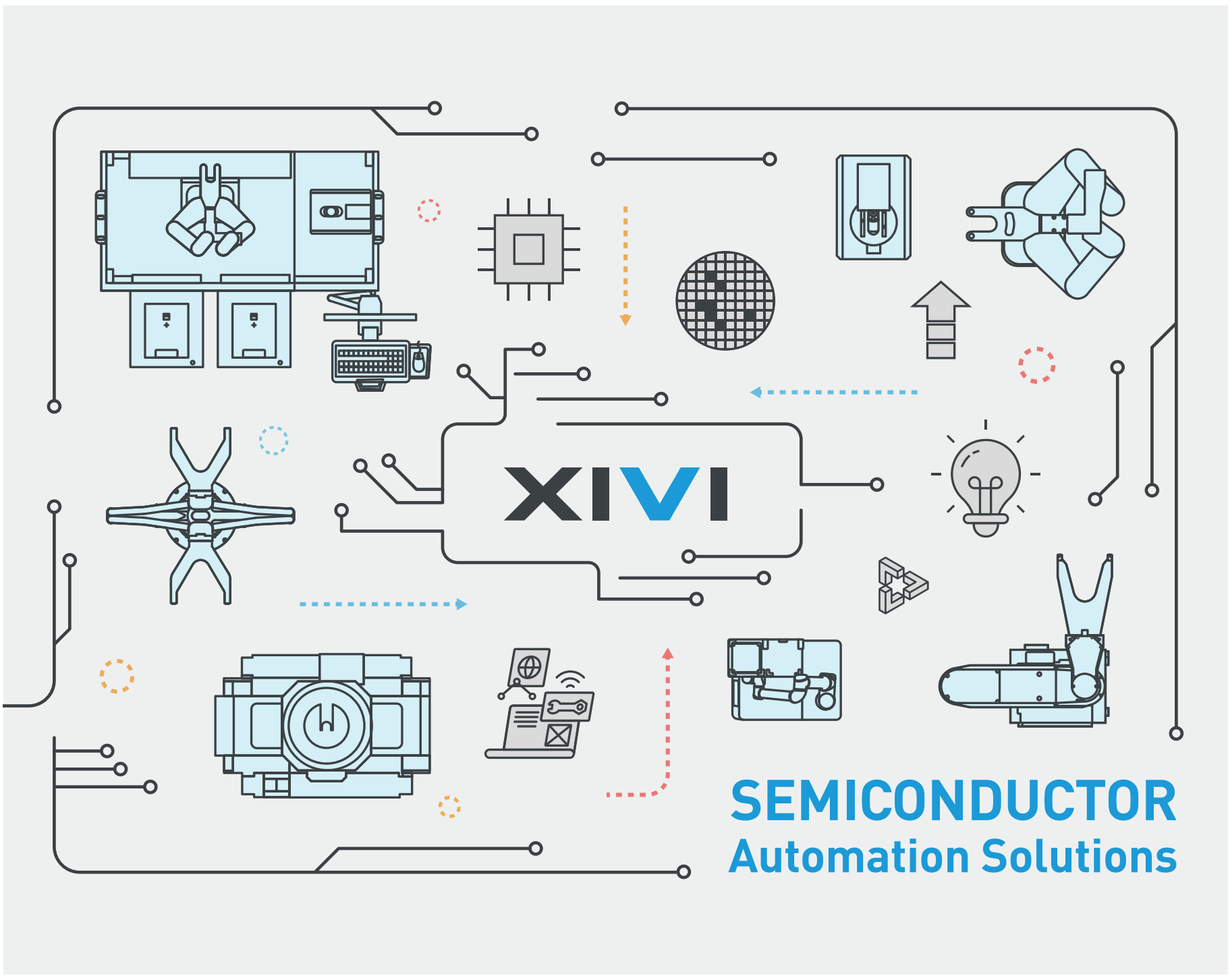
XIVI
SEMICONDUCTOR
Automation Solutions

XIVI's Advantages

1 Deep Technical Expertise

Ten years of expertise, backed by multiple invention patents.

2 Standardized Module Library

Extensive standard module library for rapid configuration and customization.

3 Continuous innovation

In-house R&D ensuring continuous product iteration.

4 Mature Manufacturing & Quality Control

Comprehensive production system with strict quality controls.

5 Cost, Supply Chain & Pricing Advantage

In-house machining & supply chain for low-cost operations.

6 Comprehensive Global Service Network

Service networks across Asia-Pacific, and the Americas.

XIVI's Data items

10 years

Our company has been established for more than 10 years.

23200 m^2

Wuxi R&D and manufacturing cover an area of 22000 m^2 .

The Shanghai R&D department covers an area of 1200 m^2 .

400 +

We have more than 400 employees, R&D and technical personnel account for nearly 35%.

15 %

The expense for research and development ac-counts for more than 15% of the operating revenue.

3000 +

More than 3000 self-developed stages have been delivered.

500 +

More than 500 self-developed EFEM have been delivered.

ABOUT XIVI

With nearly 10 years of experience in precision motion control research and development, xivi has gathered expertise in the precision manufacturing industry to form the development strategy of "Ultra-precision Positioning, Transmission and Storage Solution Manufacturer" .

Pursuing micron and nanometer precision motion control technology, practicing precision manufacturing capabilities and excellent production management, we are committed to providing innovative industrial products for the industrial automation market.

Semiconductor Automation Solutions

EFEM SORTER VTM AMR Robot ZTR-W Robot VTR Robot STR Ports Aligner

EFEM

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Equipped with direct-drive servo motors, clean Robot, Aligner, and linear Track to achieve high throughput for 6’ , 8’ , and 12’ wafers. SEMI standard FOUP, FOSB, Open Cassette, SMIF Port and other loading units can be matched according to different needs, and mix and match of loading units is also possible.

Feature

- High throughput can be achieved with the optional 2 Aligners.
- Compatible with 150/200/300mm Wafer.
- Vacuum pick-and-place and edge-grip pick-and-place (optional).
- OHT, AGV can correspond.

Optional

- E84
- OCR
- Lonizer
- Teaching pendant
- Chemical Filter
- Autoteaching
- Compatible with Barcode Reader and RF-ID Reader.

Specifications

Model Number	VEM2200	VEM2300	VEM2400
Number of Ports	2	3	4
Target of transmission	300mm Wafer Ø300±0.2mm		
Carriers	300mm FOUP 25 segments (SEMI E47.1)		
	300mm FOSB 25 segments (SEMI E31)		
Power Supply	Single-phase AC200V~AC220V±10%50/60Hz±5%		
Electric current	4kVA(20A/200VAC) include FFU		
Vacuum (pressure)	-80kPa ~ -90kPa		
Vacuum (flow)	40L/min	50L/min	60L/min
Positive pressure (pressure)	0.6MPa ~ 0.7MPa		
Positive pressure (flow)	20L/min	30L/min	40L/min

SORTER

Semiconductor
Automation Solutions

Feature

- Compatible with 200mm/300mm Wafer
- Multiple pick & place options
- Reads IDs from top and bottom of wafer.
- OHT, AGV can be corresponded
- Optional edge detection function

Specifications

Model number	SW2200	SW2300	SW2400
Number of Ports	2	3	4
Target of Transmission	300mm Wafer Ø300±0.2mm		
Carriers	300mm FOUP 25(SEMI E47.1)		
	300mm FOSB 25(SEMI M31)		
Power Supply	Single-phase AC200V~AC220V±10%50/60Hz±5%		
Electric Current	4kVA(20A/200VAC) include FFU		
Vacuum (pressure)	-80kPa ~ -90kPa		
Vacuum (flow)	40l/min	50L/min	60L/min
Positive Pressure (pressure)	0.6MPa ~ 0.7MPa		
Positive Pressure (flow)	20L/min	30L/min	40L/min

High throughput is achieved by adopting a clean robot and Aligner with direct-drive servo motors. Loadport can add various units to the front, back, and sides of the frame, and can be directly interfaced with OHT and AGV.

VTM / AMR

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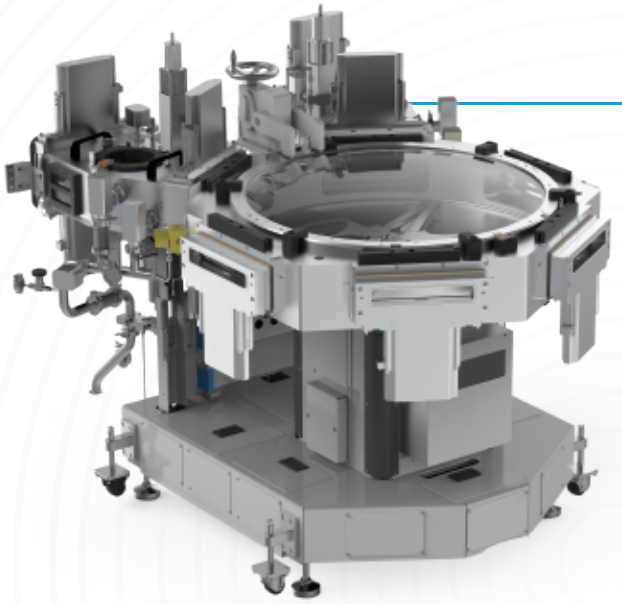

VTM

Vacuum Transfer Module (VTM) is an efficient transfer equipment based on the principle of negative vacuum pressure, which consists of vacuum generator, transfer pipeline, carrying device and control system, and drives the material along the pipeline through the pressure difference. It has the advantages of high efficiency and fast transmission, avoiding material contamination from the outside world, smooth operation, low noise, small footprint, etc. It can be flexibly adapted to automated production lines.

AMR

AMR (Autonomous Mobile Robot) is based on artificial intelligence and autonomous navigation technology, real-time perception of the environment through LIDAR, vision sensors, SLAM (real-time localization and map construction) technology, autonomous planning of the optimal path for high-precision, high-cleanliness scenarios of the wafer box automated handling, to meet the stringent requirements of the clean room, to help semiconductor production lines to achieve the core objective of zero pollution, zero error. Help semiconductor production lines to realize the core objectives of zero pollution and zero error in material transfer.

Robot ZTR-W

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Automation Solutions

XIVI's vacuum manipulators have a full link arm mechanism for higher positioning accuracy. Adopting full closed-loop control and equipped with vacuum direct-drive motors, it has higher rotary accuracy and faster response time. The bidirectional dual-arm configuration allows for longer transfer distances than conventional models without enlarging the chamber, and has higher work efficiency in the face of multiple work stations.

Specifications

Specifications		
Wafer Size		6" / 8" / 12"
Motion Range	Lifting Stroke (Z-axis)	70 mm / 125 mm
	Rotary Stroke (T-axis)	360° (Unlimited rotation)
	Telescopic Stroke (R-axis)	1050 mm (Depending on the fork change)
Repeat Positioning Accuracy	Z-axis	±0.05 mm
	T-axis	±0.006°
	R-axis	±0.05 mm
Body Weight		38 kg
Vacuum Resistance		1×10^{-6}Pa
Leakage Rate		$< 1\times10^{-9}$ std·cc/sec He
Cleanliness Level		ISO Class 1
Communication Protocols		TCP / IP
Optional		AWC (Wafer position correction)

Robot VTR

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The Atmospheric Wafer Transfer Robot (hereinafter referred to as the 'Robot') is suitable for use in atmospheric clean room environments, and consists of a body, an arm, and End effector(optional), and realises wafer transfer functions by means of suction, gripping, etc., and cyclic movements of each joint. The motion of the robot is divided into lifting motion (Z-axis), rotary motion (T-axis), and arm extension/retraction motion (R/W-axis).

Naming Convention

VTR	-	00	-	00	-	00	-	250	-	143	-	00	-	00	-	001
Series		Quantities		Flip Mechanism Type		Mapping Sensor		Z-axis Motion Range		Arm Length		End Effector		Fixing Method		Serial Number
VTR		00-Single-arm 01-Dual arms		00-Upper arm flip 01-Lower arm flip 02-Double-armed flip 03-No flip		00-With mapping sensor 01-Without mapping sensor		250mm 300mm 350mm 400mm 450mm		143.5mm 176mm		00-Vacuum-suction type 01-Gripper type 02-Bernoulli 99-Other		00-Base plate mounting 01-Upper plate mounting 99-Other		001 002 003 .....

Specifications

VTR		Single-arm	Dual-arm
		143.5mm / 176mm	
Payload		0.5 kg	
R/W axis	Speed	360mm/s	
T axis	Range of Motion	0°~340°	
	Speed	250°/s	
Z axis	Range of Motion	250/300/350/400/450mm	
	Speed	250mm/s	
Approx.Mass		Approx. 37kg	
Cleanliness		Class1	
Repeatability		± 0.1 mm	
Rated Voltage and Current		Single-phase AC 200V 20A	

The payload is the weight of the product being transferred.

Robot STR

Semiconductor
Automation Solutions

Naming Convention

STR	-	00	-	03	-	00	-	480	-	440	-	00	-	00	-	001
Series		Quantities		Flip Mechanism Type		Mapping Sensor		Z-axis Motion Range		Arm Length		End Effector		Fixing Method		Serial Number
STR		00-Single-arm 01-Dual-arms		00-Upper arm flip 03-No flip		00-Swept film 01-Swipe-free		480mm		440mm		00-Vacuum-suction type 01-Gripper type 02-Bernoulli 99-Other		00-Base plate mounting 01-Upper plate mounting 99-Other		001 002 003 .....

Specifications

STR		Single-arm
		440mm
Payload		0.5 kg
R/W axis	Speed	350°/s
	Range of Motion	± 310° ~ ±130°
T axis	Speed	260°/s
	Range of Motion	± 165°
H axis	Speed	330°/s
	Range of Motion	± 165°
Z axis	Speed	550mm/s
	Range of Motion	480mm
Approx. Mass		45-50kg
Cleanliness		Class 1
Repeatability		± 0.1mm
Rated Voltage and Current		Single-phase AC 200V 20A

The rated load is the weight of the product being transferred.

5-axis semiconductor wafer handling robot with 2 independently controllable rotary arms. It can support wafer pickup of EFEM from 2 FOUP to 3 FOUP. The robot has high precision and high rigidity.

Ports

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Automation Solutions

Open Cassette

Load Port

SMIF

Optional

Load Port

- E84.
- 8" / 12" Wafers.
- Customizable Indicator Lights.
- Info Pad Pin and Lockout Pin.
- External I/O Interface.
- TCP/IP Communication.
- Compatible with Barcode Reader / RFID Reader.

SMIF

- E84.
- External I/O Interface.
- Customizable Indicator Lights.
- 6" / 8" Wafers.
- TCP/IP Communication.
- Compatible with Smart Tag Reader / RFID Reader.

Specifications

Load Port

Supported FOUPs		300mm FOUPs compliant with SEMI E47.1 and E62
Principal Dimensions		1384(H) x 472(W) x 471(D)mm
Weight		60 kg
Power Supply		AC 220V±10%, 50 Hz±5%, 5A
Communication Interface		EtherCAT
Precision	Stroke	70mm
	Repeatability	±0.05mm
Operating Environment	Temperature	5 - 40℃
	Humidity	30 - 80%

SMIF

Supported SMIF Pods		Interface compliant with SEMI E19.4
Principal Dimensions		1384(H) x 472(W) x 479(D)mm
Weight		50 kg
Power Supply		DC 24V / AC 220V±10%, 50 Hz±5%, 5 A
Communication Interface		EtherCAT
Precision	Stroke	263mm
	Repeatability	±0.05mm
	Docking Accuracy	Center Offset <15mm
Operating Environment	Temperature	5 - 40℃
	Humidity	30 - 80%

Aligner

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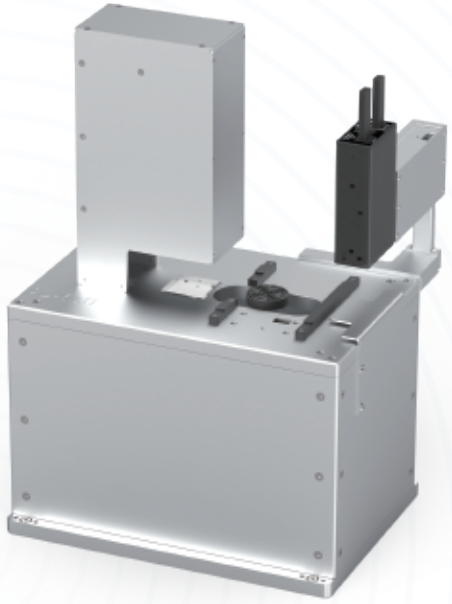
Automation Solutions



Feature

- Increasing productivity.
- Handing of transparent glass wafers and bonded wafers.
- Notch angular accuracy, center accuracy vary depending on sensor and wafer size.
- Alignment time is the processing time at standard accuracy, and the Alignment time varies depending on the wafer size.

Specifications

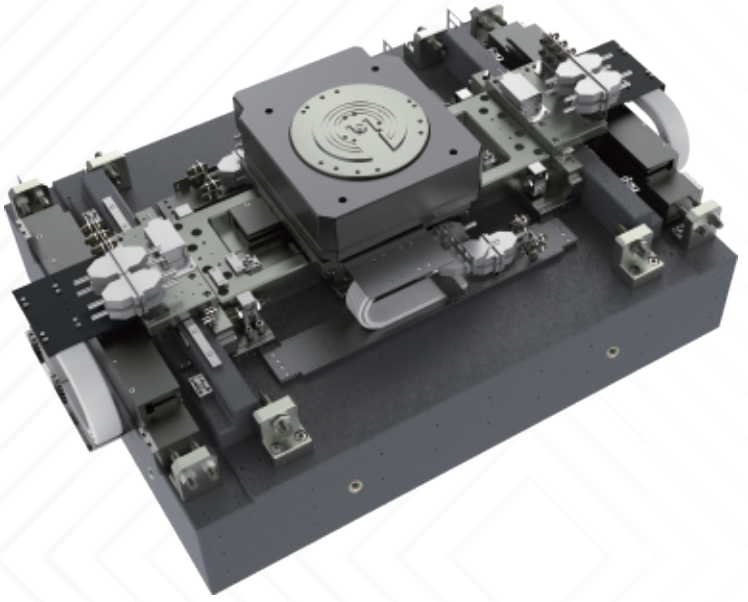
WAFER SIZE	Positioning accuracy		Positioning interval
	Notch angular accuracy	Centre accuracy	
⌀100 ~ ⌀300	±0.05° ~ ±0.1°	±0.1mm	2~6 seconds

Mechatronics Systems & Components

ABXY VMS-V VMZT Self-developed motion control components

ABXY

Mechatronics Systems & Components



The ABXY-ZT4 series stage is an air-bearing, mechanical motion stage with six degrees of freedom. It is specially designed for back-channel exposure machine and wafer inspection, slicing, annealing and other demanding semiconductor industry design.

Feature

- X, Y adopts air-floating bearings, smooth operation
- T-axis: arbitrary micro-rotation for levelling
- Dual-drive stepper shaft with passive vibration damping module
- Z-axis: fast, precise focusing movement

Specifications

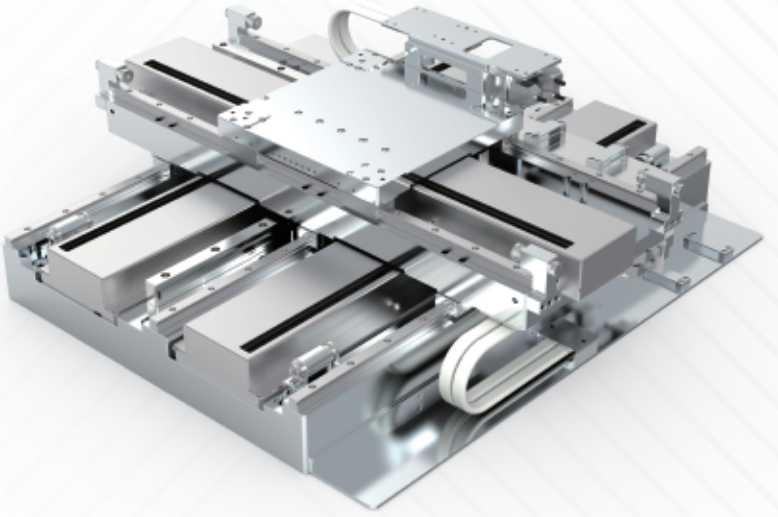
SPECIFICATIONS		
Travel	Scan Axis	350mm,500mm,
	Step Axis	350mm,500mm
	Z Axis	5mm
	Tip/Tilt Axis	±2mrad
	Rz	±3°
Drive System		Linear Brushless Motor
Resolution		<1 nm
Accuracy		±200nm
Repeatability (choose linear driver)		±100nm (±50 nm Optional)
XYZ Position Stability (Air On)		20 nm
Granite Bass Thickness		250mm
Rated Payload(Maintaining Dynamic Specifications)		5kg
Maximum Payload		10 kg
Maximum Velocity with Rated Payload	Scan Step Axis	400 mm/s
Peak Acceleration with Rated Payload	Scan Step Axis	1G(10m/s)
RMS Acceleration with Rated Load	Scan Step Axis	0.5G(5m/s)
Stiffness,First Natural Frequency with Rated Payload		>100Hz
Pitch		2 arc sec
Roll		2 arc sec
Yaw		2 arc sec
XY straightness		1um
XY Flatness		1.2um
XY Orthogonality		<2 arc sec
Velocity ripple(sampled at 400mm/s)		0.1%
MTBF		20,000 hours

VMS-V

Mechatronics Systems & Components

Specifications

VMS-V	lower axis	upper axis
Axis	X	Y
Travel	400mm	400mm
Repeat Positioning Accuracy	±0.3μm	±0.3μm
Maximum speed	0.35m/s	0.35m/s
maximum acceleration	0.4g	0.4g
horizontal straightness	±1μm	±2μm
vertical straightness	±2μm	±2μm
pitch angle	8arcsec	8arcsec
angle of drift	8arcsec	8arcsec
Minimum step	10nm	10nm
loads	25kg	
orthogonality	< ±2arcsec XY Axis	
environments	5×10^{-5} Pa Vacuum	
convection	DC: 300nT AC: 20nT	
cleanness	ISO Class 6	
bleeder capacity	$< 3\times10^{-6}$ Pa·m³/s	



Feature

- **Excellent Vacuum Compatibility :**
  The platform is engineered and manufactured to rigorous high-vacuum standards, maintaining stable and reliable operation in vacuum environments down to 5×10 Pa, thereby ensuring a solid foundation for high-precision experiments and production.
- **Robust Magnetic Shielding :**
  A carefully designed magnetic-shielding structure effectively suppresses external field interference, reducing in-plane magnetic flux density to minimal levels and creating an ideal low-field environment for precision processing and testing.
- **Exceptional Dynamic Performance :**
  Structural optimizations deliver a lightweight yet rigid platform, combining agility with outstanding stability to achieve smooth, efficient motion under dynamic conditions.

VMZT

The VMZT series stage is a mechanical motion stage with four degrees of freedom. Designed for the demanding semiconductor industry design associated with back-channel exposure machines and wafer inspection.

Feature

- X, Y adopts high rigidity, high precision guideway, micron-level running flatness and straightness.
- ZT axis All-in-one thin and light design, support 360°rotation
- Z-axis can be kept in place

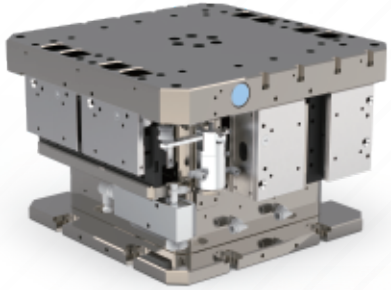
Specifications

SPECIFICATIONS		
Travel	Scan Axis	400mm,550mm
	Step Axis	400mm,500mm
	Z Axis	4mm
	Rz	±10°
Drive System		Linear Brushless Motor
Resolution		1nm
Accuracy		< ±2μm
Repeatability		< ±0.5μm
XYZ Position Stability		±0.1μm
Granite Bass Thickness		250mm
Rated Payload(Maintaining Dynamic Specifications)		5kg
Maximum Velocity with Rated Payload	Scan Step Axis	700 mm/s
Peak Acceleration with Rated Payload	Scan Step Axis	0.7G
Stiffness,First Natural Frequency with Rated Payload		>100Hz
Pitch / Yaw	X Axis	< ±3 arc sec
	Y Axis	< ±4 arc sec
Straightness / Flatness	X Axis	< ±2μm
	Y Axis	< ±2μm
	Z Axis	< ±1.5μm
XY Orthogonality		<2μm
Velocity ripple(sampled at 100mm/s)		0.25%
Work Surface - Mounting Surface Parallelism		< 5μm
MTBF		40,000 hours

Self-developed motion control components

Mechatronics Systems & Components

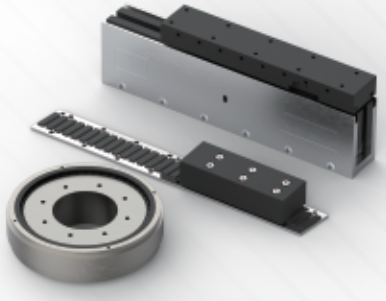
Controller



Active Vibration Isolation System

As the key components of motion control products, Star Microsystems self-developed product system used in the controller, active vibration isolation system, air bearing axis and motors are all self-developed products.

through rigorous verification tests and practical applications, these core components to ensure the accuracy, stability and reliability of the movement of our products.



Motors

Air Bearing Axis

XIVI's multi-point service network responds quickly to customer needs.

National core city outlets

Covering East China, North China, South China, West China, Central China;

Shorten service delivery time by responding nearby.

Professional team linkage

Multi-disciplinary collaboration of electromechanical, software and application engineers;

Rapid diagnosis, remote & on-site support.

7×24 hours technical hotline

Dedicated account manager for one-to-one matchmaking;

Ensure timely communication at critical moments.

Spare parts and training guarantees

Core spares locally stocked and available within 24 hours;

Regular/on-demand on-site training and online courses.

Running

R&D | Production | Services

Wuxi / Shanghai

Services | Sales

Shengzhen / Beijing

Be going to run

R&D | Production | Services

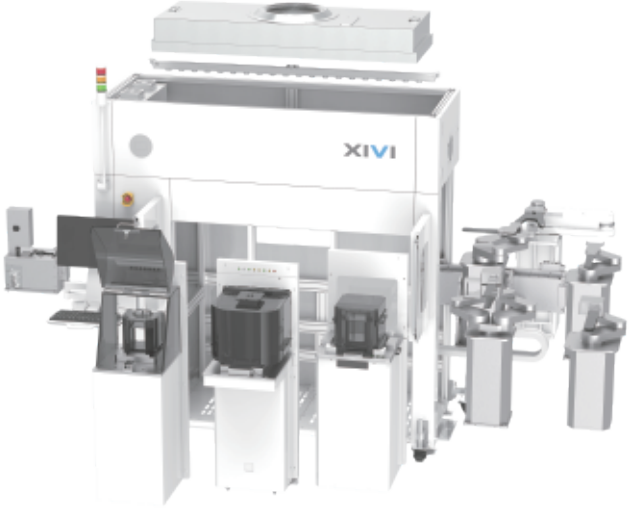
Japan

R&D | Services

Singapore / USA / Taiwan

Services | Sales

Chengdu / Wuhan



We are expanding into international markets and sincerely invite suppliers to partner with us. If you wish to discuss cooperation, please visit our official website and contact us via our official email sales@xivitech.com

XIVI

THINKER IN MOTION

XIVI

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SEEKING BUSINESS PARTNERS

We are expanding into international markets and sincerely invite suppliers to partner with us. If you wish to discuss cooperation, please visit our official website and contact us via our official email sales@xivitech.com