IDX-
14	LIM-
15	*
16	*
17	*
18	*
19	GND
20	HALL A
21	HALL B
22	HALL C
23	*
24	*
25	*
26	*

* Reserved

Z AXIS
Feedback Connector
(DSUB26HD MALE)

PIN	NAME
1	+5V
2	A+
3	B+
4	Z+
5	LIM+
6	*
7	*
8	*
9	*
10	*
11	A-
12	B-
13	Z-
14	LIM-
15	*
16	*
17	*
18	*
19	GND
20	HALL A
21	HALL B
22	HALL C
23	*
24	*
25	*
26	*

* Reserved

X, Y and YY AXES
Motor Connector
(DSUB5W5 MALE)

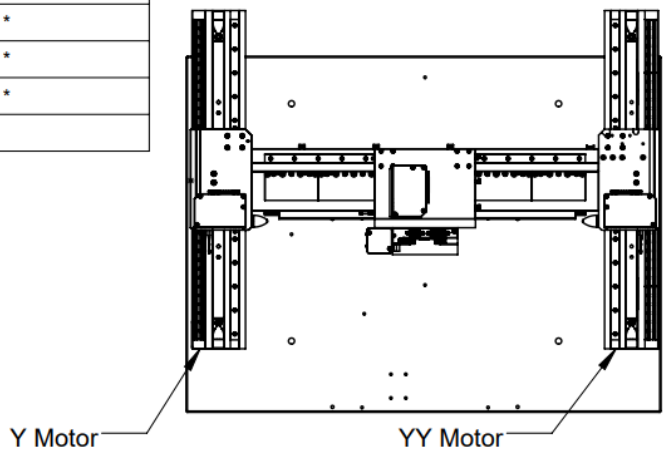
PIN	NAME
A1	PHASE A
A2	PHASE B
A3	PHASE C
A4	*
A5	MOTOR/HOUSING SHIELD

* Reserved

Z AXIS
Motor Connector
(DSUB9 MALE)

PIN	NAME
1	*
2	*
3	*
4	BRAKE
5	BRAKE
6	PHASE A
7	PHASE B
8	PHASE C
9	*

* Reserved



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Electrical Specifications

Parameter	Unit	Axis			
		X	Y	YY	Z
Motor Type		Ironless 3Φ Brushless DC	Ironless 3Φ Brushless DC	Ironless 3Φ Brushless DC	3Φ Brushless DC
VBUS, Max	VDC	340	340	340	48
Force, Continuous	N	58	58	58	200
Force, Peak	N	200	200	200	400
Force Constant	N/Ap	26	26	26	
BEMF Constant	V/m/s	30	30	30	
Pole Pitch	mm	30	30	30	
*Speed, Max	mm/s	4000	4000	4000	150
Current, Continous	Amps(peak-of-sine)	2.26	2.26	2.26	
Current, Peak	Amps(peak-of-sine)	7.78	7.78	7.78	
Resistance, pin-pin	Ohm	18.6	18.6	18.6	
Inductance, pin-pin	mH	6	6	6	
Torque, Continuous	Nm				0.080
Torque, Peak	Nm				0.160
BEMF Constant	V/KRPM				2.840
Torque Constant	Nm/Ap				0.023
Poles	N/rev				6
Ball Screw Pitch	mm/rev				2
Linear Encoder Resolution	µm/line pair	20	20	20	40
Nominal Stroke	mm	300	300	300	150
Electrical Stroke (between limit switches)	mm	304-306	304-306	304-306	150.1-151.4
Mechanical Stroke (between Hard Stops)	mm	360	360	360	160
Encoder Index Location		center mechanical stroke ±1.0	center mechanical stroke ±1.0	center mechanical stroke ±1.0	+70mm from center mechanical ±0.5
Encoder Output		1Vpp	1Vpp	1Vpp	RS422
**Moving Mass	kg	7.5	22.5		2.06
**Total System Mass	kg	160			

*Maximum motor and feedback velocity, application requirements such as VBUS or payload mass may further limit speed
**Without customer cables or payload