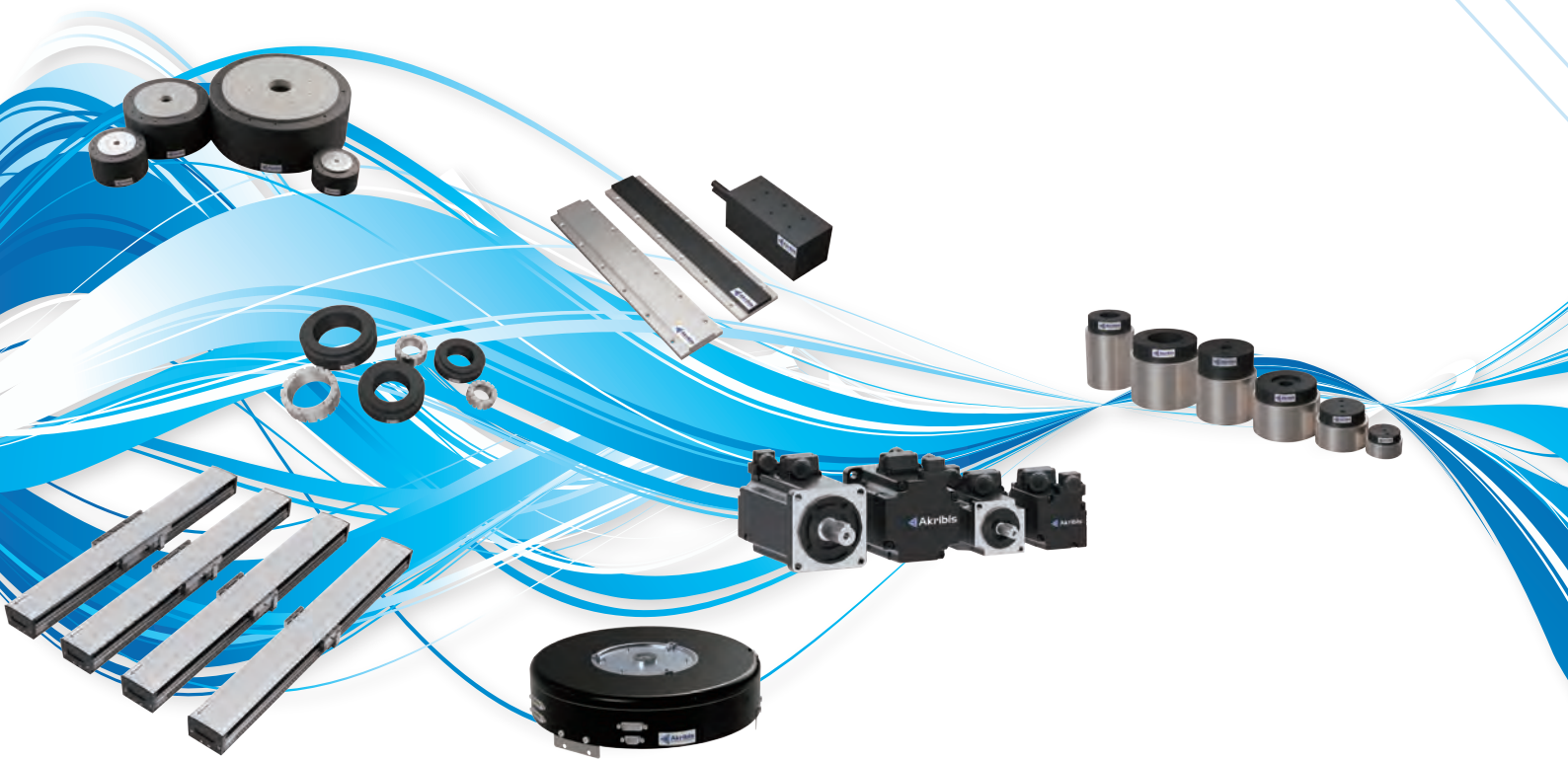


Akribis

Focus on R&D

- ♦ Linear Motors
- ♦ Direct Drive Rotary Motors
- ♦ Voice Coil Motors
- ♦ High Precision Stages and Systems





Akribis is a Latinized Greek word that means “Precision”. On the Akribis logo, the letter “a” is formed by a line and a circle, representing linear and rotary motions. These are supported by a tetrahedron structure, the same structure as the diamond crystal which has many exceptional physical properties.

The logo signifies that Akribis Systems’ sound engineering expertise forms the cornerstone of the company, and this enables us to provide customers with precise, direct drive motion control solutions.

Akribis Systems Pte. Ltd. was founded in 2004. We design and manufacture direct drive motors, stages and precision systems that are used in equipment for manufacturing, inspection and testing. Akribis Systems supports a wide range of industries including semiconductor, solar, flat panel, hard disk, LED, printed circuit board, printing, photonics and biomedical manufacturing.

From the beginning, the company has been focusing on innovation and development of new technologies and solutions in motion control, with more than 134 patents applied. Backed by a very strong and committed engineering team, the company continues to develop custom motors and systems for demanding applications.

We have manufacturing facilities in Singapore; Shanghai, Nantong and Dongguan (China); Selangor (Malaysia); and Siheung (Korea). Our sales network includes our sales offices in USA, Germany, South Korea, India, Thailand, Israel and Malaysia, and is reinforced by our comprehensive distribution channels in Asia, Europe and North America.

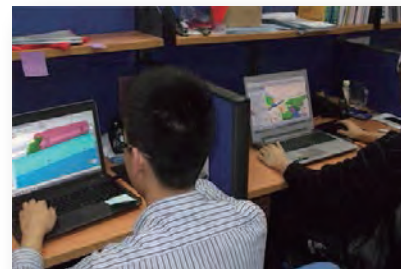


Services We Offer:

- Motor design
- Standard module design
- High precision stage design
- Air bearing guide and stage design
- Motion control solution design and customization
- Machine vision aided motion control solution
- Laser interferometry calibration of stages
- Vibration analysis, measurement and management
- Electro-magnetic simulation and finite element analysis and machatronic simulation

Application Areas:

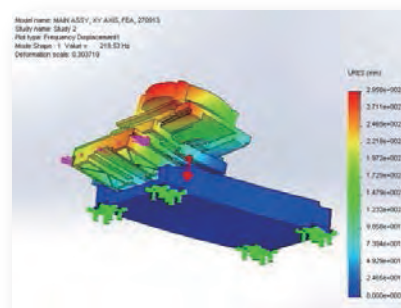
- Semiconductors (Lithography machine, metrology & inspection, wafer cleaning equipment, CMP, SiC laser annealing, wafer dicing equipment, high speed sorters, high speed die bonder, wire bonder, advanced packaging, probe station, electroplating equipment, etc.)
- Electronics Manufacturing (Mobile phone appearance inspection equipment, camera module inspection equipment, mobile phone screen size measurement equipment, mobile phone glass cover assembly equipment, high precision dispensing machine, etc.)
- Precision Lasers (High-power direct-drive laser cutting machine, laser direct writing, PCB laser repair, precision glass laser cutting, TGV laser drilling, glass laser cutting for microfluidic chips, Laser engraving on wafer chucks, SiC laser drilling, etc.)
- FPD (FPD high speed handling, large-format FPD panel inspection, FPD panel packaging, OLED fine metal mask, FDP atomic force microscope, OLED laser lift off, micro LED defect inspection, etc.)
- Biomedical (Ventilator, genetic sequencing, pathology slides, artificial heart valve fatigue testing, automated instruments for biological laboratories, etc.)
- High-end Machine Tools (Fixed-beam gantry machining center, overhead crane gantry machining center, five-axis machining center, profile machining center, five-axis tool grinder, worm gear grinder, follow-up grinder, guideway grinder, etc.)
- Renewable Energy (Laser SE, string welding machine, screen printing machine, perovskite laser scribing, perovskite coating machine, small direct-drive wind turbine, etc.)
- Lithium Batteries (Stacking machine, top cover welding machine, coating machine, blue film machine, ultrasonic welding machine, cell inserting housing machine, electrolyte filling machine, etc.)
- Robotics (Wafer robot, collaborative robot, laparoscopic robot, AGV, etc.)
- Optical Communications (High-speed mounting equipment for optical modules, Lens/AWG coupling, etc.)
- Others More (Smart logistics, additive manufacturing, PCB LDI, digital inkjet printing machines, environmental protection, etc.)



Design and Analysis



Laser Calibration



Finite Element Analysis

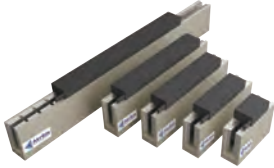


Training Seminar

LINEAR MOTORS

Ironless Motors

AUM Series



- ▶ Ironless, direct drive brushless linear motors
- ▶ Zero cogging design
- ▶ Low moving mass with high force density
- ▶ 6 models (AUM 1, 2, 3, 4, 5, 6)

Applicable to: High acceleration (10g and more) and high speed application. Can reach nanometer accuracy with air bearing stage

AWM Series



- ▶ Ironless technology
- ▶ Vacuum compatible (RGA tested)
- ▶ Zero cogging force, high force density
- ▶ High peak force and big continuous force

Applicable to: Vacuum environment

ALM-T Series



- ▶ Small thickness, light weight and high force density
- ▶ Zero cogging force and low force ripple
- ▶ High dynamic response
- ▶ Optional digital hall modules

Applicable to: Thin modules and light-load high-speed reciprocating applications in semiconductors, flat panel displays, ultra-precision stages, biomedical / lab automation, optics

AHM Series



- ▶ Ironless, direct drive brushless linear motors
- ▶ Zero cogging
- ▶ Compact size with high force to mass ratio

Applicable to: Short stroke and high acceleration applications

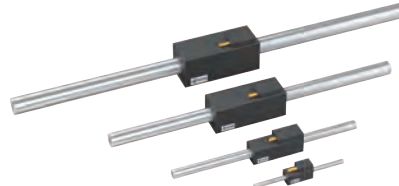
ACR Series



- ▶ Ironless technology
- ▶ Narrow width, light weight, zero cogging force
- ▶ Large turning radius integrated with hall sensor modules and temperature sensors
- ▶ Limited angle or 360° rotation, multi-coil and multi-track configurable

Applicable to: Correction axis of generation 2.5~10.5 LCD panel

RDM-A Series

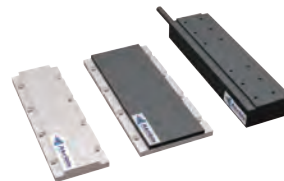


- ▶ Compact size, similar to ball screw shape, convenient to replace traditional transmission method
- ▶ Full utilization of flux lines
- ▶ Ironless, no attraction force between mover and stator, easy for assembly
- ▶ No cogging force, smooth operation low force ripple
- ▶ Multi-mover on one track available, flexible configuration

Applicable to: Suitable to high-speed printer, biomedical equipment, semiconductor equipment, CNC (wire cut EDM machine, etc.), single / multi-axis module, alignment module, Z-axis pick-and-place module

Iron Core Motors

AJM Series



- ▶ Ironcore technology, low cogging
- ▶ Integrated with hall sensor modules
- ▶ High force density
- ▶ Maximum continuous force of 446.8N maximum peak force of 1409.1N

Applicable to: Micro-meter positioning, point-to-point motion

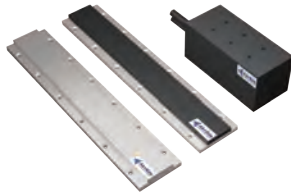
AQM Series



- ▶ Ironcore technology, low cogging
- ▶ Integrated with hall sensor modules
- ▶ Cost-effective, narrower width
- ▶ Maximum continuous force of 506N, maximum peak force of 1243N

Applicable to: Micro-meter positioning, point-to-point motion

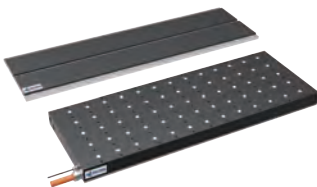
AKM Series



- ▶ Ironcore technology, low cogging
- ▶ Integrated with hall sensor modules, cost-effective
- ▶ Maximum continuous force of 6190.1N, maximum peak force of 12884.3N
- ▶ Improved water cooling design

Applicable to: Micro-meter positioning, point-to-point motion, CNC lathe, CNC grinding machines

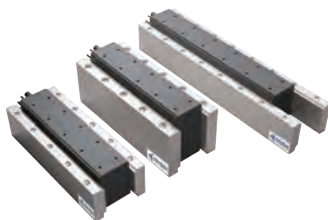
AKH Series



- ▶ Ironcore technology, low cogging
- ▶ High response and bandwidth
- ▶ Patented water-cooling design
- ▶ Natural cooling, water cooling optional

Applicable to: Laser processing machine, high-speed grinding machine, grinding machine and lithium/liquid crystal and other handling

AKD-A Series



- ▶ Iron core technology and low cogging force
- ▶ High continuous and peak force
- ▶ Dual magnet tracks
- ▶ Balanced attraction force
- ▶ High motor constant
- ▶ Fast dynamic response

Applicable to: Point-to-point micron meter level positioning; unlimited travel stroke with top speed of 5m/s or faster (stroke of 100m or longer).

DIRECT DRIVE ROTARY MOTORS

Frame Torque Motor

ADR-A Series



- ▶ Direct drive, brushless motor using ironcore technology
- ▶ Diameter of 110mm, 135mm, 175mm, 220mm and 360mm
- ▶ Integrated with high resolution encoder, repeatability reaches $\pm 2\text{arc sec}$
- ▶ High torque with low inertia, low cogging torque

Applicable to: High speed rotary positioning

ADR-B Series



- ▶ Direct drive, brushless motor using ironcore technology
- ▶ Diameter of 110mm, 135mm, 175mm and 220mm
- ▶ High torque with low inertia
- ▶ Integrated with high resolution encoder, repeatability up to $\pm 2\text{arc sec}$
- ▶ Low cogging torque, large center hole

Applicable to: High speed rotary positioning

ACD Series (Ironless)



- ▶ Direct drive, brushless motor using coreless technology
- ▶ Zero cogging torque, diameter of 62mm, 120mm and 200mm
- ▶ Integrated with high resolution encoder, repeatability up to $\pm 3\text{arc sec}$
- ▶ Fast response and short settling time
- ▶ High accuracy homing with index signal

Applicable to: Low-speed smooth motion and optical detection

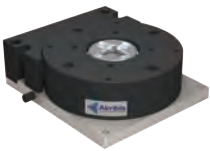
ACW Series (Ironless)



- ▶ Super flat design direct drive brushless motor
- ▶ Zero cogging torque, fast response and short settling time
- ▶ Integrated with high resolution encoder, repeatability up to ± 3 arc sec
- ▶ Diameter of 120mm, 170mm and 220mm

Applicable to: Laser cutting and rotation correction

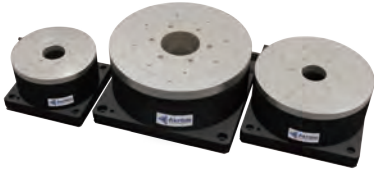
AMR Series



- ▶ Micro direct-drive rotary motor
- ▶ Design without iron core, no cogging torque
- ▶ Dimensions: Length $\times$ Width $\times$ Height = 76 $\times$ 65 $\times$ 25 mm
- ▶ Rotation angles: 50°, 100°, other angles can be customized

Applicable to: Precision rotation correction positioning, optical alignment stage

AXD Series



- ▶ Direct drive brushless motors
- ▶ Low cogging torque, suitable for both high and low speed situation
- ▶ Large center hole, flat design
- ▶ Integrated with high resolution encoder, repeatability reaches ± 2 arc sec
- ▶ Cost-effective
- ▶ Diameter of 80mm, 120mm, 160mm, 200mm, 280mm and 400mm

Applicable to: High precision rotary positioning

AXM Series



- ▶ Direct drive brushless motors
- ▶ Integrated with encoder and bearing
- ▶ High torque compact design, low cogging torque
- ▶ Integrated with high resolution encoder, repeatability reaches ± 10 arc sec
- ▶ Diameter of 40mm and 60mm

Applicable to: Dimension constraints, high speed and high precision rotary positioning

AER-C Series (Outer Rotor)



- ▶ Outer rotor
- ▶ Low runout
- ▶ Strong resistance to contamination
- ▶ Direct drive brushless motor
- ▶ Low cogging torque
- ▶ High torque density

Applicable to: It is suitable for all kinds of industrial applications such as semiconductor manufacturing, battery manufacturing, and circuit board printing. It is particularly suitable for some low run-out and high-precision applications, such as wafer dicing

Frameless Torque Motor

ADR-P Series



- ▶ Frameless direct drive, brushless motor using ironcore technology
- ▶ Diameter of 110mm, 135mm, 175mm, 220mm and 360mm
- ▶ High torque with low inertia, low cogging torque

Applicable to: Low velocity ripple, gear measurement, grinding machine and robot joints

ADR-F Series



- ▶ Direct drive brushless motors
- ▶ Low cogging torque, small size, compact design
- ▶ High torque density, rated speed of 3500rpm@48Vdc
- ▶ Diameter of 45mm, 60mm, 75mm and 90mm

Applicable to: Robot joints

ADR-T Series



- ▶ Direct drive brushless motors
- ▶ Low cogging torque, small size, compact design
- ▶ Cost effective
- ▶ High torque density
- ▶ Diameter of 50mm and 80mm

Applicable to: Robot joints

ACD-P Series (Ironless)



- ▶ Direct drive ironless motor
 - ▶ No cogging torque
 - ▶ Low velocity ripple
- Applicable to: Inspection applications

ADR-C Series



- ▶ Large center bore
- ▶ Water cooling design
- ▶ High torque density
- ▶ Low cogging torque

Applicable to: Applications requiring substantial torque density, such as photovoltaic industry and semiconductor manufacturing, particularly well-suited for CNC turntables

AER-F Series (Outer Rotor)

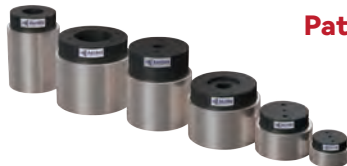


- ▶ Frameless, water-cooled outer rotor design
- ▶ Outer rotor PMSM
- ▶ Diameter 225mm, 285mm, 335mm optional
- ▶ Low speed, high torque, low cogging torque

Applicable to: CNC rotary table

VOICE COIL MOTORS

AVM&AVM-HF Series (Circular Voice Coil Actuators)



Patented Design

- ▶ Direct drive for point-to-point motion
- ▶ Stroke range from 5mm to 30mm
- ▶ Zero cogging force
- ▶ Low coil mass with fast response and high bandwidth
- ▶ Ultra high resolution motion (depends on the feedback device)

Applicable to: Optical focusing, high speed pick and place, force control and high-frequency applications

AVA Series (Flat Voice Coil Actuators)



- ▶ Direct drive for point-to-point motion
- ▶ Low profile, suitable for linear stages, zero cogging force
- ▶ Low coil mass with fast response and high bandwidth
- ▶ Ultra high resolution motion (depends on the feedback device)

Applicable to: Optical focusing, high speed picking and placing, and force control

MAGNET SPRING

MSP-A Series Magnetic Spring

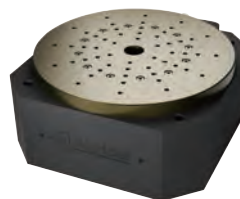


- ▶ Simple structure
- ▶ Constant force, instant response
- ▶ Free of power supply, free of linearguide
- ▶ Simple maintenance

Applicable to: Can be used in many application scenarios, including but not limited to gravity compensation, ensuring Z-axis module self-locking when power off, and supplying constant force within specific travel range

OTHER PRODUCTS

AAR-A Series Air-bearing Rotary Stage



- ▶ Compact structure, high rigidity
- ▶ Built-in ironless brushless direct drive motor
- ▶ Ultra-low velocity fluctuation
- ▶ Excellent axial / radial runout < 100nm
- ▶ Accurate positioning, repeatability up to ± 0.5 arcsec

Applicable to: Wafer inspection, biodetection, X-ray diffraction system, optical inspection, nanotechnology equipment manufacturing, optical manufacturing, etc.

ASV Series Servo Motor



- ▶ Line-up: 5W~3KW, IP67, 17bit/23bit optional
- ▶ Low temperature rising, low axial runout
- ▶ Driver with EtherCAT, Pulse and ProfiNET communication protocol
- ▶ 3.5KHz velocity loop response, one-touch auto-tuning and adaptive control function
- ▶ STO, full closed-loop control, gantry synchronous control, position/velocity/torque control

Applicable to: Semiconductor, electronics, robot, automotive, precision machine tools, laser processing, photovoltaic, etc.

STAGES AND SYSTEMS

DGX 115/135 Series



- ▶ Rapid point-to-point positioning, micron-level position repeatability
- ▶ 8-row built-in guide rails, machined as a single unit with the base
- ▶ Equipped with an incremental magnetic encoder, which is economical and reliable
- ▶ Powered by iron core linear motors, high thrust and cost effective

Applicable to: Semiconductor, photovoltaic and lithium batteries, glass and LCD panels, medical equipments, industrial printing machines, laser processing, precision assembly and other equipment and production lines, where need handling application with high speed positioning

DGL 150/180/200/260-S Stage Series



- ▶ Dual guide linear motor stage
- ▶ Stroke from 0.1m to 60m
- ▶ Direct drive, zero backlash
- ▶ Linear encoder resolution of 0.1μm and 0.05μm minimum of 2.4nm
- ▶ Velocity up to 5m/s, acceleration up to 10g

Applicable to: High-speed, high-precision positioning

DGL 180/200/260-BC Series



- ▶ Dual guide linear motor stage with bellow covers
- ▶ Direct drive, zero backlash
- ▶ Linear encoder resolution of 1μm, 0.5μm and 0.1μm

Applicable to: High-speed, high-precision positioning in harsh environment

DGH 200 SS Series



- ▶ Dual guide linear motor stage for clean room applications
- ▶ Clean room sealing strip design
- ▶ Linear encoder resolution of 0.1μm and 0.05μm minimum resolution of 2.4nm

Applicable to: High-speed, high-precision positioning in clean room environment

DGC Series



- ▶ Dual guide linear motor stage
- ▶ Stroke from 0.1m~6m
- ▶ Direct drive, zero backlash
- ▶ Linear encoder resolution of 1μm, 0.5μm and 0.1μm
- ▶ Velocity up to 5m/s, acceleration up to 10g

Applicable to: High precision material handling applications

XRL 95/130/250 Stage Series



- ▶ Cross roller linear motor stage
- ▶ Excellent straightness and flatness with high load capacity
- ▶ High repeatable positioning accuracy
- ▶ Direct drive, zero backlash and zero cogging force
- ▶ Linear encoder resolution of 0.1μm, 20nm and 5nm

Applicable to: Optical detection

XMZ 130 Series



- ▶ Stable gravity compensation in stroke
- ▶ No additional electricity or compressed air is required
- ▶ Compact size, fast response

Applicable to: Z-axis direct drive modules requiring gravity compensation

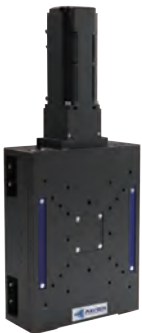
XAZB 95/130 Series



- ▶ Gas balance module
- ▶ Low friction cylinder for high accuracy
- ▶ Compact size

Applicable to: Z-axis direct drive modules that require gravity compensation

XRB 120/190 Series



- ▶ Dual feedback system
- ▶ Brake system
- ▶ Suitable for Z-axis applications (wall-mounted)

Applicable to: Optical focusing, high-precision positioning of detection axes for electronics, semiconductors, photovoltaic sheets, lithium batteries and other equipment

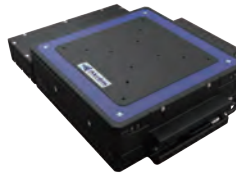
XRZ 120/170/190 Series



- ▶ Voice coil module
- ▶ Cylinder Counterbalance Horizontal Z-axis
- ▶ Stroke: 15/25/30mm

Applicable to: Optical inspection and precision manufacturing

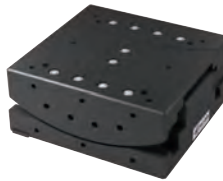
XRS Series



- ▶ Compact, low stack height, XY direct drive stage
- ▶ Anti-creep crossed-roller bearings
- ▶ Multi stroke options

Applicable to: High-precision industrial and scientific research projects such as precision laser processing, laser cutting, LED wafer scribing, on-the-fly vision inspection, surface roughness inspection, etc.

XRG 70/110 Series



- ▶ Compact design, direct-drive goniometer positioning stage
- ▶ 12.0 degree stroke
- ▶ Can be stacked into a pitch-roll positioning stage with intercepting axis of rotation

Applicable to: Optical inspection and precision manufacturing

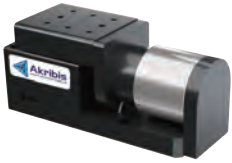
XRV 76/97/115 Stage Series



- ▶ Crossed roller square voice coil motor module
- ▶ Stroke up to 20mm
- ▶ Direct drive, zero backlash and zero cogging force
- ▶ Optical encoder resolution of 0.2 μ m, 0.05 μ m or analog optional

Applicable to: Optical focusing, high speed pick and place, and force control

XMGV 38/41/52/84 Stage Series



- ▶ Crossed roller circular voice coil motor module
- ▶ Stroke from 15mm to 30mm
- ▶ Zero backlash and zero cogging force
- ▶ Linear encoder resolution of 0.2 μ m, 0.05 μ m or analog optional
- ▶ Fast response and high bandwidth

Applicable to: Optical focusing, high speed pick and place, and force control

TGV Stage Series



- ▶ Voice coil motor stage with large centre through hole
- ▶ Direct drive, zero backlash and zero cogging force
- ▶ Low friction bearings
- ▶ Linear encoder resolution of 0.2 μ m, 0.05 μ m or analog optional
- ▶ Ideal for lens focusing applications

Applicable to: Optical focusing, force control and high-frequency applications

MBV Series



- ▶ Voice coil motor, fast response
- ▶ Spring balance mass, automatically up when power off
- ▶ Integrated with linear encoder, resolution of 0.5 μ m
- ▶ Effective stroke of ± 3 mm, ± 4 mm
- ▶ Suitable for Z axis, compact design

Applicable to: High speed pick and place

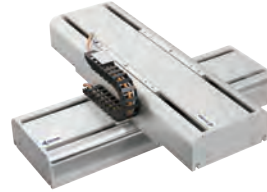
XCV Series



- ▶ Voice coil motor positioning module
- ▶ Stroke 4mm
- ▶ Repeatability 0.5 μ m
- ▶ No cogging, high dynamics and control bandwidth
- ▶ Optical encoder with user selectable resolution 50nm, 0.2 μ m, 0.5 μ m

Applicable to: Sub-micron positioning, pick and place, force control

XY-DGL Stacked Stage Series



- ▶ XY stacked linear motor stage
- ▶ Integrated with optical encoder
- ▶ Dual guide design

Applicable to: Micron level measurement, fast and high precision positioning

XY-DGL Series



- ▶ XY integrated linear motor stage
- ▶ Build-in integrated with optical encoder
- ▶ Dual guide, cantilever structure design

Applicable to: Micron measurement of XY axis and high-speed, high-precision positioning

XY-DGL Stacked Stage Series



- ▶ XY stacked linear motor stage with bellow covers
- ▶ Build-in integrated with optical encoder
- ▶ Dual guide design

Applicable to: Laser cutting and micron measurement of XY axis

TGS-XY Series



- ▶ High precision XY wafer inspection stage
- ▶ Good for Class 1000 clean room
- ▶ Effective stroke 500 $\times$ 500mm
- ▶ Max speed up to 800mm/s with repeatability ± 1 μ m

Applicable to: Wafer inspection, biomedical, etc.

VRG-I/VRG-II/VRG-III Series



- ▶ Versatile gantry stage with T drive or H drive configuration
- ▶ Options of various ironcore motors (AJM/AKM series) or ironless motors (AUM series)
- ▶ T drive gantry using single linear encoder of resolution 0.5μm, 1μm or analog encoder
- ▶ H drive gantry using dual linear encoders on the bottom axis for better positional accuracy and repeatability
- ▶ High motor constant provides high peak force and continuous force
- ▶ Stable and consistent motion performance with short settling time, high throughput

Applicable to: Dispensing, micro assembly and precision inspection

APC Series

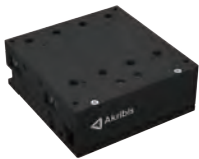


- ▶ Z-axis 2G acceleration
- ▶ 30mm stroke and 2-axis option
- ▶ Compact 2-axis design at only 16mm thickness
- ▶ Vacuum tip
- ▶ High force to weight ratio

Applicable to: Pick and place by vacuum suction

AM Series Miniature Stages

AML Series



- ▶ Compact linear motor positioning stage
- ▶ Stroke from 10~20mm available
- ▶ Integrated with high precision optical encoder, resolution from 50nm~0.5μm, SINCOS optional
- ▶ Repeatability up to ±0.3μm
- ▶ Versatile combination with AML, AMZ, AMR

Applicable to: Sub-micron optical positioning stage

AMZ Series



- ▶ Compact linear motor vertical Z positioning stage
- ▶ Effective stroke 8mm
- ▶ Integrated with high precision optical encoder, resolution from 50nm~0.5μm, SINCOS optional
- ▶ Repeatability up to ±0.2μm
- ▶ Versatile combination with AML, AMZ, AMR

Applicable to: Sub-micron optical positioning stage

AMS Series



- ▶ Super flat miniature linear positioning stage
- ▶ Stroke 15mm, other customized stroke upon request
- ▶ Repeatability ±0.3μm
- ▶ Optical encoder with user selectable resolution 0.5μm~50nm or SINCOS
- ▶ Modular assembly, can be stacked to XY or together with AMR to XT or XYT stage

Applicable to: For sub-micron positioning, optical alignment, etc.

AM Series Stacked XYT



- ▶ Compact linear motor XYT positioning stage
- ▶ Stroke from 10~20mm optional
- ▶ Integrated with high precision optical encoder
- ▶ Repeatability up to ±0.5μm

Applicable to: Sub-micron optical positioning stage

APPLICABLE TO CNC INDUSTRY

AKM Series (Water-cooled Linear Motor)



- ▶ Continuous force: 580N~6190N
- ▶ Peak force: 805N~12884N

Recommended Applications: CNC lathe, CNC grinding machine

AKH Series (Water-cooled Linear Motor)



- ▶ Continuous force: 1070N~6097N
- ▶ Peak force: 2139N~12834N

Recommended Applications: Five-axis machining center and other high-grade CNC machine tools

ADR-C Series (Water-cooled Direct Drive Rotary Motor)



- ▶ Continuous torque: 44.6Nm~1009.8Nm
- ▶ Peak torque: 127Nm~2000Nm

Applicable to: Applications requiring substantial torque density, such as photovoltaic industry and semiconductor fabrication, particularly well-suited for CNC turntables

AER-F Series (Water-cooled Direct Drive Outer Rotor Rotary Motor)



- ▶ Continuous torque: 149.5Nm~613.8Nm
- ▶ Peak torque: 299Nm~1227.6Nm

Applicable to: CNC rotary table

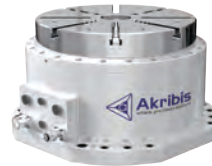
ATRT Series Dual-Axis CNC Rotary Table



- ▶ Low-cogging, water-cooled direct drive motor
- ▶ High-response pneumatic brake system
- ▶ Strong resistance to contamination, heavy-duty, high rigidity
- ▶ Standard table diameters: 200mm, 350mm, 630mm available, customizable upon request
- ▶ High-precision encoder compatible with various CNC systems

Applicable to: Suitable for mold making, jewelry, and other high-precision multi-axis machining equipment, as well as light-metal high-speed machining machines and laser cutting equipment

ARV Series Vertical CNC Rotary Table



- ▶ Low-cogging, water-cooled direct drive motor
- ▶ High-response pneumatic brake system
- ▶ Strong resistance to contamination, heavy-duty, high rigidity
- ▶ Standard table diameters: 250mm, 300mm, 400mm, 630mm available
- ▶ High-precision encoder compatible with various CNC systems

Applicable to: Suitable for high-dynamic positioning applications, such as vertical grinders and tool grinding machines

ARH Series Horizontal CNC Rotary Table

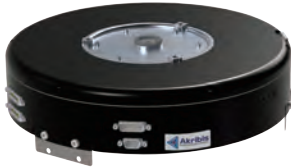


- ▶ Low-cogging, water-cooled direct drive motor
- ▶ High-response pneumatic brake system
- ▶ Strong resistance to contamination
- ▶ Standard table diameter: 250mm, customizable upon request
- ▶ High-precision encoder compatible with various CNC systems

Applicable to: Suitable as the 4th axis for CNC machining centers, and for applications such as thread grinding machines, cam grinding machines, and tool grinding machines.

WAFER STAGES

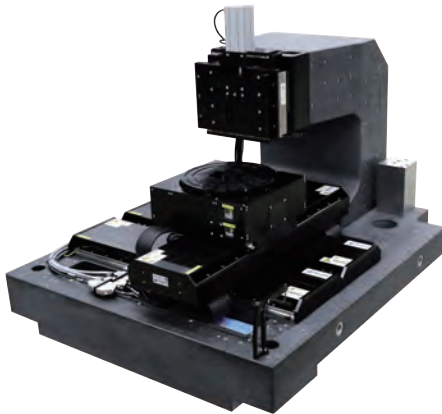
PGS-ZTPR Series



- ▶ Frictionless guidance with wear-free flexure bearings
- ▶ Tight integration provides 4 degrees of freedom (Z, Rx, Ry, Rz) motion in a compact and lightweight package
- ▶ Optimized dynamics for rapid move and settle, and nanometer level position stability
- ▶ Vacuum to chuck available

Applicable to: Wafer autofocus, levelling, and alignment in a wide range of inspection and metrology applications

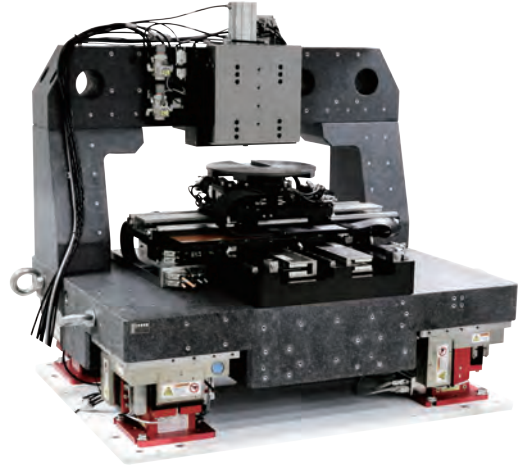
Wafer Defect Inspection Stage



- ▶ Platform compatible with 8/12 inch wafers
- ▶ Integrated XYZT multi-axis motion platform, Z-axis supports cylinder or magnetic spring balance
- ▶ Platform XY bi-directional repeatability accuracy $\pm 1\mu\text{m}$, low static jitter, low velocity ripple
- ▶ Optional material transfer unit module, passive vibration isolation module

Applicable to: Wafer defect inspection equipment used in semiconductor front-end semiconductor applications

Wafer Measuring Equipment Stage

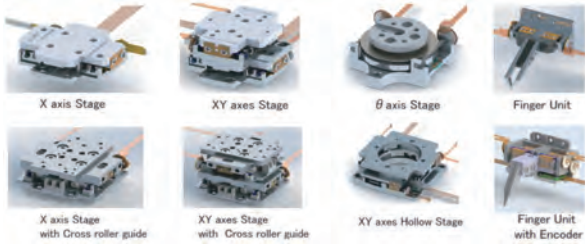


- ▶ Platform compatible with 8/12 inch wafers
- ▶ Integrated XYZT multi-axis motion platform with active vibration isolation system
- ▶ Platform XY bi-directional repeatability accuracy $\pm 0.4\mu\text{m}$, XY orthogonality $6\mu\text{m}$, 2D flatness $20\mu\text{m}$
- ▶ Excellent dynamic performance, fast response, fast settling time
- ▶ Nanoscale position stability: XY axis $\pm 2\text{nm}$, Z axis $\pm 5\text{nm}$, T axis $\pm 0.01\text{arc sec}$

Applicable to: Front-end wafer inspection and metrology

ULTRASONIC MOTOR STAGE

Ultrasonic Motor Stage Series

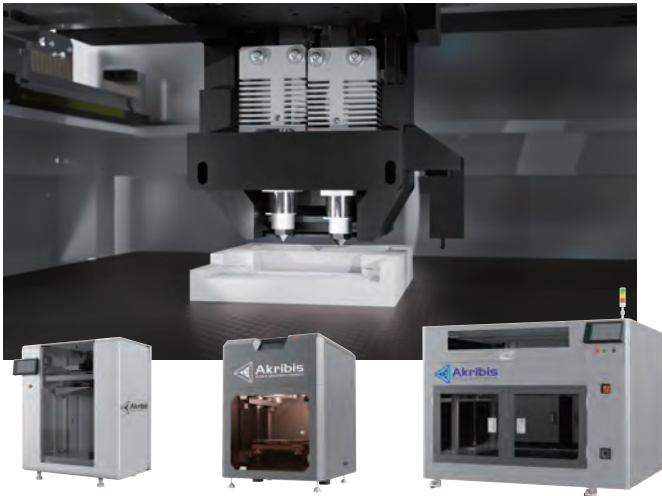


- ▶ Resolution of 5.0μm, 1.0μm, 0.5μm and 0.1μm
- ▶ Stroke range from 4mm to 25mm and stroke range from 3mm to 6mm with maximum opening gripper
- ▶ Repeatability achieves ±3pulse
- ▶ Maximum speed up to 10mm/s

Applicable to: Medical equipments, semiconductor devices and optical components pick and place

SMART MANUFACTURING

3D Printing Solutions



Vulture Series

Raven Series

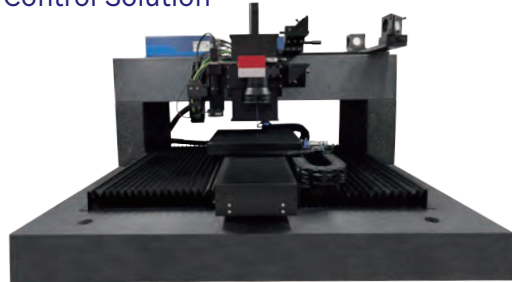
Falcon Series

- ▶ Maximum moving speed up to 1000mm/s, meeting high-speed application requirements
- ▶ Positioning accuracy up to 5μm, ensuring processing quality
- ▶ Linear motor technology, significantly reducing maintenance needs
- ▶ Customizable printing size, adaptable to diverse application scenarios

Applicable to: Production and manufacturing of functional components, concept and prototype verification, and small-batch customized production. Especially some high-demand industries such as aerospace, automotive and medical

LASER MICROMACHINING WITH PRECISION GALVO AND STAGE

Synchronized Galvo and Stage Motion Control Solution



- ▶ High precision multiaxis stage with linear motor
- ▶ Synchronized galvo and stage control
- ▶ Stage following error compensation with galvo in real time, realizing high speed and high accuracy scanning
- ▶ Synchronized laser triggering with position feedback (PSO)
- ▶ Optimized trajectory planning algorithm to maximize machining efficiency
- ▶ EtherCAT communication bus with maximum 32 axes
- ▶ Customized graphical user interface
- ▶ G code supported
- ▶ With common machine vision functions, such as on-line measurement, workpiece localization

Applicable to: Laser micro processing of 3C, new energy, precision medical instrument, semiconductor etc.

Other Cases



Providing innovative feeding solutions to top-level pharmaceuticals industry



Helping FRITSCH to achieve flexible working of SMT mounter



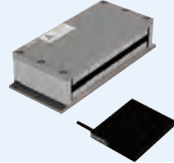
Helping the supplier of optical fiber connector (Radial) to improve the production line

Special Motors

Linear motor with carbon fibre coil plate



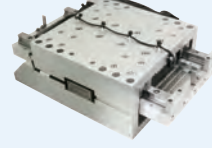
Linear motor with multiple degrees of freedom of motion



Double-sided linear motor, middle-coil configuration, super high thrust density



Double-sided linear motor, middle-track configuration, super high thrust density



Voice coil motor with shaft for medical equipment, friction below 20mN



IP68 water resistance rotary motor



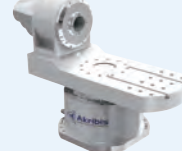
ISO Class 5 cleanroom rated rotary motor



High torque DDR with large diameter over 660mm



Five-axis tool grinding machine turntable



Double-axis single-arm turntable



Customized Stages for Industries

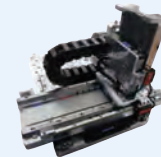
5-axis XYZT for 3D measurement



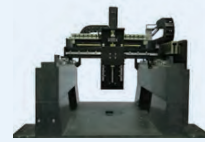
XYZ stage for wafer microscope



XYZ stage for mobile phone parts assembly



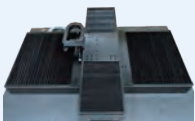
XYZ stage for glue dispensing



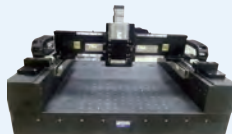
XYZ stage for optical system assembly



XYZ stage for laser application



H-drive gantry stage



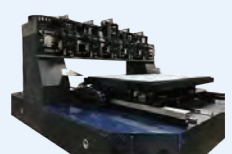
Hollow XY stage for wafer detection



XYZ stage for wafer detection



G6 FPD stage for laser application with 14 axis



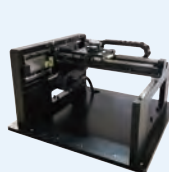
6 DOF mini stage for optical alignment



XYZ stage for fiber optic alignment



XY stage for glue dispensing



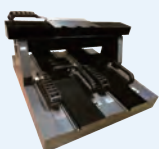
H-drive gantry stage for assembly and testing



XYT stage for glass laser cutting



XYZ stage for PCB exposure



XYZ stage for wafer testing



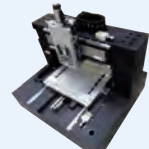
H-drive gantry stage for testing and laser application



LX1030Z gantry machining center



XYZ stage for laser marking and precision parts assembly



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