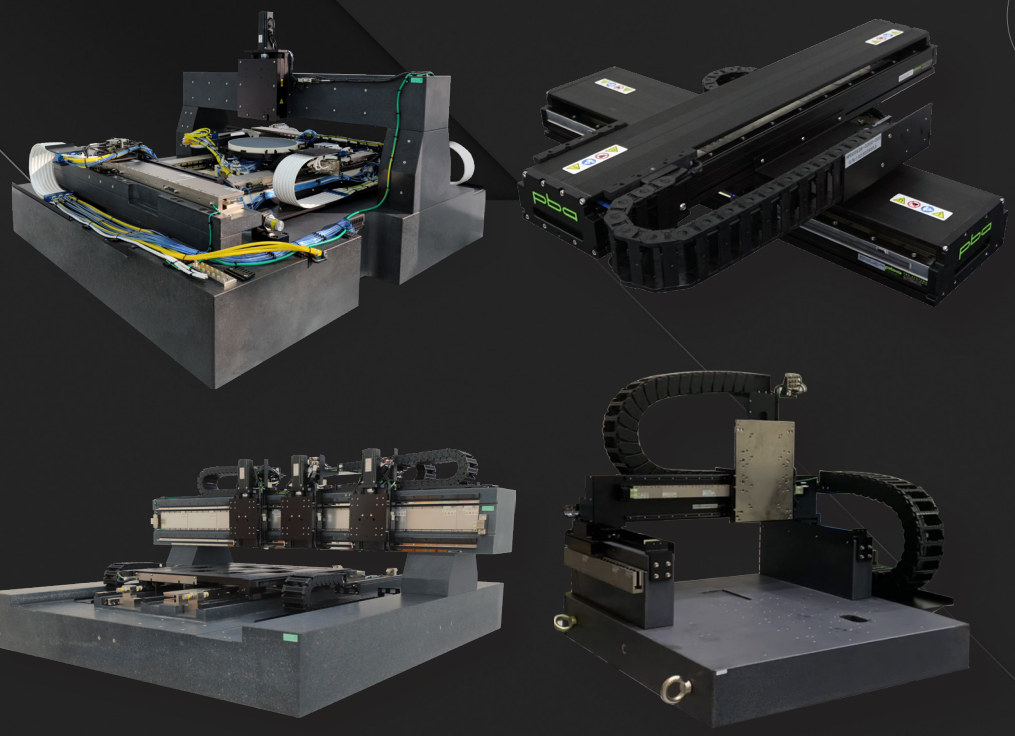

pba
SYSTEMS
CUSTOMISED PRECISION
Stage Solutions



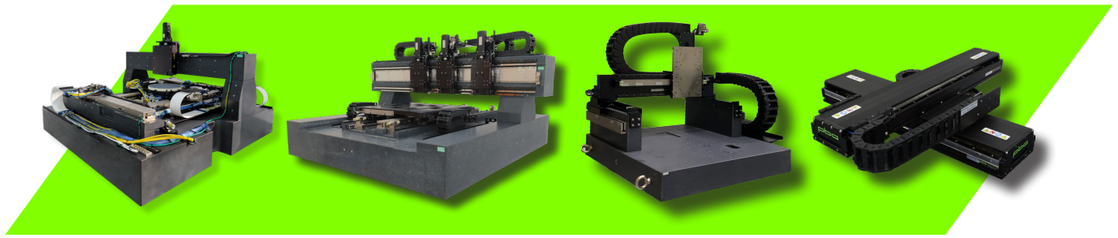
CUSTOMISED **PRECISION**

STAGE SOLUTIONS

VERSION 2.1.1

CUSTOMISED PRECISION

STAGE SOLUTIONS



Our custom stage solutions are engineered to address your motion challenges.

Customizing stages and creating new motion solutions for specific applications are our core strengths. PBA delivers motion systems to the world's most challenging applications and industries. Our engineers are well-versed in employing our linear drive technologies and design fundamentals to create custom stages.

Our customized stage solutions will benefit you in the following ways:

• **Reduce Technical Risk**
With our depth of knowledge and expertise, we ensure that PBA motion systems run at peak performance and perform consistently at all times.

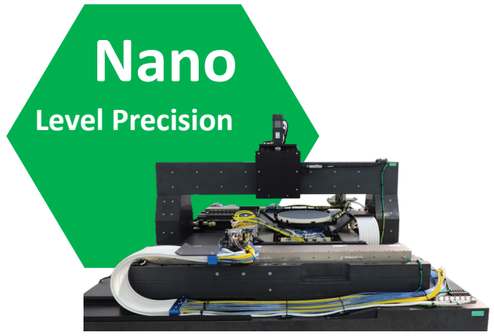
• **Minimize Total Cost of Ownership**
Our customized stage solutions simplify your process by offering feasibility studies, stage sizing and design, purchasing, fabrication, assembly, and commissioning.

• **Stay Ahead of the Competition**
Our customized stages are engineered to optimize your machine performance and processes (fast and precise), maintaining a competitive advantage over other solutions.

Experience the ultimate in speed, precision, and control with our powerful and efficient linear motor technology - revolutionizing the way you move.

Contact us to discuss your needs and learn how we can customize the perfect stage for you.

OUR CORE TECHNOLOGY



Air Bearing Stage

- Powered by orifice air bearing technology
- Zero friction enables nanometer level positioning resolution
- Extremely smooth, flat and straight motion
- No wear and tear, thus having long lifetime usage
- Extremely small error in pitch, roll, yaw, straightness, flatness
- Highly constant velocity and lower velocity ripple

Air bearing working principle

High Performance Gantry & Stage

- Powered by ironless or ironcore linear motors
- High speed, acceleration and dynamic power
- Excellent positioning accuracy
- Flexible configuration with highly customizable motion systems
- Guided by high precision linear motion guide
- Optional with rigid structure or granite base

Parameter	Unit	Air Bearing Stage	Stage & Gantry (LM guide)
Bi-directional repeatability	μm / 500mm	± 0.1	± 0.25
Accuracy with error mapping	μm / 500mm	± 0.3	± 0.5
Straightness	μm / 500mm	± 1.0	± 3.0
Flatness	μm / 500mm	± 1.0	± 3.0
Yaw	arc-sec / 500mm	± 1.0	± 3.0
Pitch	arc-sec / 500mm	± 1.0	± 3.0
Orthogonality	arc-sec / 500mm*500mm	± 2.0	± 3.0

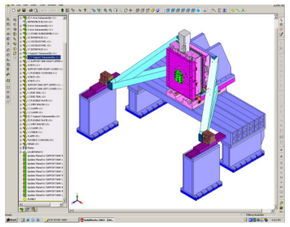
*The performance of the stage and gantry will be subject to the specific requirements of the application.

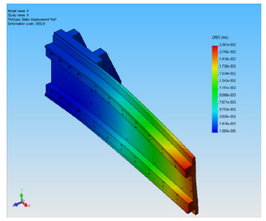
EXPERTISE AND EXPERIENCE

Through the years, our technologies and capabilities have continuously evolved and strengthened. Our best-in-class R&D team equips our engineers with the necessary resources, powerful design and metrology tools, and innovative perspectives to enhance product quality, deliver high-performance products, and provide new and innovative solutions to meet your motion control application need.

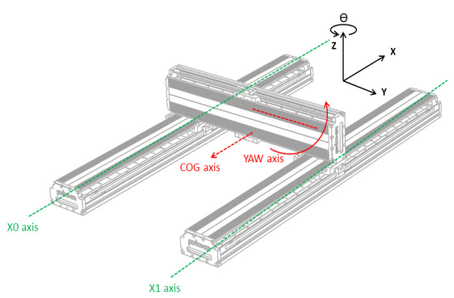
Our Design Capabilities

- Product innovation and customisation
- Mechanical 3D design
- SolidWorks modelling
- Static and dynamic structural stress analysis
- Finite Element Analysis (FEA)
- Thermal analysis
- Electromagnetics, transient analysis





Our Motion Control Capabilities



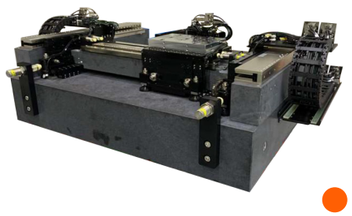
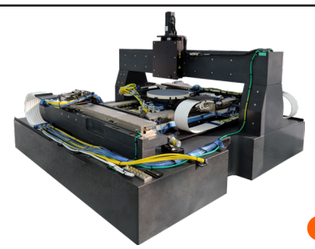
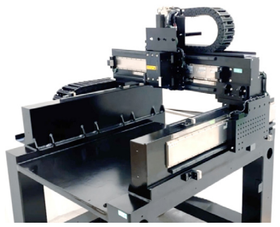
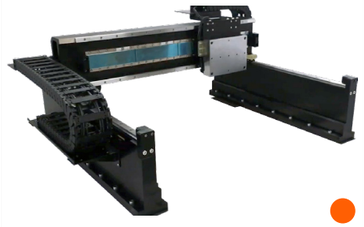
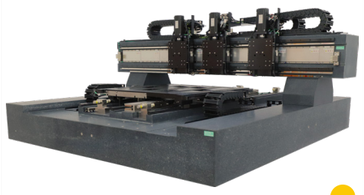
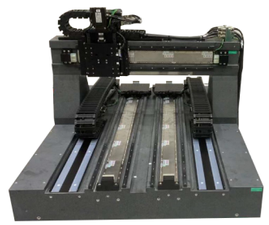
- Advanced MIMO (multi-input multi-output) gantry control algorithms that simplify the configuration and tuning process of gantry stages and enhance their accuracy, throughput, and stability.
- We leverage powerful servo processor technology and modern control theory to outperform PID-based algorithms.
- Ideal for applications with demanding move and settle, standstill jitter, and constant velocity requirements.

High-Precision Motion Calibration System

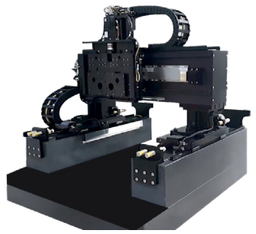
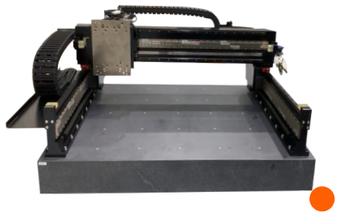
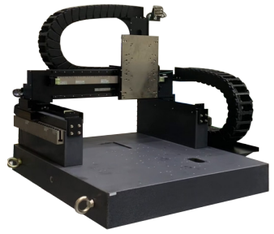
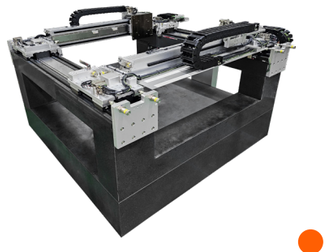
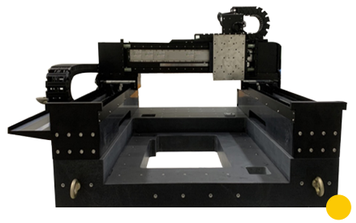
- Motion profile analysis
- Reliability and accuracy test
- Straightness and flatness test
- Burn in / Run in test

TABLE OF CONTENTS

PRODUCT OVERVIEW

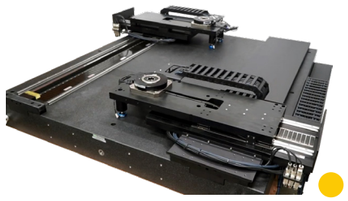
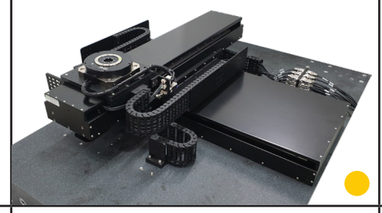
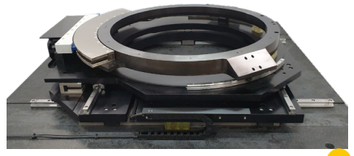
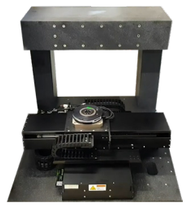
Type	Category		Product Name	Product Image	Page No.	Key Features	Applications
Gantries	Air Bearing Gantry	Ultra-smooth Motion	**PABG1000** **Co-planar Air Bearing XY Gantry**		17	• Powered by air bearing technology • Ultra-smooth motion • High speed and low velocity ripple • Easy maintenance • Excellent positioning accuracy	• Suitable for temperature sensitive application • Glass scribing • Glass substrate exposure • Wafer defect detection equipment
			PABG2000 **Co-planar Air Bearing XYZ Theta Gantry**		19	• Powered by air bearing technology • Ultra-smooth motion • High speed and low velocity ripple • Easy maintenance • Active Yaw Control • Excellent positioning accuracy and repeatability	• Wafer scribing • Wafer defect detection equipment • Glass substrate exposure • High speed pick and place • Automated assembly
	T-Gantry *Single Linear Motor Driven Bottom Axis*	High Dynamic Cost-effective Solution	**PTG1000** **XYZ T-Gantry**		21	• High speed and acceleration • Velocity up to 1.0 m/s and acceleration up to 1.0 g • High stiffness aluminum gantry structure • Customisable Z Axis for flexible configurations • Travels up to 0.5 m X 0.5 m	• Automated optical inspection • Automated assembly • High speed pick & place
			PTG2000 **XY T-Gantry**		23	• High speed and acceleration • Velocity up to 1.0 m/s and acceleration up to 1.0 g • Equipped with ironcore linear motor • Travels up to 0.5 m X 0.5m	• Automated optical inspection • Automated assembly • High speed pick & place
	Bridge Gantry	High Dynamic Motion	**PBG1000** **Multi Z XYZ Bridge Gantry**		25	• Multiple Z Axis configuration • Individual controlled movement • Excellent settling time • Rigid structure with granite base • High speed, accuracy and repeatability • Available in iron core or ironless motor	• Automated optical inspection • Vision detection • High speed pick & place • Automated assembly • Dispensing
			PBG2000 **Dual X Axis XY Bridge Gantry**		27	• High speed and acceleration • Velocity up to 1.0 m/s and acceleration up to 1.0 g • Can be equipped with ironless or ironcore motor • Rigid structure with granite base • Absolute non-contact linear encoders	• Automated optical inspection • Vision detection • High speed pick & place • Automated assembly • Dispensing

NOTE: *Ultra precision (Repeatability less than 1 µm)*
High precision (Repeatability ranging from 1 to 5 µm)

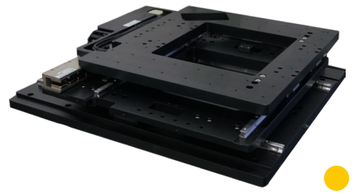
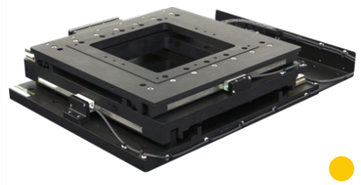
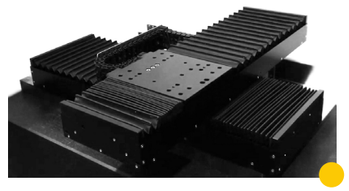
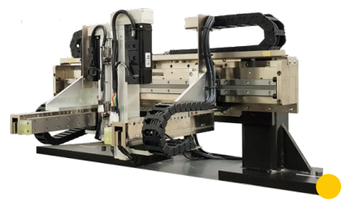
Type	Category		Product Name	Product Image	Page No.	Key Features	Applications
Gantries	Flex Gantry *Dual Linear Motor Driven Bottom Axis*	High Dynamic Motion	**PFG1000 XYZ H-Gantry**		29	• High dynamic contouring • Customizable and flexible configurations • Equipped with iron core linear motor • Repeatability down to ±0.5µm • Ultra precision and excellent positioning accuracy • Max velocity up to 2 m/s and acceleration up to 4G	• Automated optical inspection • Automated assembly • Dispensing • Printed electronics • Precision micro-machining
			PFG2000 XY H-Gantry		31	• Optimized design for precise contouring • High speed and acceleration • High stiffness aluminum gantry structure • Velocity up to 1.0 m/s and acceleration up to 1.6 g • Travels up to 0.6 m X 0.8 m	• Stencil cutting • High speed pick & place • Laser cutting • Fuel cell manufacturing
			PFG3000 XY H-Gantry		33	• Excellent precision & positioning accuracy • Repeatability down to ± 0.5 µm • Smooth motion with no cogging • Equipped with ironless linear motor • Travels up to 0.5 m X 0.8m	• Automated optical inspection • Stencil cutting • Precision micro-machining
			PFG4000 High Speed XY Flex Gantry		35	• Flex joint design • ±350nm for local placement accuracy • Max velocity up to 2 m/s • Max acceleration up to 4G • Controllable Thermal Expansion Technology • Thermal Stability in 15 min • ISO 5 cleanroom compatible (Class 100)	• Die bonding processes (Advanced Flip Chip Bonding) • µ-LED bonding • Dispensing • High speed pick & place • Semiconductors manufacturing • Electronic component packaging applications
			PFG5000 Clear Aperture XY H-Gantry		37	• Excellent solution for optical inspection • Center open aperture stage for top and bottom inspection • Excellent settling time • Travels up to 0.5 m X 0.8 m • Absolute non-contact linear encoders	• Automated optical inspection • Vision detection • Automated assembly

NOTE: *Ultra precision (Repeatability less than 1 µm)*

High precision (Repeatability ranging from 1 to 5 µm)

Type	Category		Product Name	Product Image	Page No.	Key Features	Applications
Stages	XY Theta	High Dynamic Motion	**PSXYT1000** **Dual XY Theta Stage**		39	• High precision dual axis X-Y positioning • Integration of high-precision torque motor • Compact design for space limited application • Uninterrupted process for each axis • Travels up to 0.3 m X 1.0 m	• Automated assembly • Semiconductor wafer inspection • Precision micro-machining
			PSXYT2000 **XY Theta Stage**		41	• Integration of high-precision torque motor • High speed X-Y positioning • High stiffness extruded aluminum structure • Travels up to 0.3 m X 0.3 m • Configurable cable management	• Automated assembly • Automated optical inspection testing equipment • Laser cutting applications • Appearance grinding / trimming equipment
			PSXYT3000 **Clear Aperture XY Theta Stage**		43	• XY Theta movement with large clear aperture • High dynamic response, repeatability and accuracy • Zero cogging & low velocity ripple • Equipped with ironless linear motor • Superior geometric performance • Low profile & compact design	• Automated optical inspection • Semiconductor wafer inspection • Vision detection
			PSXYT4000 **XY Theta Stage**		45	• Integration of high-precision torque motor • High speed X-Y positioning • High stiffness extruded aluminum structure • Travels up to 0.3 m X 0.3 m • Configurable cable management	• Automated assembly • Automated optical inspection testing equipment • Laser cutting applications • Appearance grinding / trimming equipment
	XYZ Theta		**PSXYZT1000** **Dual Carriage XYZ Theta Stage**		47	• High dynamic dual carriage design • Adjustable vertical movement for Theta axis • Integration of high-precision torque motor • High repeatability • Low settling time	• Wafer probing • Wafer inspection • Alignment Process
	XYZ		**PSXYZ1000** **Clear Aperture XYZ Stage**		49	• Ideal for table top inspection application • Excellent geometric performance • Integrated XY, linear-motor stage with clear aperture • Custom-engineered designs with linear motion components integrated directly into granite structure • Travels up to 250 mm X 250 mm, Z Axis 200 mm	• Automated optical inspection • Vision detection

NOTE: *Ultra precision (Repeatability less than 1 µm)*
High precision (Repeatability ranging from 1 to 5 µm)

Type	Category		Product Name	Product Image	Page No.	Key Features	Applications
Modules	XY	High Dynamic Motion	**PMXY1000 XY Stage**		51	• Integrated XY High Precision Linear Motor Stage • High rigidity aluminum structure • Equipped with ironless linear motor • Zero cogging & low velocity ripple • Smooth motion	• Automated optical inspection • PCB drilling equipment • Vision detection
			PMXY2000 XY Positioning Stage		53	• Integrated two-axes configuration by our star product - PLA (Precision Linear Actuator) • Powered by ironless or ironcore direct drive motor • High repeatability +/- 1.0 um • Optimizes orthogonality , straightness & flatness	• Optics manufacturing, testing & inspection • Semiconductor processing & inspection
			PMXY3000 Clear Aperture XY Stage		55	• Ideal for inspection application with center clear aperture • Integrated XY precision linear motor stage • Excellent geometric performance (Flatness ±10 µm , XY Orthogonality ±5 arc-sec) • Integrated cable management	• Automated optical inspection • Semiconductor wafer inspection • Vision detection
			PMXY4000 Low Profile Clear Aperture XY Stage		57	• Customizable solutions available • Superior geometric performance • Optimised for high-dynamic applications • Speeds up to 2 m/s and accelerations up to 1G • Low profile & compact design	• Automated optical inspection • Semiconductor wafer inspection • Vision detection
			PMXY5000 Bellow Cover XY Stage		59	• Dust-proof design • High load capacity • Excellent geometric performance • Travels up to 0.55 m X 0.55 m	• PCB/steel plate laser cutting applications • 3D engraving machine applications
	XYZ		**PMXYZ1000 Dual Carriage XYZ Stage**		61	• High precision & excellent positioning accuracy dual carriages system • Integrated XY linear-motor stage with ball-screw Z Axis • Travels up to 250 mm X 250 mm, Z Axis 150 mm	• High speed pick and place • Electronic components assembly • Surface mount technology application
			PMXYZ2000 Dual Carriage XYZ Stage		63	• High precision & excellent positioning accuracy dual carriages system • Integrated XY linear-motor stage with Voice coil Z Axis • Travels up to 460 mm X 50mm, Z Axis 12 mm	• Electronic components assembly • High precision dispensing • Automated assembly

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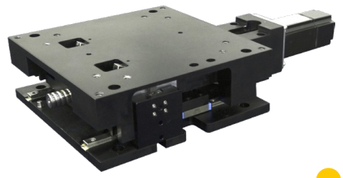
High precision (Repeatability ranging from 1 to 5 µm)

Type	Category		Product Name	Product Image	Page No.	Key Features	Applications
Modules	XYZ	High Dynamic Motion	**PMXYZ3000** **XYZ Stage**		65	• Integrated 3 axes configuration by PLA and ballscrew actuator • Excellent geometry performance • Up to 10 kg payload • Travels up to 2.6 m X 0.4 m X 0.4 m	• High speed pick and place • Handling and testing system • Semiconductor processing and inspection
			PMXYZ4000 **XYZ Stage**		67	• Integrated 3 axes configuration by PLA and ballscrew actuator • Up to 15kg payload • Superior geometric performance • Travels up to 200mm for each axis	• Electronic components assembly • High precision dispensing • Automated assembly
Modules	Z	High Dynamic Motion	**PPM** **Multi-Head High Speed Pick-and-Place Module**		73	• Powered by ironcore motor • High accuracy and repeatability (+/- 1.5um) • High speed 0.5m/s and high acceleration 30m/s2 • Easy plug and play vacuum system integration • Independent pick head control • Equipped with springs for counter balance • Compact modular design	• Pick and place • Precise positioning of parts with low mass • Applications with highly dynamic requirement • Applications with high positioning cycles • Handling and testing systems • Feeding Equipment
Actuators			**PZA-H** **Z Positioning Actuator**		69	• Low-profile design for easy integration into multi-axis motion system • Powered by ironless motor • Up to 20kg payload • High repeatability +/-0.5um • Customizable stroke • Equipped with pneumatic counter balance	• Automated optical inspection (AOI) • Semiconductor wafer inspection & processing • Vision detection • Research & laboratory applications • Photonics assembly & inspection
			PZL **Vertical Lift Actuator**		71	• Wedge-type ballscrew driven actuator • Up to 75kg payload • Maximum vertical stroke of 25mm • Robust dynamic performance and precise	• Automated optical inspection • Semiconductor processing & inspection • Optics production, examination & inspection

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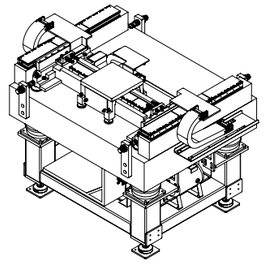
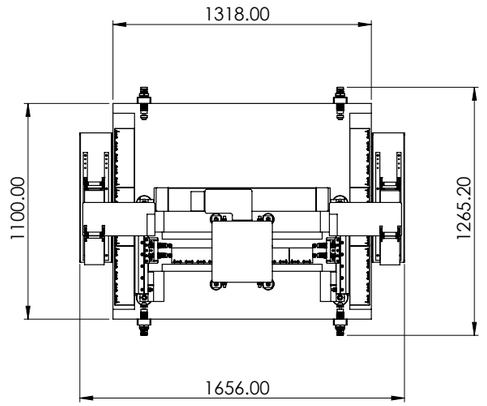
PABG1000
Co-planar Air Bearing XY Gantry

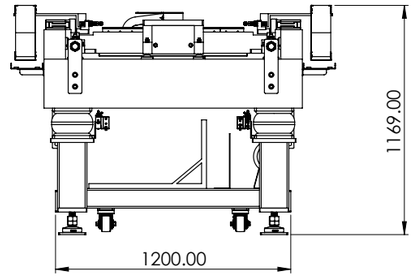


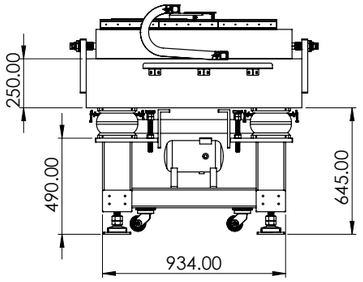
Key Features
- Powered by Air bearing technology
- Ultra-smooth motion
- High speed and low velocity ripple
- Easy maintenance
- Excellent positioning accuracy

Application
- Suitable for temperature sensitive application
- Glass scribing
- Glass substrate exposure
- Wafer defect detection equipment

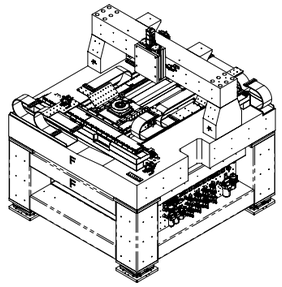
PABG1000 - Co-planar Air Bearing XY Gantry		Axis	
Specification	**Unit**	**X1, X2**	**Y**
Axis orientation	--	Bottom	Top
Stroke	mm	400	400
Straightness	µm/ Full stroke	± 0.8	± 0.8
Flatness	µm/ Full stroke	± 0.6	± 0.6
Yaw	arc-sec	± 1.2	± 1.2
Pitch	arc-sec	± 1.4	± 1.4
Accuracy with error mapping	µm	± 0.6	± 0.6
Bi-directional repeatability	µm	± 0.5	± 0.5
X/Y Orthogonality	arc-sec (300mm x 300mm)	± 2	± 2
Maximum velocity	mm/s	800	800
Maximum acceleration	m/s^2	8	8
In-position stability	µm	± 0.08	± 0.08
Encoder resolution	µm	20 (1Vpp)(Analog)	20 (1Vpp)(Analog)
Encoder resolution (After controller multiplication *8192)	µm	0.00245	0.00245







PABG2000
Co-planar Air Bearing XYZ Theta Gantry

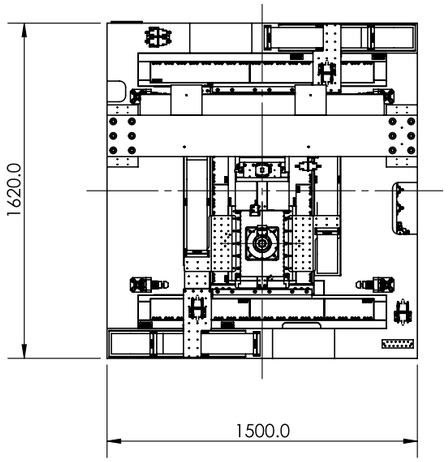


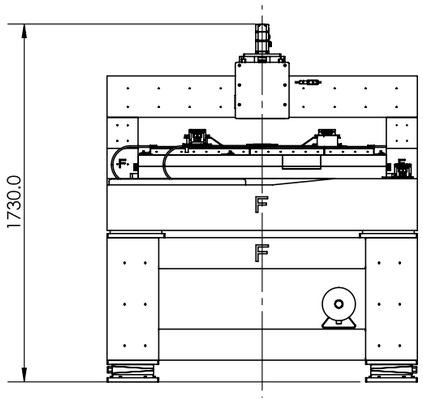
Key Features
- Powered by air bearing technology
- Ultra-smooth motion
- High speed and low velocity ripple
- Easy maintenance
- Active Yaw Control
- Excellent positioning accuracy and repeatability
- Low settling time

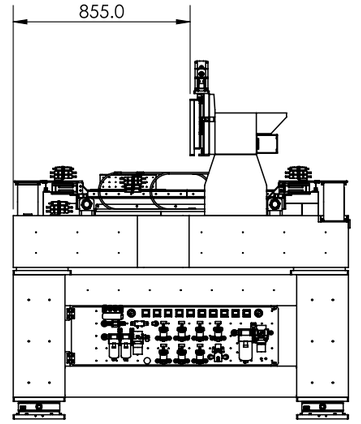
Application
- Wafer scribing
- Glass substrate exposure
- Wafer defect detection equipment
- High speed pick and place
- Automated assembly

PABG2000 - Co-planar Air Bearing XYZ Theta Gantry		Axis		
Specification	**Unit**	**X1, X2**	**Y**	**Z**
Axis orientation	--	Bottom	Top	Vertical
Stroke	mm	404	514	14
Straightness in X/Y Direction	µm/ Full stroke	± 0.6	± 0.8	± 0.2
Straightness in Z Direction	µm/ Full stroke	± 0.8	± 0.8	-
Yaw	arc-sec	± 1	± 1	-
Pitch	arc-sec	± 1	± 1	-
Accuracy with error mapping	µm	± 0.5	± 0.5	± 0.6
Bi-directional repeatability	µm	± 0.2	± 0.2	± 0.6
Maximum velocity	mm/s	800	1333	10
Maximum acceleration	m/s^2	10	18	-
In-position stability	µm	± 0.015	± 0.015	-
Encoder resolution	µm	0.00244	0.00244	0.00244
X/Y Orthogonality	arc -sec	± 3	± 3	-
Speed stability at 1.333 m/s	%	-	± 0.05	-
Speed stability at 1.0 m/s	%	-	± 0.05	-
Speed stability at 0.5 m/s	%	-	± 0.08	-
Speed stability at 0.25 m/s	%	-	± 0.1	-
Speed stability at 0.1 m/s	%	-	± 0.3	-

Theta Axis (Top)		
Specification	**Unit**	**Spec**
Travel range	deg	370
Straightness in Z direction	µm/ Full stroke	± 10
Parallelism	µm	10
Axial runout	µm	5
Radial runout	µm	5
Accuracy with error mapping	arc-sec	± 1
Bi-directional repeatability	arc-sec	± 0.8
Encoder resolution	CPR	3,276,800



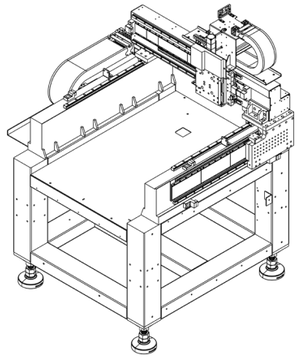




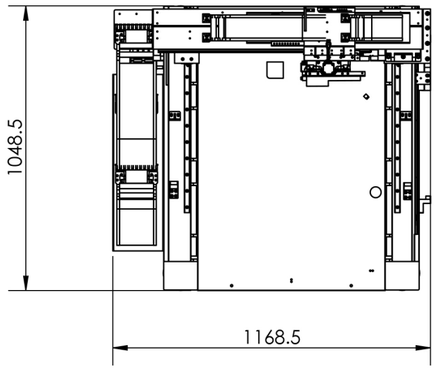
PTG1000
XYZ T-Gantry

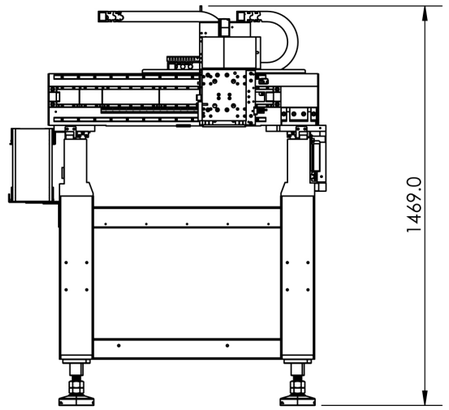
Key Features
- High speed and acceleration
- Velocity up to 1.0 m/s and acceleration up to 1.0 g
- High stiffness aluminum gantry structure
- Customisable Z Axis for flexible configurations
- Travels up to 0.5 m X 0.5m

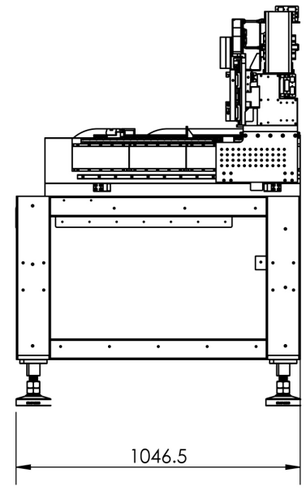
Application
- Automated optical inspection
- Automated assembly
- High speed Pick & Place



PTG1000 - XYZ T-Gantry		Axis		
Specification	**Unit**	**X**	**Y**	**Z**
Axis orientation	--	Bottom	Top	Vertical
Stroke	mm	510	510	50
Straightness	µm/ Full stroke	± 5	± 5	± 1
Flatness	µm/ Full stroke	± 5	± 3	± 2
Yaw	arc-sec	± 5	± 5	± 5
Pitch	arc-sec	± 5	± 5	± 5
Accuracy with error mapping	µm	± 1	± 0.6	± 1.5
Bi-directional repeatability	µm	± 0.6	± 0.6	± 1
X/Y Orthogonality	arc-sec	± 5	± 5	± 7
Maximum velocity	mm/s	1500	1000	50
Maximum acceleration	m/s^2	10	10	1
In-position stability	µm	± 0.09	± 0.05	± 0.05
Encoder resolution (Quantic Analog)	µm	0.1	0.1	-
21 mm stroke , ± 2.25µm settle	ms	<=220	<=180	-
31 mm stroke , ± 4.5µm settle	ms	<=150	<=150	-



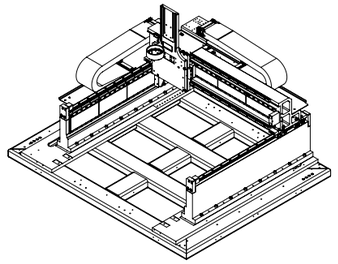




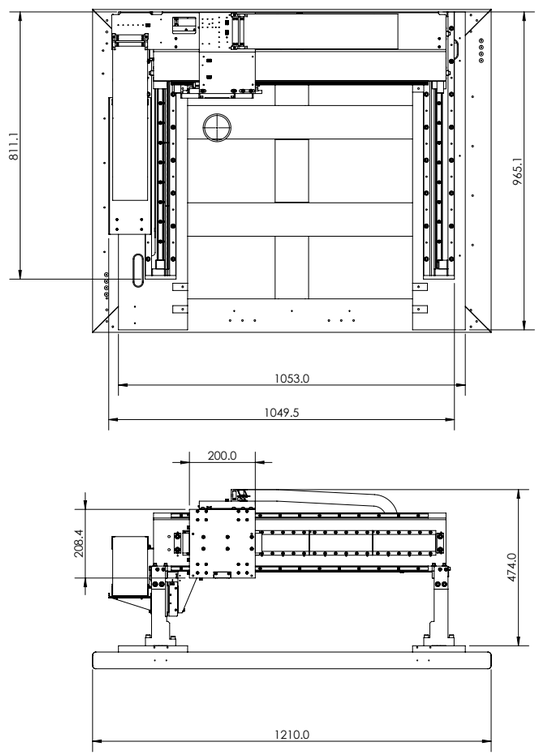
PTG2000
XY T-Gantry

Key Features
- High speed and acceleration
- Velocity up to 1.0 m/s and acceleration up to 1.0 g
- Equipped with ironcore linear motor
- Travels up to 0.5 m X 0.5m

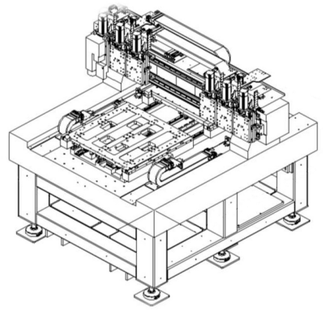
Application
- Automated optical inspection
- Automated assembly
- High speed Pick & Place



PTG2000 - XY T-Gantry		Axis	
Specification	**Unit**	**X**	**Y**
Axis orientation	--	Bottom	Top
Stroke	mm	513	520
Straightness	µm/ Full stroke	± 10	± 10
Flatness	µm/ Full stroke	± 10	± 10
Accuracy	µm	± 40	± 40
Bi-directional repeatability 3 sigma	µm	± 5	± 5
X/Y Orthogonality	arc-sec	± 2	± 2
Maximum velocity	mm/s	1000	1000
Maximum acceleration	m/s^2	5	10
Encoder resolution	µm	1	1
30 mm stroke , ± 10µm settle	ms	<=230	<=180
30 mm stroke , ± 2µm settle	ms	<=260	<=220
Payload	kg	10	
Overall stage weight	kg	80	



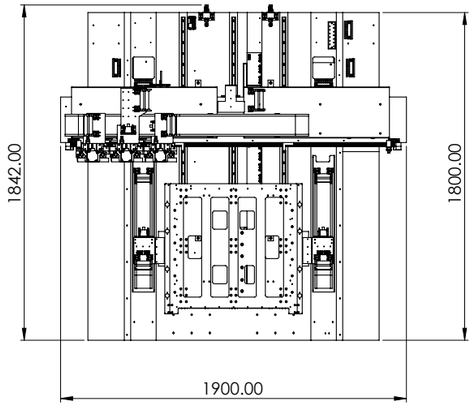
PBG1000
Multi Z XYZ Bridge Gantry

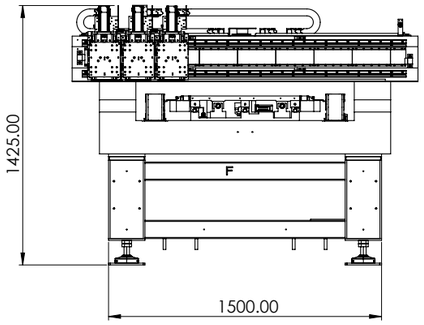


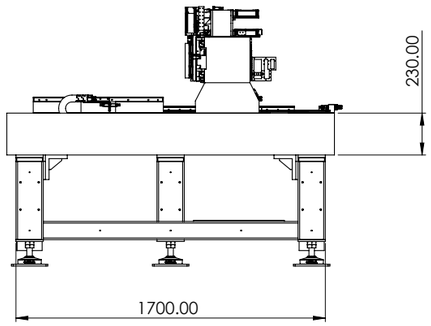
Key Features
- Multiple Z-axis configuration
- Individual controlled movement
- Excellent settling time
- Rigid structure with granite base
- High speed, accuracy and repeatability
- Available in iron core or ironless motor

Application
- Automated optical inspection (AOI)
- Vision detection
- High speed Pick & Place
- Automated assembly
- Dispensing

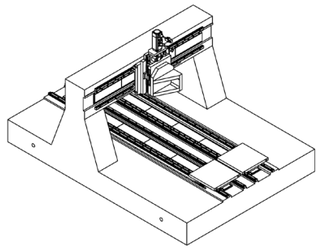
PBG1000 - Multi Z XYZ Bridge Gantry		Axis		
Specification	**Unit**	**X**	**Y1, Y2, Y3**	**Z1, Z2, Z3**
Axis orientation	--	Bottom	Top	Vertical
Stroke	mm	900	1180	30
Straightness	µm/ Full stroke	± 5	± 5	± 2
Flatness	µm/ Full stroke	± 5	± 3	± 2
Yaw	arc-sec	± 2.4	± 6	± 5
Pitch	arc-sec	± 3.4	± 5	± 5
Accuracy with error mapping	µm	± 1	± 1.2	± 1.5
Bi-directional repeatability	µm	± 0.8	± 0.6	± 4
X/Y Orthogonality	arc-sec	± 2	± 2	± 7
Maximum velocity	mm/s	1200	1200	50
Maximum acceleration	m/s^2	6	10	1
Encoder resolution	µm	40 (~1VPP) (Analog)	40 (~1VPP) (Analog)	Rotary encoder 20 bits (Digital) Ball screw lead = 2 mm
Encoder resolution (After controller multiplication *16384)	µm	0.00245	0.00245	0.00191
Payload	kg	Y Axis + Z Axis + 10	Z Axis + 10	10
10mm stroke , ± 1µm settle , payload 90kg	ms	<=150	<=150	-







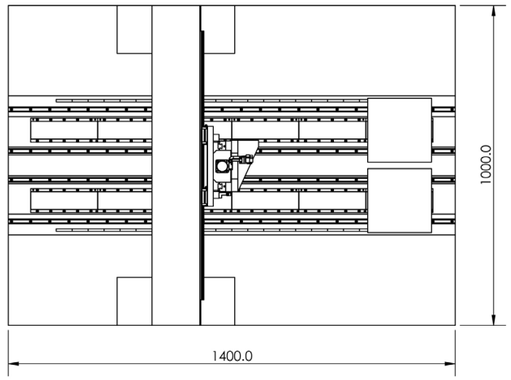
PBG2000
Dual X Axis XY Bridge Gantry

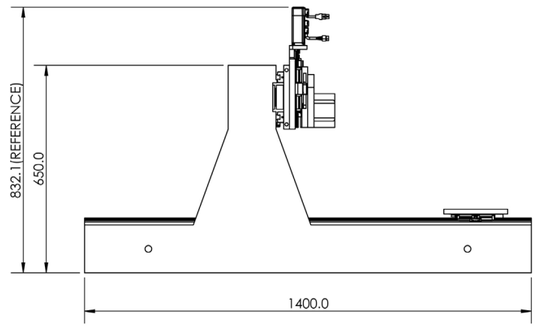


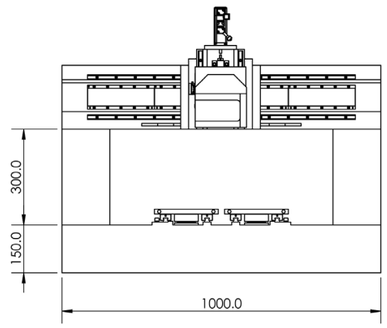
Key Features
- High speed and acceleration
- Velocity up to 1.0 m/s and acceleration up to 1.0 g
- Can be equipped with ironless or ironcore motor
- Rigid structure with Granite base
- Absolute Non-contact linear encoders

Application
- Automated optical inspection
- Vision detection
- High speed Pick & Place
- Automated assembly
- Dispensing

PBG2000 - Dual X Axis XY Bridge Gantry		Axis		
Specification	**Unit**	**X1, X2**	**Y**	**Z**
Axis orientation	--	Bottom	Top	Vertical
Stroke	mm	1080	430	50
Straightness	µm/ Full stroke	± 5	± 3	± 3
Flatness	µm/ Full stroke	± 5	± 3	± 2
Yaw	arc-sec	± 5	± 5	-
Pitch	arc-sec	± 5	± 5	-
Accuracy with error mapping	µm	± 1	± 1	± 1.5
Bi-directional repeatability	µm	± 0.8	± 1	± 1
X/Y Orthogonality	arc-sec	± 2	± 2	± 2.5
Maximum velocity	mm/s	1000	1000	50
Maximum acceleration	m/s^2	10	10	1.5
In-position stability	µm	± 0.1	± 0.1	± 0.3
Encoder resolution	µm	0.1	0.1	0.1
Payload	kg	10	Z Axis + 12	12
36 mm stroke , ± 1µm settle	ms	<=150	<=150	-



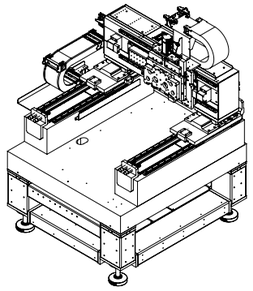




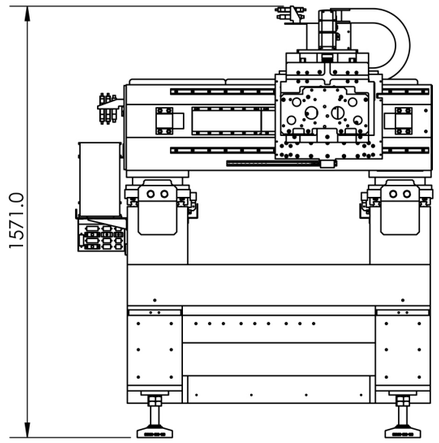
PFG1000
XYZ H-Gantry

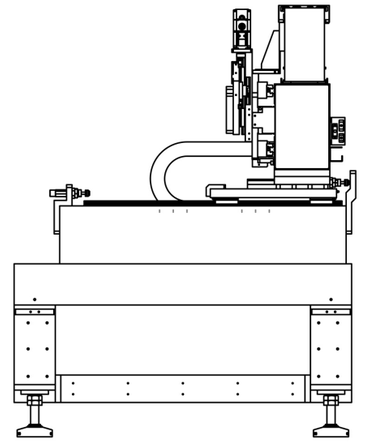
Key Features
- High dynamic contouring
- Ultra precision & excellent positioning accuracy
- Repeatability down to ± 0.5 µm
- Customisable Z and Theta axes for flexible configurations
- Equipped with ironcore linear motor
- Max velocity up to 2 m/s and acceleration up to 4G

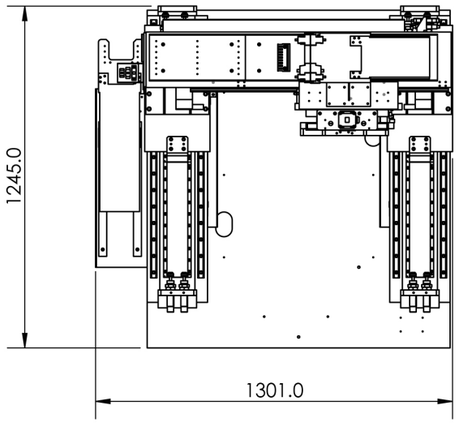
Application
- Automated optical inspection
- Automated assembly
- Dispensing
- Printed electronics
- Precision micro-machining



PFG1000 - XYZ H-Gantry		Axis		
Specification	**Unit**	**X1, X2**	**Y**	**Z**
Axis orientation	--	Bottom	Top	Vertical
Stroke	mm	420	320	30
Straightness	µm/ Full stroke	± 1.2	± 1.5	± 0.8
Flatness	µm/ Full stroke	± 3	± 1.5	± 1
Yaw	arc-sec	± 1.5	± 1.5	± 1.5
Pitch	arc-sec	± 3	± 3	± 3
Accuracy with error mapping	µm	± 0.5	± 0.5	± 1
Bi-directional repeatability	µm	± 0.5	± 0.5	± 1
X/Y Orthogonality X/Z Orthogonality	arc-sec (300mm x 300mm)	± 1	± 1	± 2
Maximum velocity	mm/s	1000	1000	50
Maximum acceleration	m/s^2	6	6	2
In-position stability	µm	± 0.4	± 0.1	± 0.025
Encoder resolution	µm	0.00244	0.00244	0.00244
25 mm move , ± 0.5µm settle 20 kg payload	ms	<=200	<=200	-



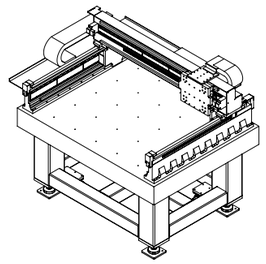




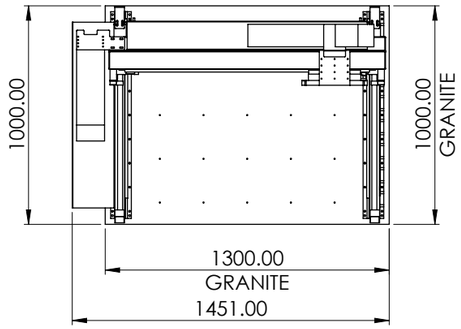
PFG2000
XY H-Gantry

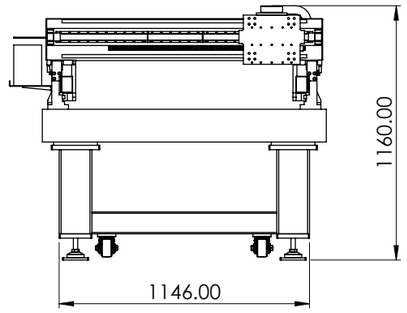
Key Features
- Optimized design for precise contouring
- High speed and acceleration
- High stiffness aluminum gantry structure
- Velocity up to 1.0 m/s and acceleration up to 1.6 g
- Travels up to 0.6 m X 0.8 m

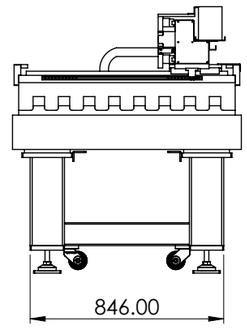
Application
- Stencil cutting
- High speed Pick & Place
- Laser Cutting
- Fuel cell manufacturing



PFG2000 - XY H-Gantry		Axis	
Specification	**Unit**	**X1, X2**	**Y**
Axis orientation	--	Bottom	Top
Stroke	mm	600	800
Straightness	µm/ Full stroke	± 3	± 5
Flatness	µm/ Full stroke	± 5	± 5
Accuracy with error mapping	µm	± 1	± 1
Bi-directional repeatability	µm	± 0.3	± 0.3
X/Y Orthogonality	arc-sec (300mm x 300mm)	± 1	± 1
Maximum velocity	mm/s	1000	1000
Maximum acceleration	m/s^2	16	16
In-position stability	µm	± 0.1	0.2
Encoder resolution	µm	0.1	0.1
Payload	kg	15	





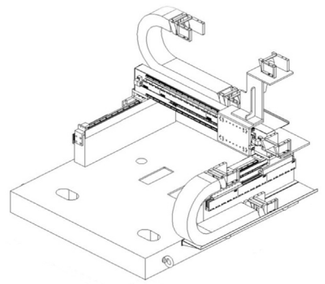


PRECISION FLEX GANTRY

PFG3000
XY H-Gantry

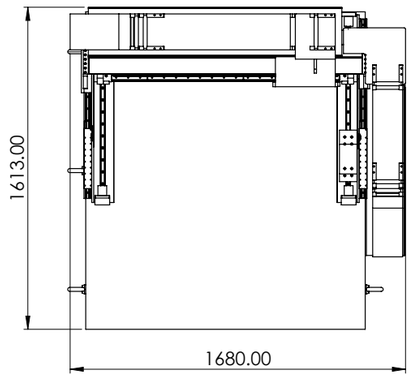
Key Features
- Excellent precision & positioning accuracy
- Repeatability down to ± 0.5 µm
- Smooth motion with no cogging
- Equipped with ironless linear motor
- Travels up to 0.5 m X 0.8m

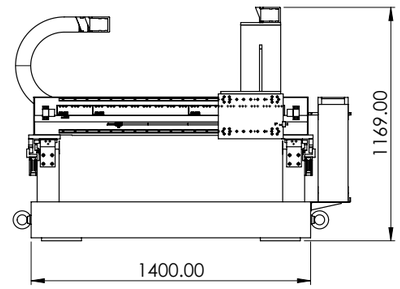
Application
- Automated optical inspection
- Stencil cutting
- Precision micro-machining

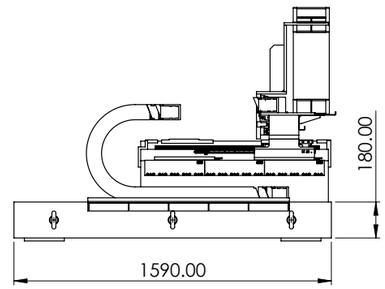


PFG3000 - XY H-Gantry		Axis	
Specification	**Unit**	**X**	**Y**
Axis orientation	--	Bottom	Top
Stroke	mm	500	800
Straightness	µm/ Full stroke	± 5	± 8
Flatness	µm/ Full stroke	± 5	± 8
Accuracy with error mapping	µm	± 0.8	± 1
Bi-directional repeatability	µm	± 0.4	± 0.5
X/Y Orthogonality	arc-sec	± 1	± 1
Maximum velocity	mm/s	1000	1000
Maximum acceleration	m/s^2	5	5
In-position stability	µm	± 0.2	± 0.2
Encoder resolution	µm	0.1	0.1
Payload	kg	18	

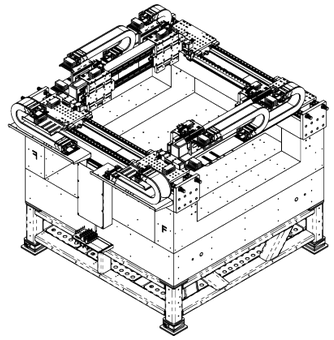
DIMENSIONS







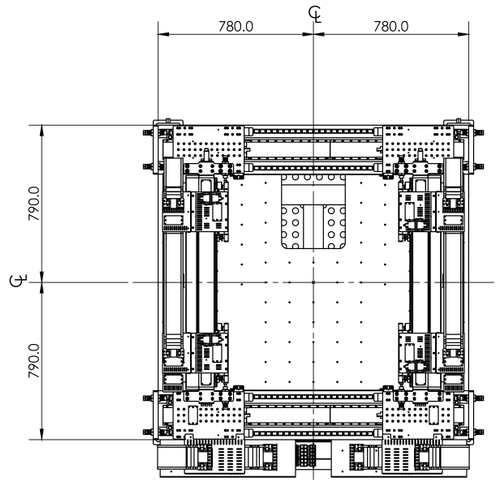
PFG4000
High Speed XY Flex Gantry

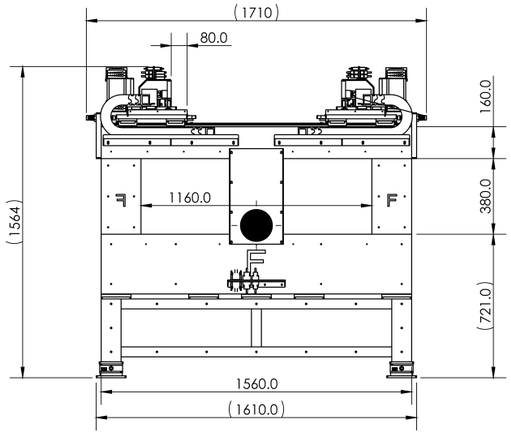


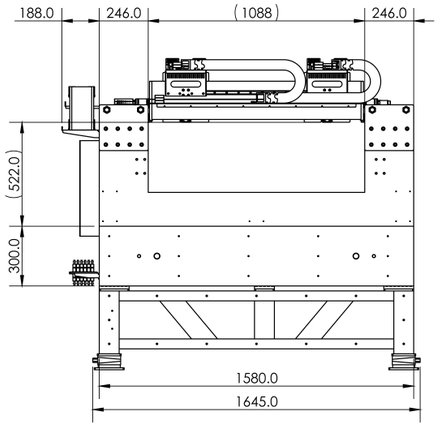
Key Features
- Flex joint design
- ±350nm for local placement accuracy
- Max velocity up to 2 m/s
- Max acceleration up to 4G
- Controllable Thermal Expansion Technology
- Thermal Stability in 15 min
- ISO 5 cleanroom compatible (Class 100)

Application
- Die bonding processes (Advanced Flip Chip Bonding)
- µ-LED bonding
- Dispensing
- High speed and high accuracy pick & place
- Semiconductors manufacturing
- Electronic component packaging applications

PFG4000 - High Speed XY Flex Gantry		Axis	
Specification	**Unit**	**X1, X2, X3, X4**	**Y1, Y2**
Axis orientation	--	Bottom	Top
Stroke	mm	500	710
Straightness	µm/ Full stroke	± 3	± 5
Flatness	µm/ Full stroke	± 3	± 5
Accuracy with error mapping	µm	± 0.6	± 1
Bi-directional repeatability	µm	± 0.35	± 0.35
X/Y Orthogonality	arc-sec	± 3	± 3
Maximum velocity	mm/s	2000	2000
Maximum acceleration	m/s^2	28	40
Encoder resolution (Quantic Analog)	µm	0.1	0.1
0.1 mm stroke, ± 1.5 µm settle	ms	<=50	<=50
50 mm stroke, ± 1.5 µm settle	ms	<=150	<=150
200 mm stroke, ± 1.5 µm settle	ms	<=240	<=240



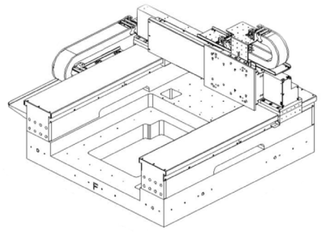




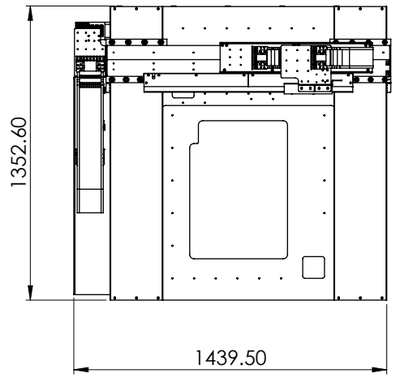
PFG5000
Clear Aperture XY H-Gantry

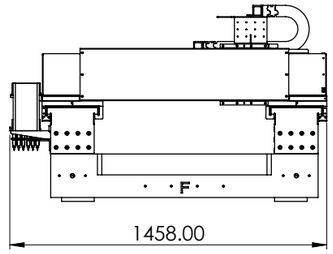
Key Features
- Excellent solution for optical inspection
- Center open aperture stage for top and bottom inspection
- Excellent settling time
- Travels up to 0.5 m X 0.8 m
- Absolute Non-contact linear encoders

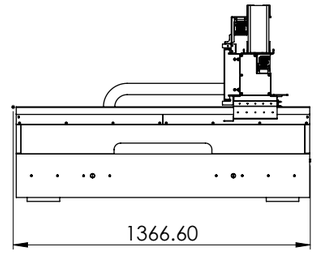
Application
- Automated optical inspection
- Vision detection
- Automated assembly



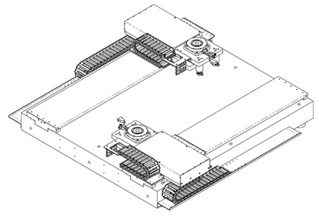
PFG5000 - Clear Aperture XY H-Gantry		Axis	
Specification	**Unit**	**X1, X2**	**Y**
Axis orientation	--	Bottom	Top
Stroke	mm	850	550
Straightness	µm/ Full stroke	± 2	± 5
Flatness	µm/ Full stroke	± 3	± 2.5
Yaw	arc-sec	± 1.5	± 3.5
Pitch	arc-sec	± 3	± 5
Accuracy with error mapping	µm	± 0.8	± 1
Bi-directional repeatability	µm	± 0.6	± 0.8
X/Y Orthogonality	arc-sec (300mm x 300mm)	± 5	± 5
Maximum velocity	mm/s	1500	1500
Maximum acceleration	m/s^2	10	10
In-position stability	µm	± 0.05	± 0.05
Encoder resolution	µm	40	40







PSXYT1000
Dual XY Theta Stage

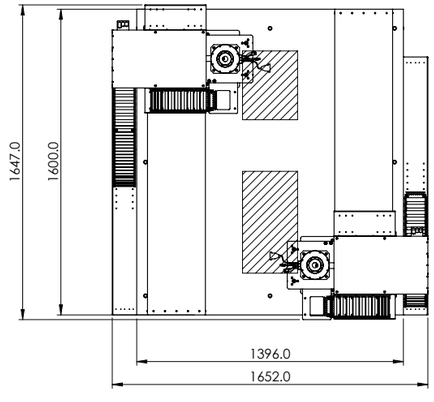


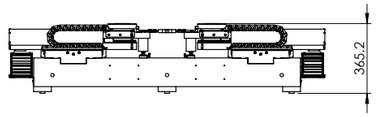
Key Features
- High precision dual axis X-Y positioning
- Integration of high-precision torque motor
- Compact design for space limited application
- Uninterrupted process for each axis
- Travels up to 0.3 m X 1.0 m

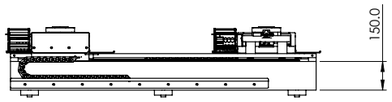
Application
- Automated assembly
- Semiconductor wafer inspection
- Precision micro-machining

PSXYT1000 - Dual XY Theta Stage		Axis	
Specification	**Unit**	**X1, X2**	**Y1, Y2**
Axis orientation	--	Bottom	Top
Stroke	mm	1080	338
Straightness	µm/ Full stroke	± 8	± 5
Flatness	µm/ Full stroke	± 15	± 10
Accuracy with error mapping	µm	± 2	± 2
Bi-directional repeatability	µm	± 1	± 1
X/Y Orthogonality	arc-sec	± 5	± 5
Maximum velocity	mm/s	1000	1000
Maximum acceleration	m/s^2	10	10
Encoder resolution	µm	0.2	0.2
Maximum load capacity	kg	8	

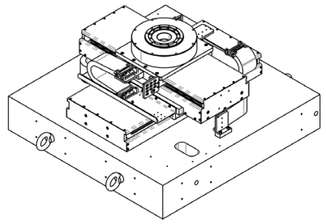
Theta Axis		
Specification	**Unit**	**Spec**
Theta range	degree	360 continuous
Bi-directional repeatability	arc-sec	± 2
Parallelism	µm	± 10
Maximum velocity	deg/s	10
Encoder resolution	CPR	655,360







PSXYT2000
XY Theta Stage

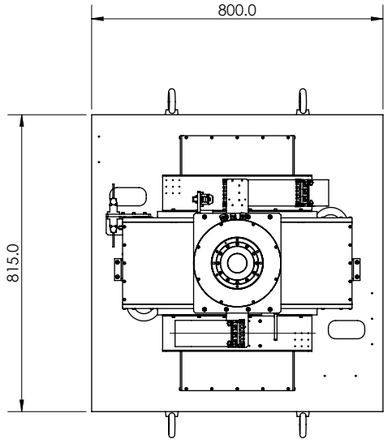


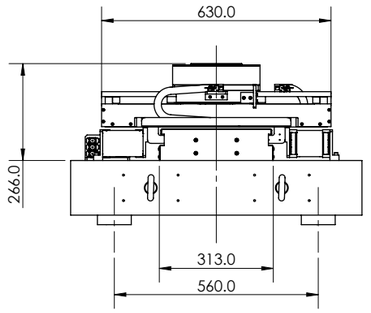
Key Features
- Integration of high-precision torque motor
- High speed X-Y positioning
- High stiffness extruded aluminum structure
- Travels up to 0.3 m X 0.3 m
- Configurable cable management

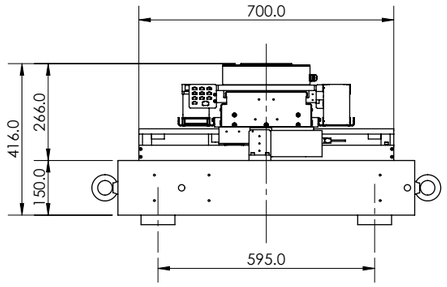
Application
- Automated assembly
- Automated optical inspection testing equipment
- Laser cutting applications
- Appearance grinding/trimming equipment

PSXYT2000 - XY Theta Stage		Axis	
Specification	**Unit**	**X**	**Y**
Axis orientation	--	Bottom	Top
Stroke	mm	500	600
Straightness	μm/ Full stroke	± 5	± 8
Flatness	μm/ Full stroke	± 7	± 8
Accuracy with error mapping	μm	± 5	± 2.5
Bi-directional repeatability	μm	± 2	± 0.5
X/Y Orthogonality	arc-sec	± 2	± 2

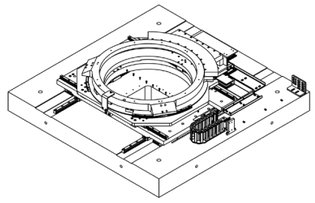
Theta Axis		
Specification	**Unit**	**Spec**
Stroke	Degrees	360 continuous
Maximum speed	rad/s	0.525
Accuracy with error mapping	μm	± 15
Bi-directional repeatability	μm	± 2







PSXYT3000
Clear Aperture XY Theta Stage

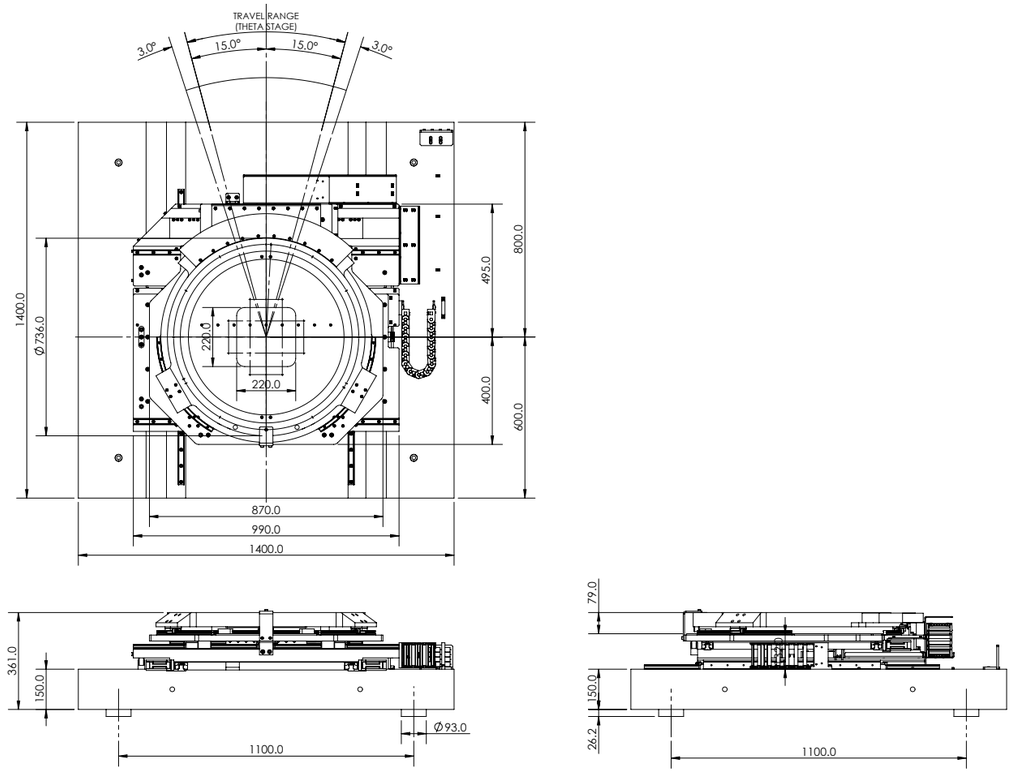


Key Features
- Large Clear Aperture
- High dynamic response, repeatability and accuracy
- Zero Cogging and Low Velocity Ripple
- Powered by PBA DXF ironless linear motor and PBA Arc motor
- Superior geometric performance
- Speeds up to 2 m/s and accelerations up to 1G
- Low profile & compact design

Application
- Automated optical inspection
- Semiconductor wafer inspection
- Vision detection

PSXYT3000 - Clear Aperture XY Theta Stage		Axis	
Specification	**Unit**	**X**	**Y**
Axis orientation	--	Bottom	Top
Stroke	mm	350	350
Straightness	µm/ Full stroke	± 10	± 10
Flatness	µm/ Full stroke	± 20	± 20
Accuracy with error mapping	µm	± 1	± 1
Bi-directional repeatability	µm	± 0.5	± 0.5
Maximum velocity	mm/s	300	300
Maximum acceleration	m/s^2	5	5
Encoder resolution	µm	0.1	0.1
Moving flatness	µm	± 20	
Payload	kg	3	

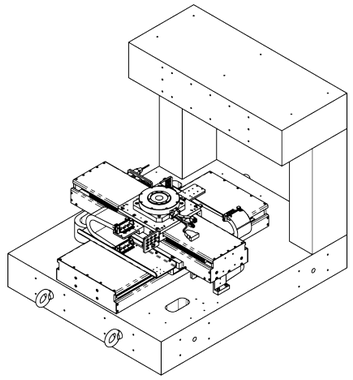
Theta Axis		
Specification	**Unit**	**Spec**
Theta range	degree	30
Bi-directional repeatability	deg	± 0.001
Parallelism	µm	± 10
Maximum velocity	deg/s	30
Encoder resolution	CPR	3,000,000



PSXYT4000
XY Theta Stage

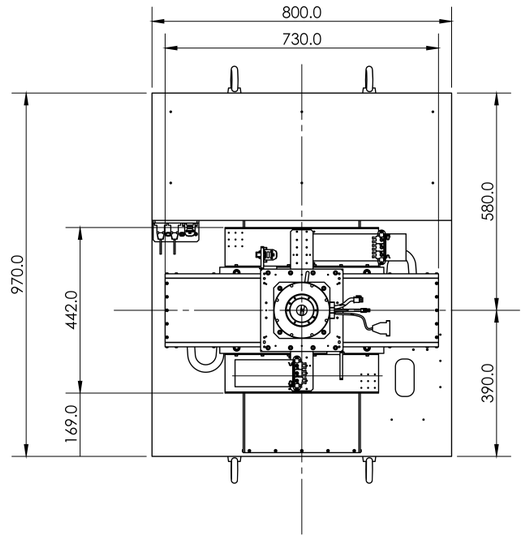
Key Features
- Integration of high-precision torque motor
- High speed X-Y positioning
- High stiffness extruded aluminum structure
- Travels up to 0.3 m X 0.3 m
- Configurable cable management

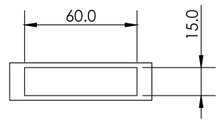
Application
- Automated assembly
- Automated optical inspection testing equipment
- Laser cutting applications
- Appearance grinding / trimming equipment

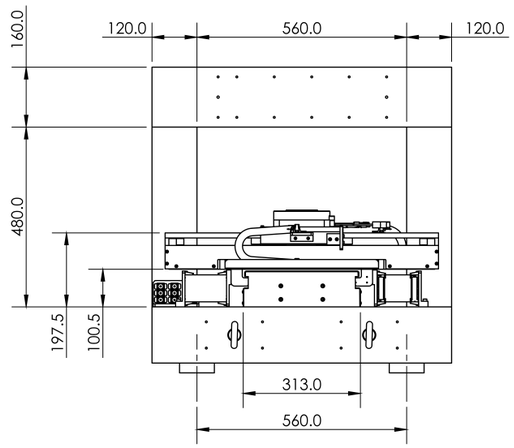


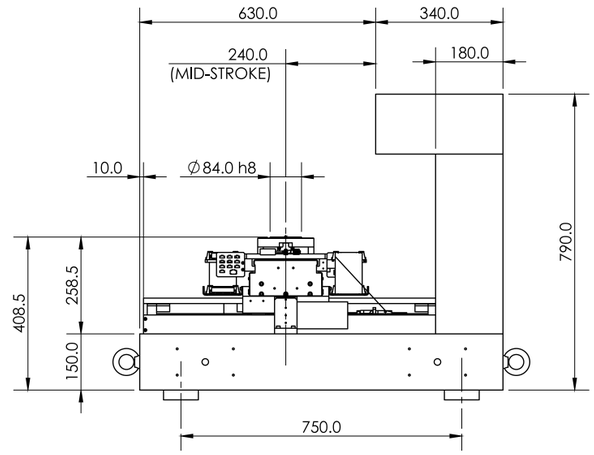
PSXYT4000 - XY Theta Stage		Axis	
Specification	**Unit**	**X**	**Y**
Axis orientation	--	Bottom	Top
Stroke	mm	350	350
Straightness	µm	±5	±5
Flatness	µm	± 8	± 8
Bi-directional repeatability	µm	± 0.8	± 0.8
Accuracy (after error mapping)	µm	± 1	± 1
Maximum velocity	mm/s	875	875
Orthogonality	arc-sec	± 5	± 5

Theta Axis		
Specification	**Unit**	**Spec**
Stroke	deg	360 continuous
Bi-directional repeatability	arcsec	± 2
Accuracy	arcsec	± 15
Maximum velocity	rad/s	0.525
Encoder Resolution	CPR	655360

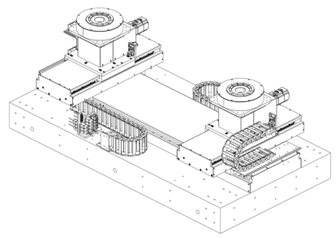








PSXYZT1000
Dual Carriage XYZ Theta Stage

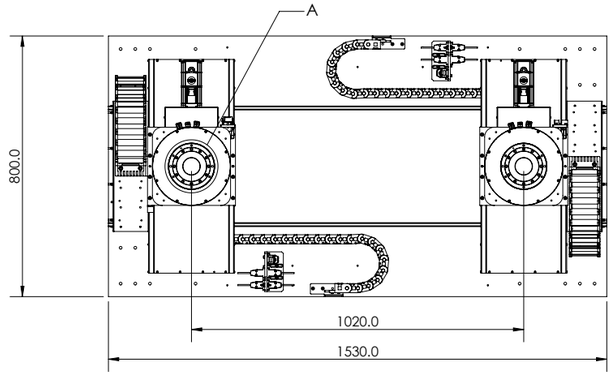


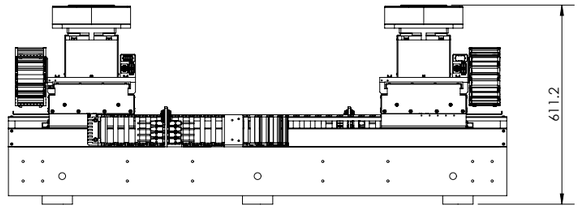
Key Features
- High dynamic dual carriage design
- High-precision PDDR Theta motor
- Integrated Z-axis
- High repeatability
- Low settling time

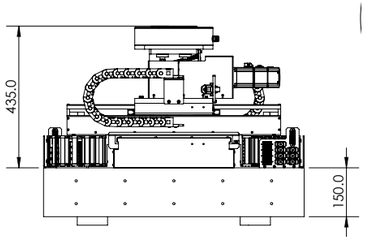
Application
- Wafer probing
- Wafer inspection
- Alignment Process

PSXYZT1000 - Dual Carriage XYZ Theta Stage		Axis		
Specification	**Unit**	**X**	**Y1, Y2**	**Z1, Z2**
Axis orientation	--	Bottom	Top	Vertical
Stroke	mm	740	300	15
Straightness	µm/ Full stroke	± 6	± 10	± 5
Accuracy with error mapping	µm	± 2	± 2	± 4
Bi-directional repeatability	µm	± 1	± 1	± 3
Maximum velocity	mm/s	600	600	25
Encoder resolution (Quantic Analog)	µm	0.1	0.1	0.1
Moving flatness	µm	± 10		
Payload + Thrust load	kg	5 + 40		
Overall weight	kg	900		
Orthogonality	arc-sec	± 9		

Theta Axis		
Specification	**Unit**	**Spec**
Theta range	degree	360
Accuracy with error mapping	arc-sec	± 3
Bi-directional repeatability	arc-sec	± 5
Maximum velocity	rps	1



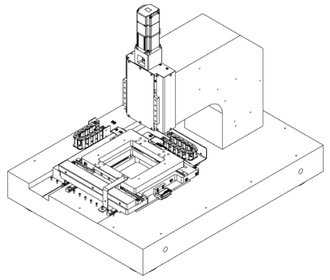




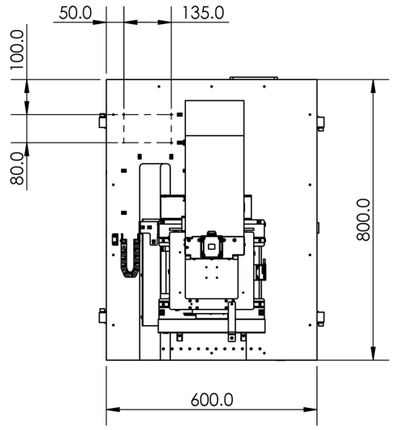
PSXYZ1000
Clear Aperture XYZ Stage

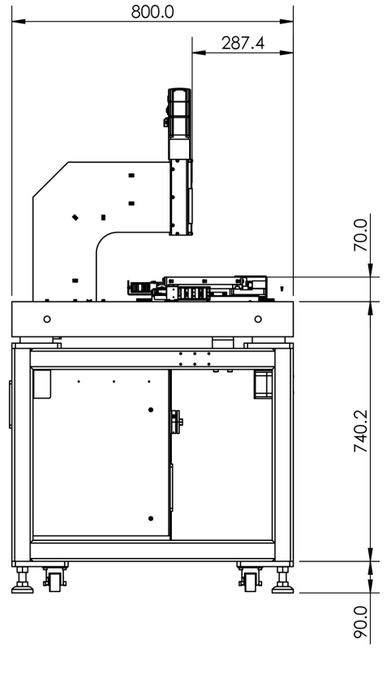
Key Features
- Ideal for table top inspection application
- Excellent geometric performance
- Integrated XY, linear-motor stage with clear aperture
- Custom-engineered designs with linear motion components integrated directly into granite structure
- Travels up to 250 mm X 250 mm, Z Axis 200mm

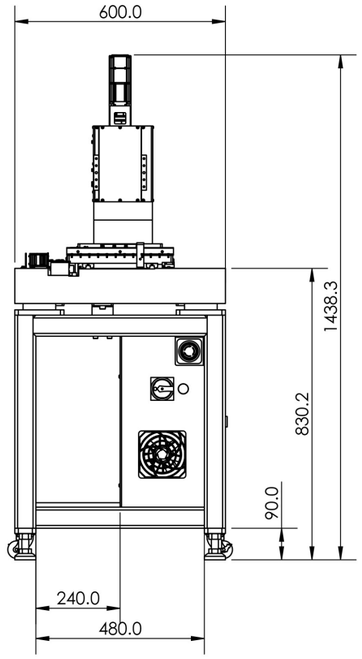
Application
- Automated optical inspection
- Vision detection



PSXYZ1000 - Clear Aperture XYZ Stage		Axis		
Specification	**Unit**	**X**	**Y**	**Z**
Axis orientation	--	Bottom	Top	Vertical
Stroke	mm	150	150	50
Straightness	µm/ Full stroke	± 5	± 5	± 5
Flatness	µm/ Full stroke	± 10	± 10	± 10
Accuracy with error mapping	µm	± 0.6	± 1	± 1
Bi-directional repeatability	µm	± 0.1	± 0.6	± 0.6
Maximum velocity	mm/s	250	250	100
Maximum acceleration	m/s^2	5	5	5
Encoder resolution	µm	0.1	0.1	0.1
Orthogonality	arc-sec	± 3	± 3	± 3
Payload	kg	20		



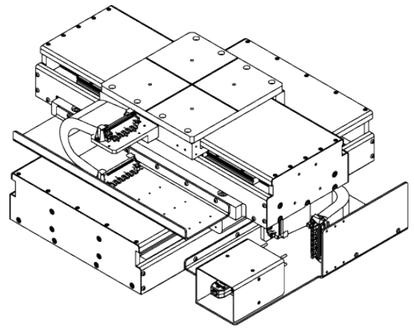




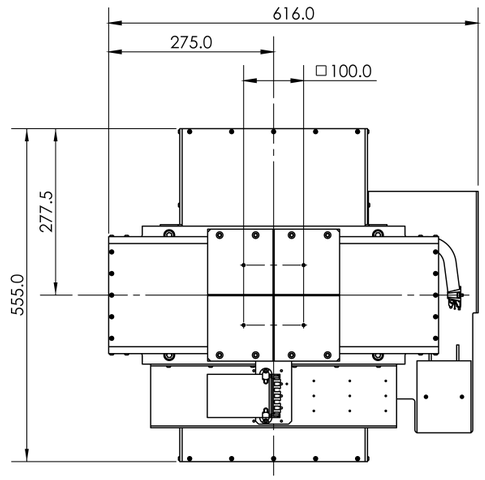
PMXY1000
XY Stage

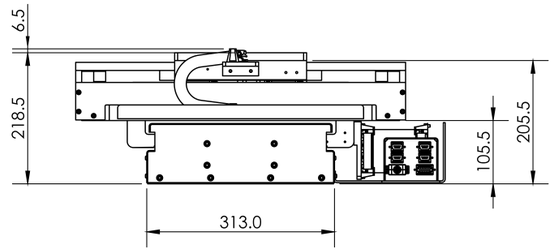
Key Features
- Integrated XY High precision Linear motor stage
- High rigidity aluminum structure
- Equipped with ironless linear motor
- Zero cogging & low velocity ripple
- Smooth motion

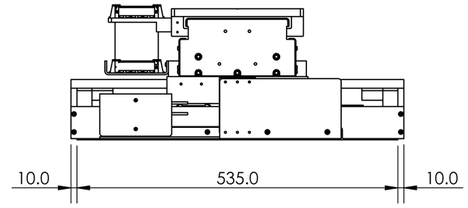
Application
- Automated optical inspection
- PCB drilling equipment
- Vision detection



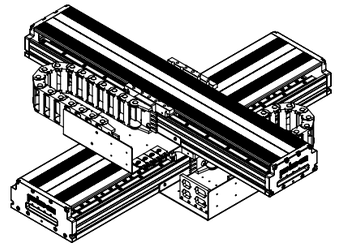
PMXY1000 - XY Stage		Axis	
Specification	**Unit**	**X**	**Y**
Axis orientation	--	Bottom	Top
Stroke	mm	170	170
Straightness	μm/ Full stroke	± 4	± 4
Flatness	μm/ Full stroke	± 2	± 2
Accuracy with error mapping	μm	± 2	± 2
Bi-directional repeatability	μm	± 1	± 1
X/Y Orthogonality	arc-sec	± 4	± 4
Maximum velocity	mm/s	100	100







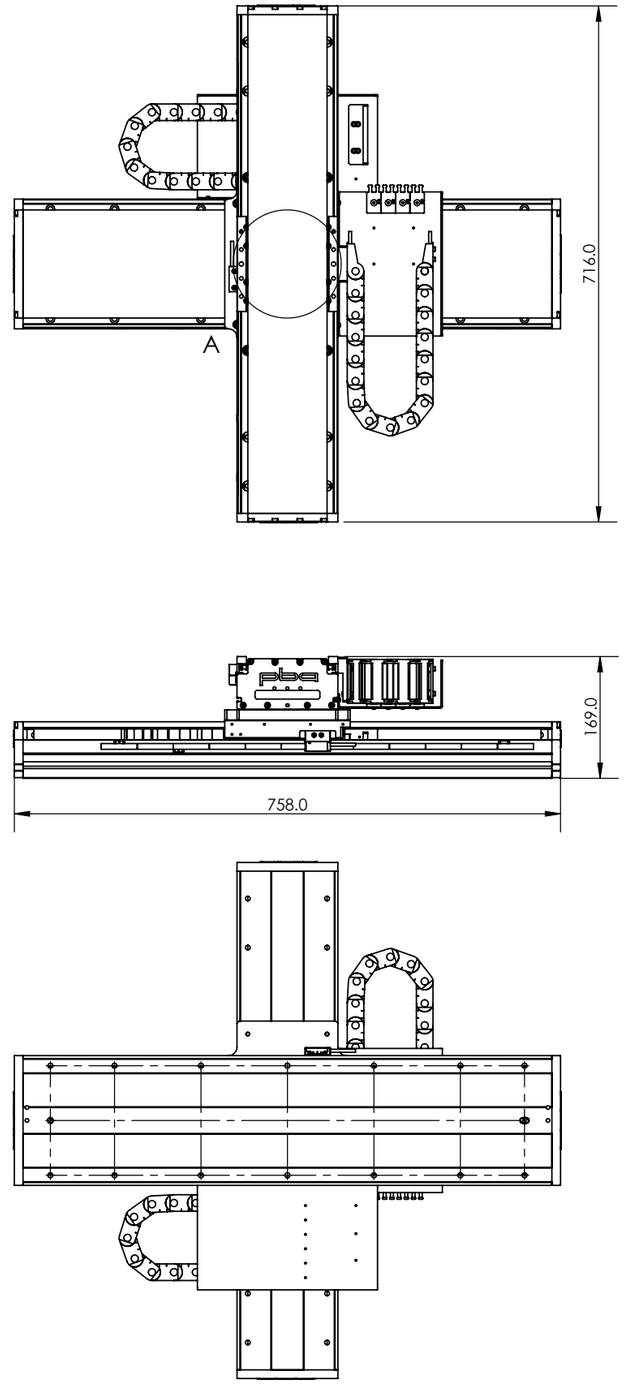
PMXY2000
XY Positioning Stage



Key Features
- Integrated two-axes configuration by our star product - PLA (Precision linear actuator)
- Powered by ironless or ironcore direct drive motor
- High repeatability +/- 1.0um
- Optimizes orthogonality, straightness & flatness

Application
- Optics manufacturing, testing & inspection
- Semiconductor processing & inspection

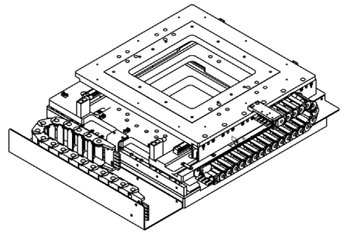
PMXY2000 - XY Positioning Stage		Axis	
Specification	**Unit**	**X**	**Y**
Axis orientation	--	Bottom	Top
Stroke	mm	520	520
Straightness	μm/ Full stroke	± 5	± 5
Flatness	μm/ Full stroke	± 25	± 25
Accuracy with error mapping	μm	± 1	± 3
Bi-directional repeatability	μm	± 0.5	± 0.5
X/Y Orthogonality	arc-sec	± 2	± 2
2.5 mm stroke	ms	<=180	<=180



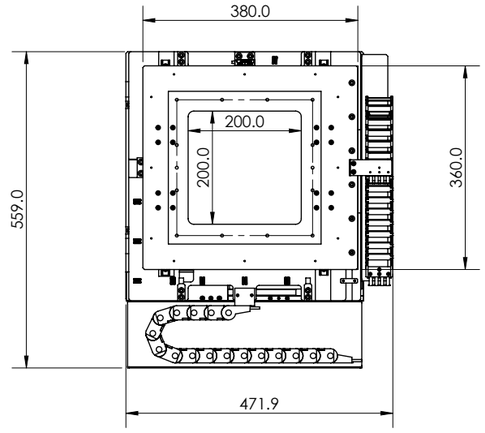
PMXY3000
Clear Aperture XY Stage

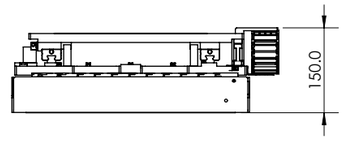
Key Features
- Ideal for inspection application with center clear aperture
- Integrated XY precision Linear motor stage
- Superior geometric performance (Flatness ± 10 µm , XY Orthogonality ± 5 arc-sec)
- Speeds up to 2 m/s and accelerations up to 1G
- Integrated cable management
- Customizable solutions available

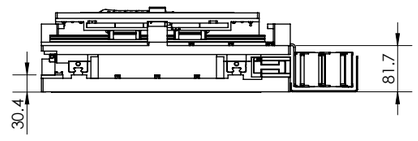
Application
- Automated optical inspection
- Semiconductor wafer inspection
- Vision detection



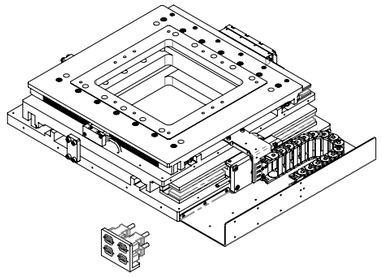
PMXY3000 - Clear Aperture XY Stage		Axis	
Specification	**Unit**	**X**	**Y**
Axis orientation	--	Bottom	Top
Stroke	mm	160	160
Straightness	µm/ Full stroke	± 5	± 3
Flatness	µm/ Full stroke	± 8	± 8
Accuracy with error mapping	µm	± 5	± 8
Bi-directional repeatability	µm	± 1	± 1
X/Y Orthogonality	arc-sec	± 5	± 5







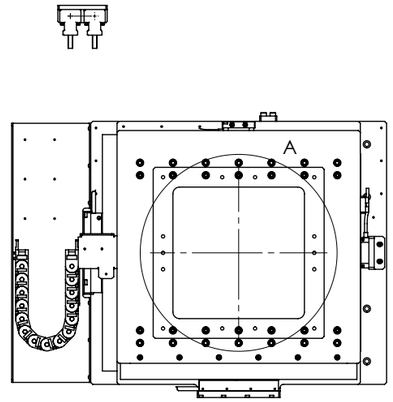
PMXY4000
Low Profile Clear Aperture XY Stage

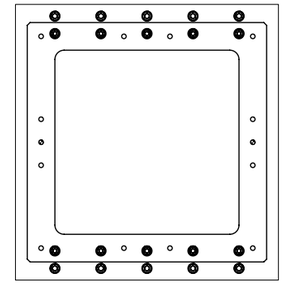


Key Features
- Powered by Ironless motor
- Up to 20kg payload
- High repeatability +/-0.5um
- Integrated with cross roller bearing.
- Low profile, Overall thickness is just 105mm only

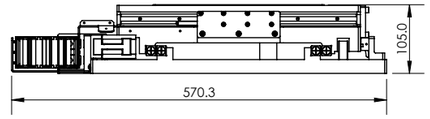
Application
- Automated optical inspection
- Semiconductor wafer inspection
- Vision detection

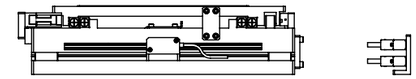
PMXY4000 - Low Profile Clear Aperture XY Stage		Axis	
Specification	**Unit**	**X**	**Y**
Axis orientation	--	Bottom	Top
Stroke	mm	210	210
Straightness	µm/ Full stroke	± 3	± 5
Flatness	µm/ Full stroke	± 5	± 5
Accuracy with error mapping	µm	± 1	± 1
Bi-directional repeatability	µm	± 1	± 1
X/Y Orthogonality	arc-sec	± 3	± 3
Maximum velocity	mm/s	200	200
Maximum acceleration	m/s^2	2	2
Encoder resolution (Absolute)	µm	0.05	0.05
Overall stage weight	kg	34	
Payload	kg	20	

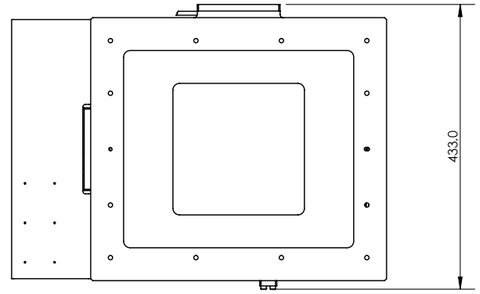




DETAIL A
SCALE 1 : 5



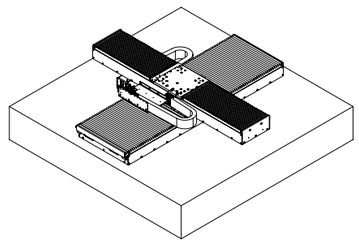




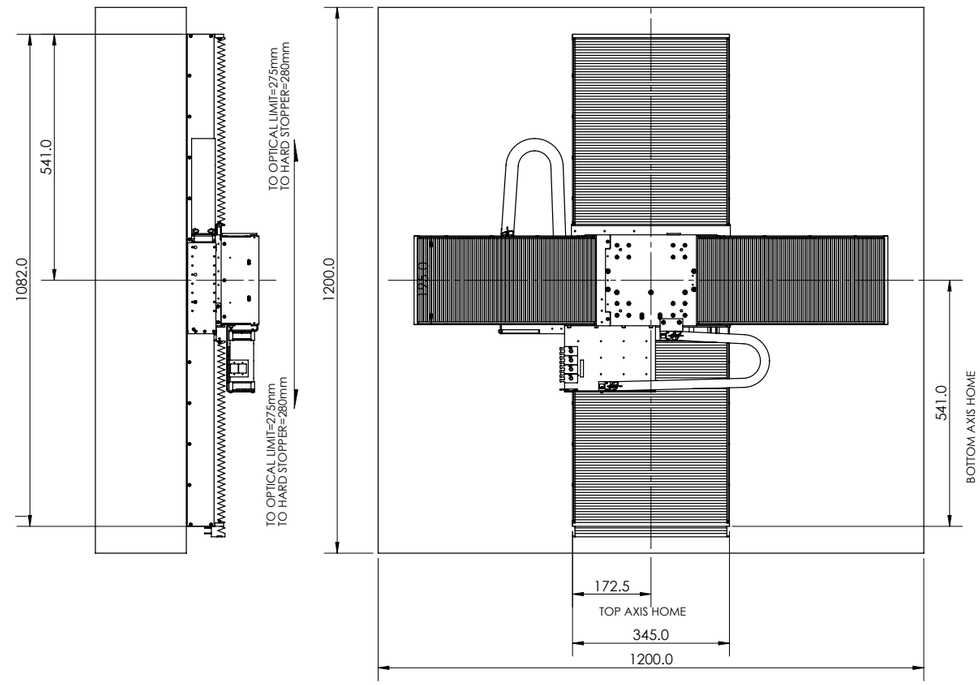
PMXY5000
Bellow Cover XY Stage

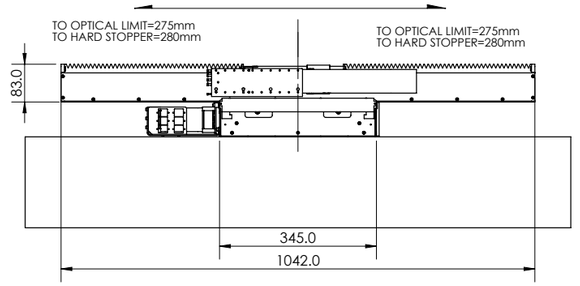
Key Features
- Dust-proof design
- High load capacity
- Excellent geometric performance
- Travels up to 0.55 m X 0.55 m

Application
- PCB/steel plate laser cutting applications
- 3D engraving machine applications

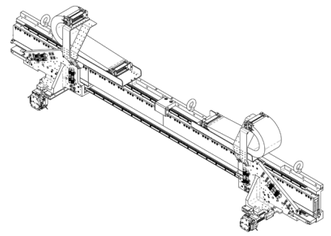


PMXY5000 - Bellow Cover XY Stage		Axis	
Specification	**Unit**	**X**	**Y**
Axis orientation	--	Bottom	Top
Stroke	mm	550	550
Accuracy with error mapping	µm	± 2	± 2
Bi-directional repeatability	µm	± 1	± 1
Maximum velocity	mm/s	300	300
Maximum acceleration	m/s^2	2	2
X/Y Orthogonality	arc-sec	± 5	± 5
Payload	kg	30	





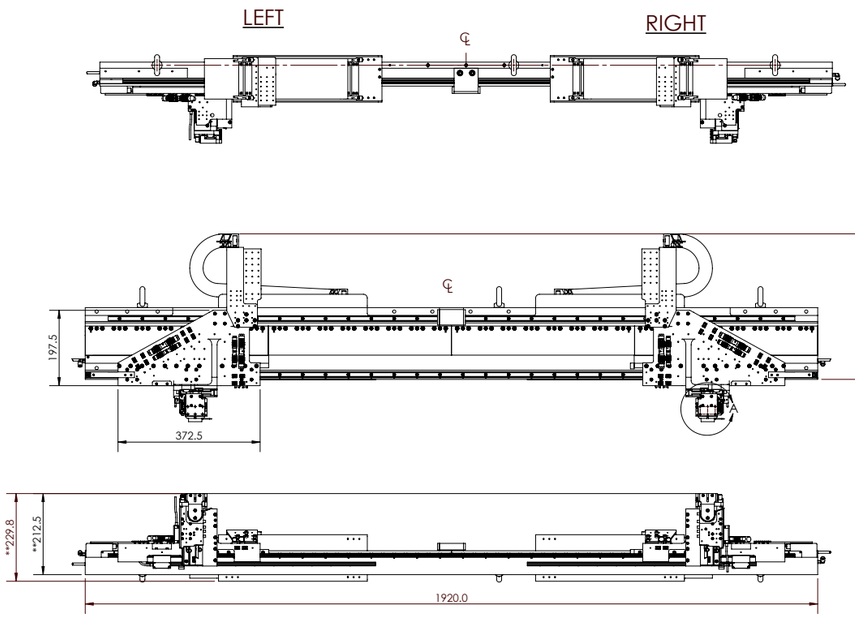
PMXYZ1000
Dual Carriage XYZ Stage



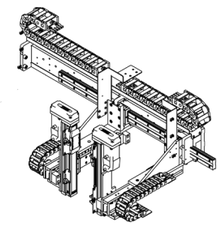
Key Features
- High precision & excellent positioning accuracy dual carriages system
- Integrated XY linear-motor stage with Voice coil Z Axis
- Travels up to 460 mm X 50mm, Z Axis 12mm

Application
- High-speed pick and place
- Electronic components assembly
- Surface mount technology application

PMXYZ1000 - Dual Carriage XYZ Stage		Axis		
Specification	**Unit**	**X1, X2**	**Y1, Y2**	**Z1, Z2**
Axis orientation	--	Bottom	Top	Vertical
Stroke	mm	465	50	9
Maximum velocity	mm/s	3000	1000	1000
Maximum acceleration	m/s^2	50(5G)	40(4G)	20(2G)
Encoder resolution	μm	1	1	1
Motor	--	DX50BET-C8-P	DX20B-C3-S	CVC40-HF-14-C0.7
Overall stage weight	kg	124		
Payload	g	550		



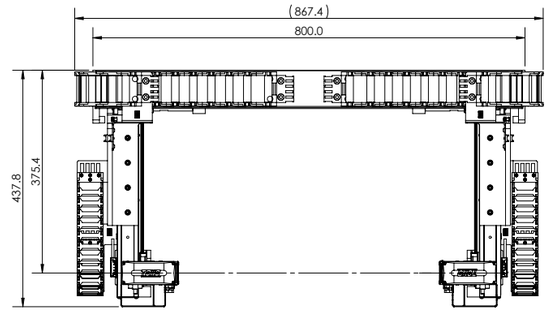
PMXYZ2000
Dual Carriage XYZ Stage

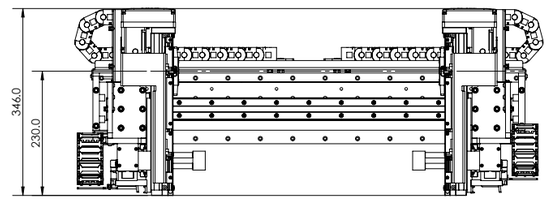


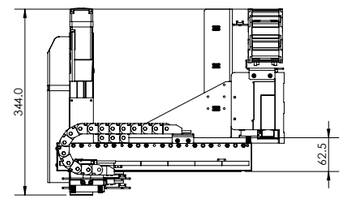
Key Features
- High precision & excellent positioning accuracy dual carriages system
- Integrated XY linear-motor stage with ball-screw Z Axis
- Travels up to 250 mm X 250 mm, Z Axis 150mm

Application
- Electronic components assembly
- High precision dispensing
- Automated assembly

PMXYZ2000 - Dual Carriage XYZ Stage		Axis		
Specification	**Unit**	**X1**	**Y1, Y2**	**Z1, Z2**
Axis orientation	--	Bottom	Top	Vertical
Stroke	mm	250	250	150
Bi-directional repeatability	um	± 5.0	± 5.0	± 5.0
Maximum velocity	mm/s	500	500	600
Maximum acceleration	m/s^2	5	5	-
Encoder resolution	μm	1	1	1
Payload	kg	1.5		



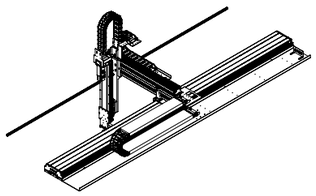




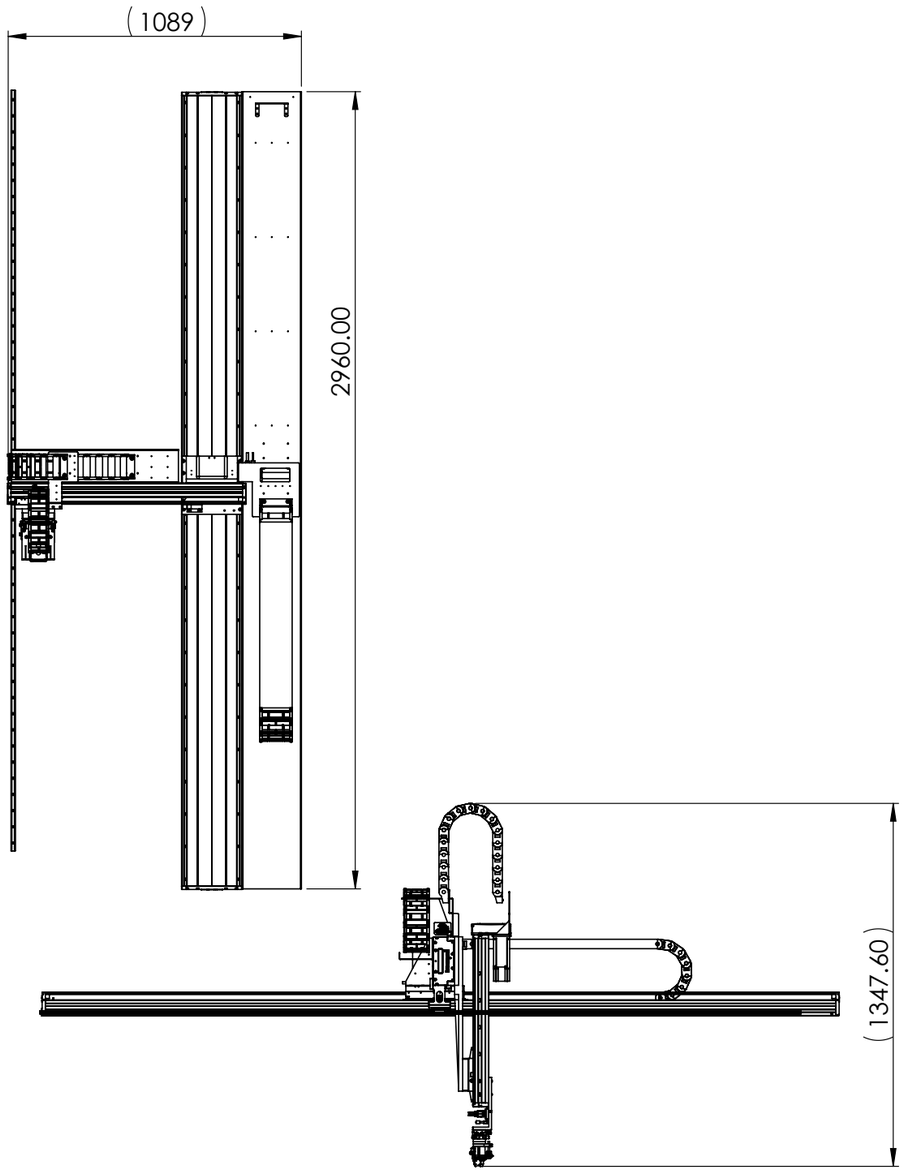
PMXYZ3000
XYZ Stage

Key Features
- Integrated 3 axes configuration by PLA and ballscrew actuator
- Excellent geometry performance
- Up to 10kg payload
- Travels up to 2.6m X 0.4m X 0.4m

Application
- High speed pick and place
- Handling and testing system
- Semiconductor processing and inspection



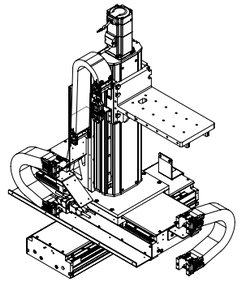
PMXYZ3000 - XYZ Stage		Axis		
Specification	**Unit**	**X**	**Y**	**Z**
Axis orientation	--	Bottom	Top	Vertical
Stroke	mm	2680	440	380
Bi-directional repeatability	µm	± 3	± 3	± 5
Maximum velocity	m/s	2.871	0.917	0.877
Maximum acceleration	m/s^2	6.15	3.8	4
Overall stage weight	kg	140		
Payload	kg	10		



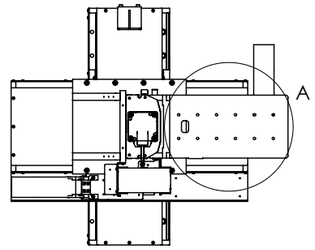
PMXYZ4000
XYZ Stage

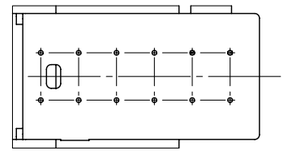
Key Features
- Integrated 3 axes configuration by PLA and ballscrew actuator
- Up to 15kg payload
- Superior geometric performance
- Travels up to 200mm for each axis

Application
- Electronic components assembly
- High precision dispensing
- Automated assembly

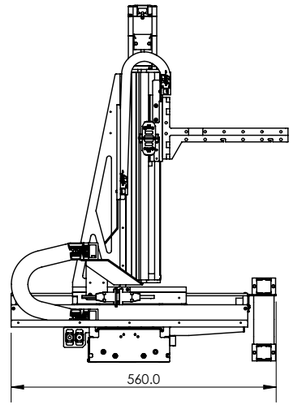


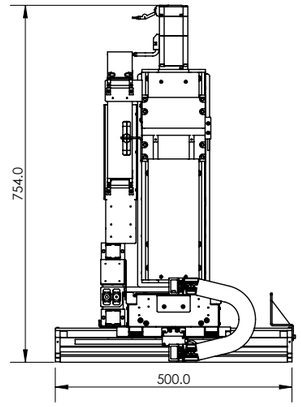
PMXYZ4000 - XYZ Stage		Axis		
Specification	**Unit**	**X**	**Y**	**Z**
Axis orientation	--	Bottom	Top	Vertical
Stroke	mm	210	210	208
Straightness	µm	± 5	± 5	± 5
Flatness	µm	± 5	± 5	± 10
Pitch	arc-sec	± 20	± 20	± 20
Yaw	arc-sec	± 10	± 10	± 15
Bi-directional repeatability	µm	± 2	± 2	± 2
Accuracy (after error mapping)	µm	± 2	± 2	± 2
Maximum velocity	mm/s	100	100	100
Maximum acceleration	mm/s^2	10(1G)	10(1G)	10(1G)
Encoder resolution	µm	0.05	0.05	0.1
Motor	--	PIX150B-075-C4	PIX150B-075-C4	PIX150B-075-C4
Overall stage weight	kg	54		
Payload	kg	15		

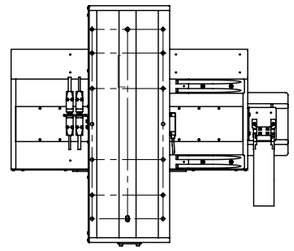




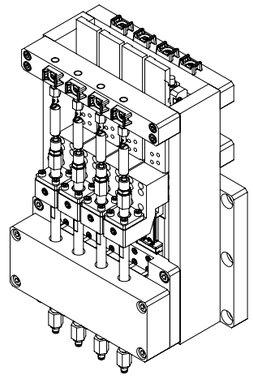
DETAIL A
SCALE 1 : 5







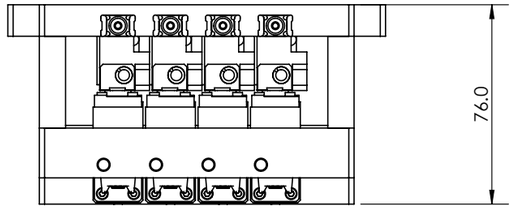
PPM
Multi-Head High Speed Pick-and-Place Module

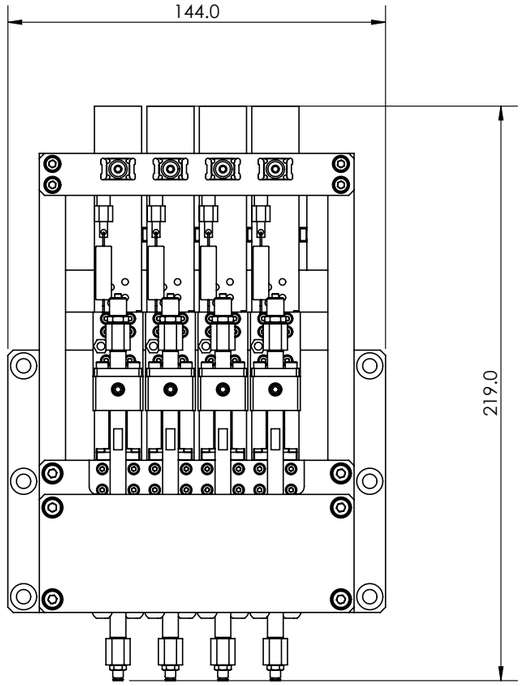


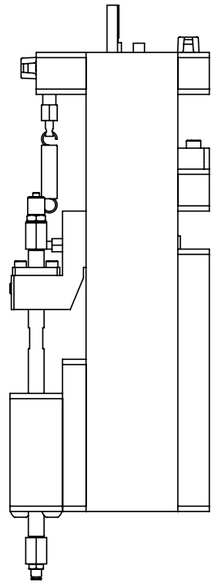
Key Features
- Powered by ironcore motor
- High accuracy and repeatability (+/- 1.5um)
- High unit per hour (UPH) efficiency
- High speed (0.5m/s) and high acceleration (3G)
- Easy plug and play vacuum system integration
- Compact modular design
- Independent pick head control
- Equipped with springs for counter balance

Application
- Pick and place
- Precise positioning of parts with low mass
- Applications with highly dynamic requirement
- Applications with high positioning cycles
- Handling and testing systems
- Feeding Equipment

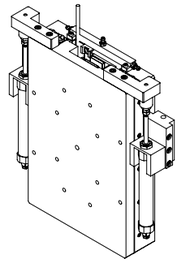
Z Axis		
Specification	**Unit**	**Spec**
Stroke	mm	20
Motor model	--	PIX60B-014
Continuous force	N	18
Peak force	N	60
Encoder type	--	ATOM DX
Resolution	um	0.1
Repeatability	um	±1.5
Payload	kg	0.02
Acceleration	m/s²	30
Max speed	m/s	0.5
Moving mass with payload	kg	0.25
5 mm moving & settling time	sec	0.03
10 mm moving & settling time	sec	0.04
15 mm moving & settling time	sec	0.05
Dwell time	sec	0.01
5 mm max UPH	--	45000
10 mm max UPH	--	36000
15 mm max UPH	--	30000







PZA-H
Z Positioning Actuator



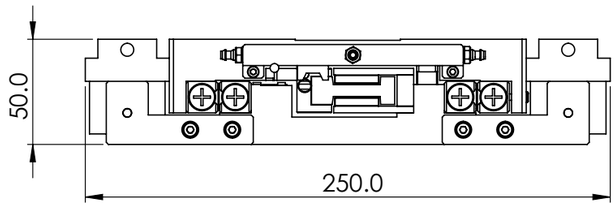
Key Features

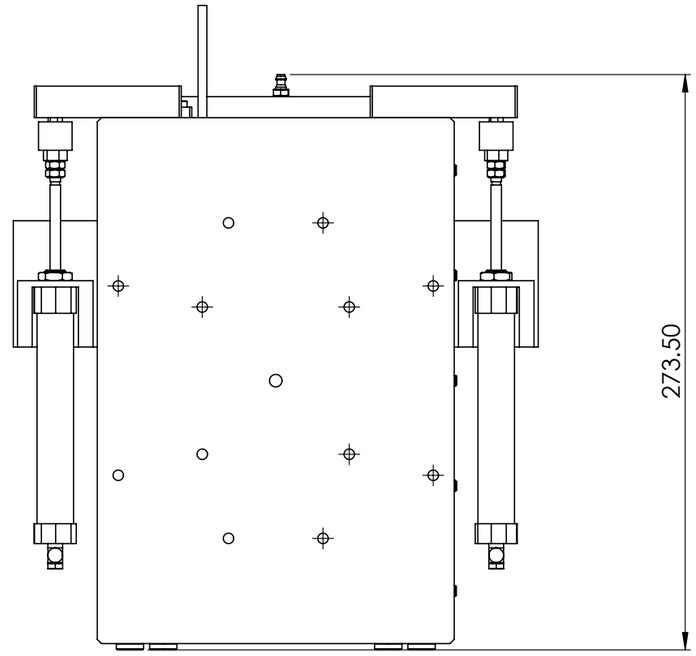
- Low-profile design for easy integration into multi-axis motion system
- Powered by Ironless motor
- Up to 20kg payload
- High repeatability +/-0.5um
- Customizable stroke
- Equipped with pneumatic counter balance

Application

- Automated optical inspection (AOI)
- Semiconductor wafer inspection & processing
- Vision detection
- Research & laboratory applications
- Photonics assembly & inspection

Z Axis		
Specification	**Unit**	**Spec**
Stroke	mm	65
Straightness	µm	± 2
Flatness	µm	± 2
Pitch	arc-sec	± 5
Yaw	arc-sec	± 5
Bi-directional repeatability	µm	± 0.5
Accuracy (after error mapping)	µm	± 1
Maximum velocity	mm/s	100
Maximum load	kg	20
In-position stability	nm	± 30
4 µm stroke, ± 0.2 µm settle	ms	30
40 µm stroke, ± 0.8 µm settle	ms	650

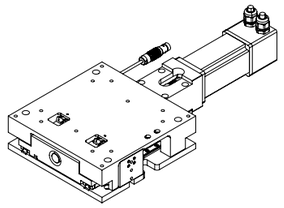




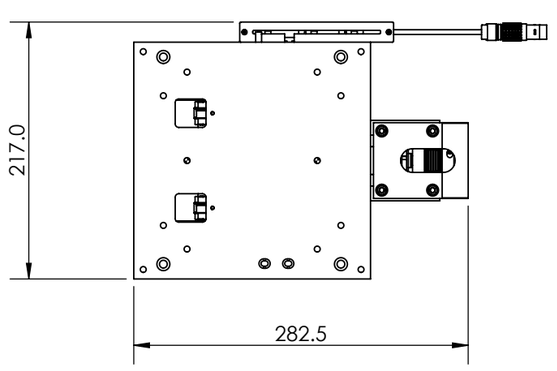
PZL
Vertical Lift Actuator

Key Features
- Wedge-type ballscrew driven actuator
- Up to 75kg payload
- Maximum vertical stroke of 25mm
- Robust dynamic performance and precise

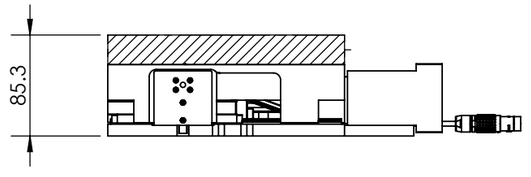
Application
- Automated optical inspection
- Semiconductor processing & inspection
- Optics production, examination & inspection

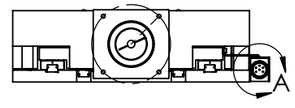


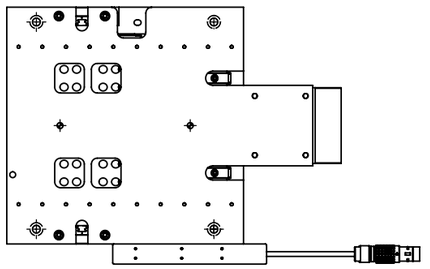
Z Axis		
Specification	**Unit**	**Spec**
Stroke	mm	25
Pith	arc -sec	±45
Roll	arc-sec	± 25
Bi-directional repeatability	μm	± 10
Accuracy (after error mapping)	μm	± 20
Maximum velocity	mm/s	110
Maximum lifting acceleration	m/s^2	7.2 (0.72G)
Moving plate weight	kg	2.2
Maximum load	kg	75
Total Weight	kg	5.75



DETAIL A
SCALE 2 : 5







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