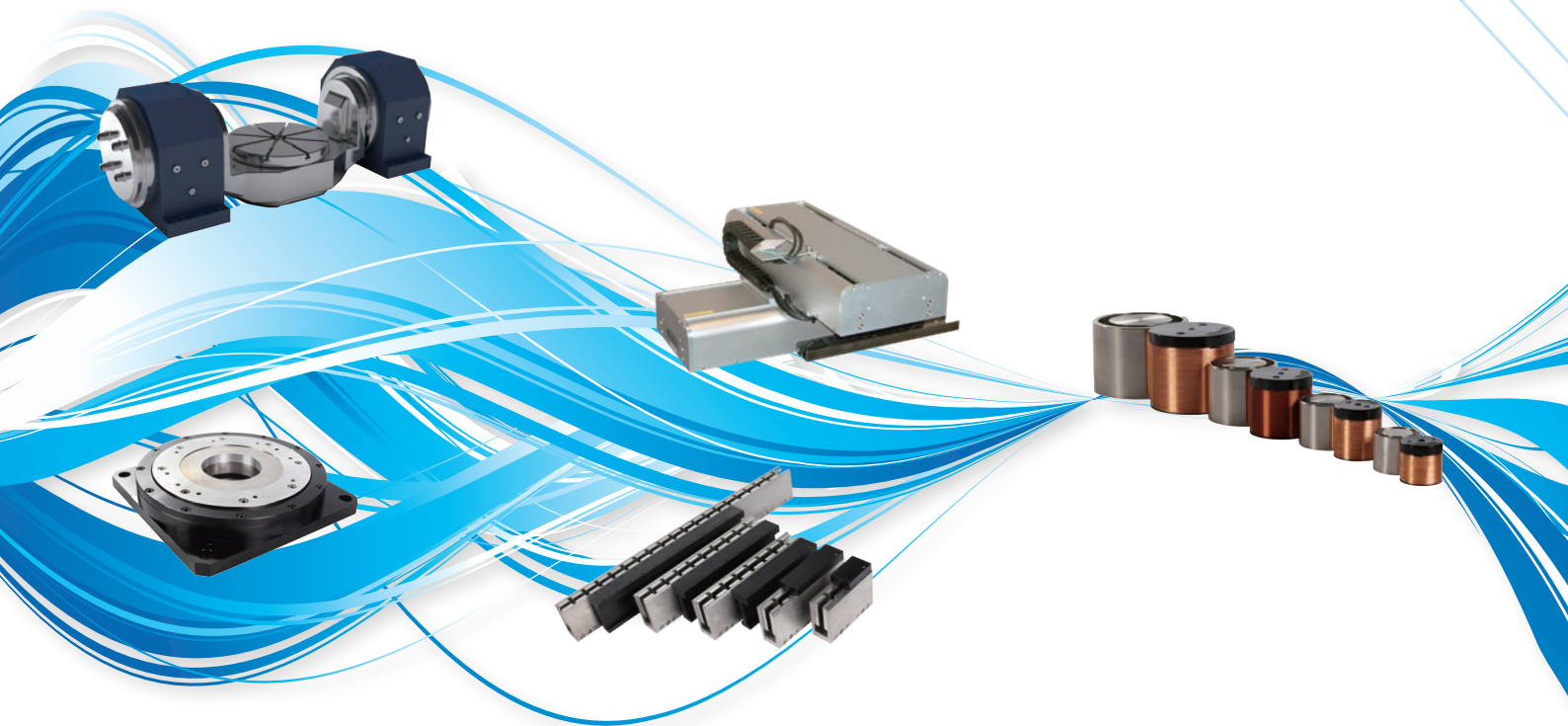


# Akribis

## 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 is the basis of the company’s foundation, 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, PV battery, flat panel, hard disk, LED, printed circuit board, machine tools, automotive electronics, packaging, 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 72 patents applied. Backed by a very strong and committed engineering team, the company continues to develop customerized motors and systems for the most demanding applications.

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



## Services We Offer:

- ▶ Motor design
- ▶ Build to standard positioning stages
- ▶ Magnetic and mechanics finite element analysis
- ▶ High precision stages
- ▶ Aerostatic bearing design and stages
- ▶ Motion control platform design and software development
- ▶ Machine vision aided motion control solution
- ▶ Laser interferometry characterisation of stages
- ▶ Vibration analysis, measurement and management

## Application Areas:

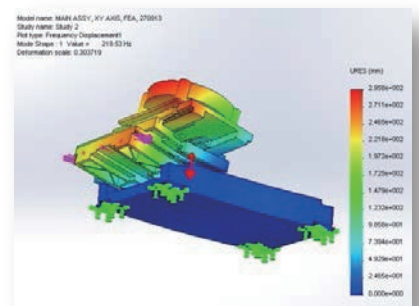
- ▶ Semiconductor manufacturing (wafer inspection, BGA and IC inspection, wire bonding, die bonding and sorting, laser marking, dicing, flip chip etc.)
- ▶ Hard disk (HGA, slider manufacturing, inspection, texturing of disk media etc.)
- ▶ Biomedical (DNA/Gene extraction, micro array, pharmaceutical manufacturing etc.)
- ▶ Machine tools (CNC milling, EDM wire cut etc.)
- ▶ Inspection systems (photon emission microscopes, vision systems etc.)
- ▶ LCD/TFT (inspection systems, laser marking, cutting etc.)
- ▶ Others (printing, automation parts manufacturing, connectors manufacturing, dispensing systems, PCB manufacturing etc.)



Design and Analysis



Laser Calibration



Finite Element Analysis



Training Seminar

## LINEAR MOTORS

### Ironless Motors

#### AUM Series (Ironless, Brushless Motor)

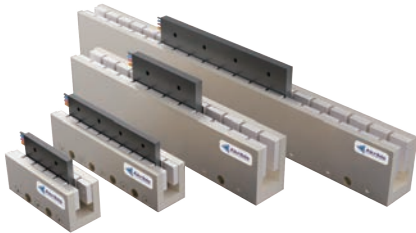


**Patented Design**

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

**Applicable to:** High accelerations (10G or more) and high speed equipped with air bearings can be used in nanoscale positioning

#### 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

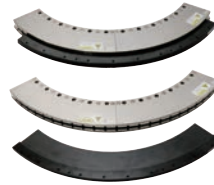
#### ALM-T Series



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

**Applicable to:** Suitable to be integrated in modules with small thickness, running with light load and high speed, can be used for semiconductor, flat panel display, ultra-precision stages, biomedicine/lab automation, optics

#### ACR Series

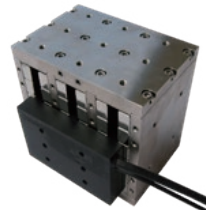


- ▶ Ironless technology
- ▶ Narrow width, light weight, zero cogging force
- ▶ Large turning radius Integrated with hall sensor module and temperature sensors
- ▶ Limited angle or 360° rotation, multi-coil and multi-track configuration

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

#### AHM Series

#### (Rectangular Ironless, Brushless Motor)

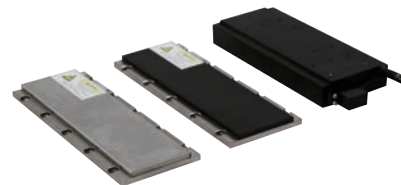


- ▶ Ironless, direct drive brushless linear motors
- ▶ Zero cogging
- ▶ Compact size with high force to mass ratio

**Applicable to:** Short stroke and high acceleration applications

### Iron Core Motors

#### AJM Series



- ▶ Ironcore technology, low cogging
- ▶ Integrated with Hall sensor module
- ▶ High force density
- ▶ Maximum continuous force of 440N maximum peak force of 1400N

**Applicable to:** Micron positioning of point-to-point motion

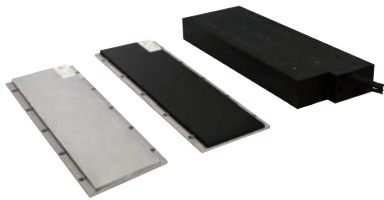
## AQM Series



- ▶ Ironcore technology, low cogging
- ▶ Integrated with hall sensor module
- ▶ Cost-effective, narrower width
- ▶ Maximum continuous force of 400N, maximum peak force of 1000N

**Applicable to:** Micron positioning of point-to-point motion

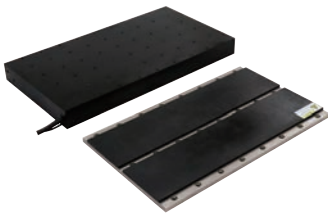
## AKM/AKMF Series



- ▶ Ironcore technology, low cogging
- ▶ Integrated with hall sensor module, cost-effective
- ▶ Maximum continuous force of 9200N, maximum peak force of 12800N
- ▶ Improved water cooling design

**Applicable to:** Micron positioning of point-to-point motion, CNC lathe, CNC grinding machines

## AKH Series



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

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

## DIRECT DRIVE ROTARY MOTORS

### ADR-A Series (Direct Drive Rotary Motor)



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

**Applicable to:** High speed rotary positioning

### ADR-B Series (Direct Drive Rotary Motor)



- ▶ 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  $\pm 2$ arc sec
- ▶ Low cogging torque, large center hole

**Applicable to:** High speed rotary positioning

### ACD Series (Direct Drive Ironless Rotary Motor)

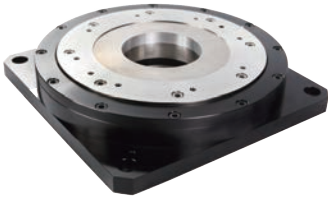


- ▶ Direct drive, brushless motor using coreless technology
- ▶ Zero cogging torque, diameter of 62mm, 120mm and 200mm
- ▶ Integrated with high resolution encoder, repeatability up to  $\pm 3$ arc sec
- ▶ Fast response and short settling time
- ▶ Precision zero return through home signal

**Applicable to:** Smooth motion even at low speed and optical detection



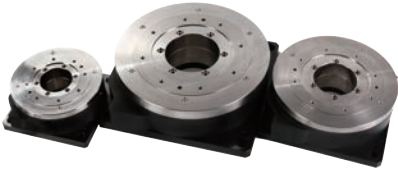
## ACW Series (Direct Drive Brushless Rotary Motor)



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

**Applicable to:** Laser cutting and rotation correction

## 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  $\pm 2$ 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  $\pm 10$ arc sec
- ▶ Diameter of 40mm and 60mm

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

## Frameless Motors

### AER Series



- ▶ Frameless, water-cooled outer rotor structure design
- ▶ Permanent magnet synchronous motor
- ▶ Diameter 225mm, 285mm, 335mm optional
- ▶ High torque at low speed, low cogging force

**Applicable to:** Machine tool turntable, large LCD panel rotation positioning

### 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:** Fields of low speed fluctuations, gear measurement, grinding machine and robot's joints

### ADR-F/ADR-T 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's joints

### ACD-P Series



- ▶ Direct drive zero cogging coreless motor
- ▶ No cogging torque
- ▶ Low velocity ripple

**Applicable to:** Inspection applications

## VOICE COIL MOTORS

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

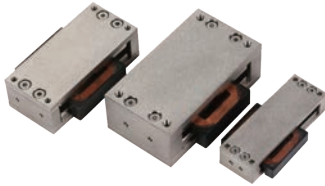


**Patented Design**

- ▶ 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 picking and placing, power controlling 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

## OTHER PRODUCTS

### 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

### Air-bearing Rotary Stage



- ▶ Ultra high rotation stability
- ▶ Radial and axial error motion can be within 100nm

**Applicable to:** High precision detection, precision machining and other applications with high requirements for rotary accuracy

## STAGES AND SYSTEMS

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



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

**Applicable to:** High-speed, high-precision positioning

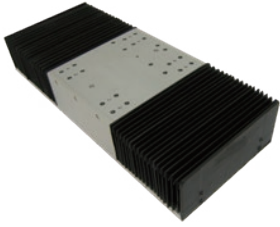
### DGH 200 SS Series



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

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

## DGL 180/200/260-BC Series



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

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

## DGC Series



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

**Applicable to:** Low precision handling applications

## XRL 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 0.1 $\mu$ m, 20nm and 5nm

**Applicable to:** Optical detection

## XMZ130 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

## XRV 76/97/115 Stage Series



- ▶ Crossed roller square voice coil motor platform
- ▶ Stroke up to 20mm
- ▶ Direct drive, zero backlash and zero cogging force
- ▶ Linear encoder resolution of 0.2 $\mu$ m, 0.05 $\mu$ m or analog optional

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

## XMGV 38/41/52/84 Stage Series



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

**Applicable to:** Optical focusing, high speed picking and placing, 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 $\mu$ m, 0.05 $\mu$ m or analog optional
- ▶ Ideal for lens focusing applications

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

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## MBV Series



- ▶ Voice motor, fast response speed
- ▶ Governor spring, automatically up when power off
- ▶ Integrated with linear encoder, resolution of 0.5 $\mu$ m
- ▶ Effective stroke of  $\pm 3$ mm,  $\pm 4$ mm
- ▶ Suitable for Z axis, compact design

**Applicable to:** High speed picking and placing

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## XY-DGL Stacked Stage Series



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

**Applicable to:** Laser cutting and micron measurement of XY axis

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## XY-DGL Series

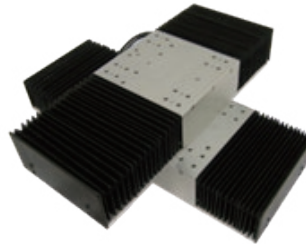


- ▶ XY integrated linear motor stage
- ▶ Build-in integrated with optical encoder
- ▶ Dual guide, cantilever structure design

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

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## 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

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## XCV Series

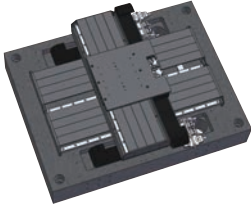


- ▶ Voice coil motor positioning system
- ▶ Stroke 4mm
- ▶ Repeatability 0.5 $\mu$ m
- ▶ No cogging, high dynamics and control bandwidth
- ▶ Optical encoder with user selectable resolution 50nm, 0.2 $\mu$ m, 0.5 $\mu$ m

**Applicable to:** For sub-micron positioning, pick and place, force control, etc.

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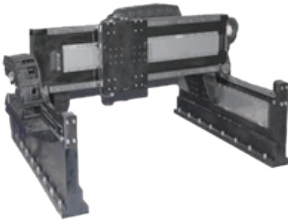
## TGS-XY Series



- ▶ High precision XY wafer inspection stage
- ▶ Good for Class 1000 clean room
- ▶ Effective stroke 500×500mm
- ▶ Max speed up to 800mm/s with repeatability  $\pm 1\mu\text{m}$

**Applicable to:** For 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 0.5 $\mu\text{m}$ , 1 $\mu\text{m}$  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 detection

## APK Series



- ▶ Single axis (Z) actuator, dual axis (Z and Theta) actuator and three axis (XZT) actuator, force control accuracy up to 10g $\pm$ 2g
- ▶ Z-axis stroke options of 25mm, 50mm, 100mm
- ▶ Fast response and short settling time
- ▶ Rotary axis comes with hollow shaft for vacuum feed through

**Applicable to:** The hollow shaft design supports vacuum adsorption pick and place

## AM Series Miniature Stages

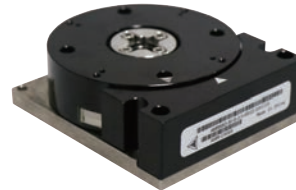
### AML Series



- ▶ Compact linear motor positioning stage
- ▶ Stroke from 10~20mm available
- ▶ Integrated with high precision optical encoder, resolution from 50nm~0.5 $\mu\text{m}$ , SINCOS optional
- ▶ Repeatability up to  $\pm 0.3\mu\text{m}$
- ▶ Freely combination with AML, AMZ, AMR

**Applicable to:** Sub-micron optical positioning stage

### AMR Series



- ▶ Miniature rotary positioning system
- ▶ Product dimensions: L×W×H=76×65×25mm
- ▶ Rotation up to 50°
- ▶ Build-in optical encoder, repeatability  $\pm 0.5\text{arc sec}$
- ▶ Modular assembly, can be stacked with AMS to XT or XYT stage

**Applicable to:** Rotary correction, optical alignment stage, etc.

### AMZ Series



- ▶ Compact linear motor vertical Z positioning stage
- ▶ Effective stroke 8mm
- ▶ Integrated with high precision optical encoder, resolution from 50nm~0.5 $\mu\text{m}$ , SINCOS optional
- ▶ Repeatability up to  $\pm 0.2\mu\text{m}$
- ▶ Freely 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  $\pm 0.3\mu\text{m}$
- ▶ Optical encoder with user selectable resolution  $0.5\mu\text{m}\sim 50\text{nm}$  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  $\pm 0.5\mu\text{m}$

**Applicable to:** Sub-micron optical positioning stage

## AM Series Stacked XYZG1G2



- ▶ Compact multi-axes linear motor positioning stage
- ▶ Integrated with high precision optical encoder
- ▶ Freely combination, suitable for many applications
- ▶ Repeatability for single axis: linear axis up to  $\pm 0.5\mu\text{m}$ , rotary axis up to  $\pm 0.5\text{arc sec}$ , goniometer up to  $\pm 4\text{arc sec}$

**Applicable to:** Sub-micron optical positioning stage

## APPLICABLE TO CNC INDUSTRY

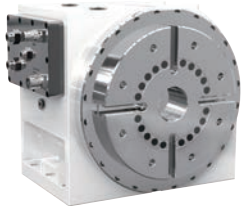
### ARV Series Vertical CNC Turntable



- ▶ Directly driven by Akribis torque motors
- ▶ Zero backlash, wear free, low acoustic noise and compact size
- ▶ High acceleration and fast dynamic response
- ▶ High torque density, large inertia and excellent continuous processing performance
- ▶ Hydraulic clamping system capable of process in any angle
- ▶ High-accuracy encoder compatible with different CNC systems

**Applicable to:** Turn-mill combination to achieve high-accuracy process. Applicable to various special machine tools requiring precise positioning

### ARH Series Horizontal CNC Turntable



- ▶ Directly driven by Akribis torque motors
- ▶ Zero backlash, wear free, low noise, and compact size
- ▶ High acceleration and fast dynamic response
- ▶ High torque density, large inertia and excellent continuous processing performance
- ▶ Pneumatic and hydraulic clamping system capable of process in any angle
- ▶ High-accuracy encoder compatible with different CNC systems

**Applicable to:** The fourth axis of CNC machines.

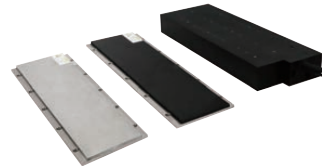
### ATRT Series Dual-axis CNC Turntable



- ▶ Housing made of cast iron containing special metal element which has high hardness, strength and rigidity
- ▶ Directly driven by Akribis torque motors with zero backlash, wear free, low noise and compact size
- ▶ High acceleration, fast dynamic response, high torque density, large inertia and excellent continuous machining property
- ▶ Hydraulic clamping system capable of process in any angle
- ▶ High-accuracy encoder compatible with different CNC systems

**Applicable to:** Five axis of CNC machining center

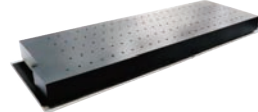
### AKM Series Water-cooled Linear Motor



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

**Recommended Applications:** CNC lathe, CNC grinding machine

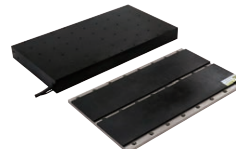
### AKMF Series Water-cooled Linear Motor



- ▶ Continuous force: 1000N~6200N
- ▶ Peak force: 1500N~11941N

**Recommended Applications:** CNC lathe, CNC grinding machine, engraving and milling machine, machining center

### AKH Series Water-cooled Linear Motor



- ▶ Continuous force: 1097N~6320N
- ▶ Peak force: 2750N~16500N

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

## INTELLIGENT FLEXIBLE CONVEYOR SYSTEM

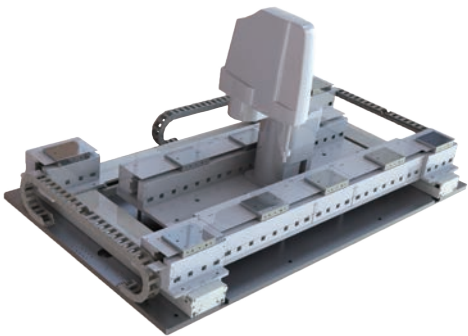
### Loop Type



- ▶ Full direct drive module
- ▶ Multi-movers substructure design
- ▶ Max. speed up to 4m/s
- ▶ Repeatability up to  $\pm 30\mu\text{m}$

**Applicable to:** High precision cyclic conveyor in various integrated devices

### Linear Type

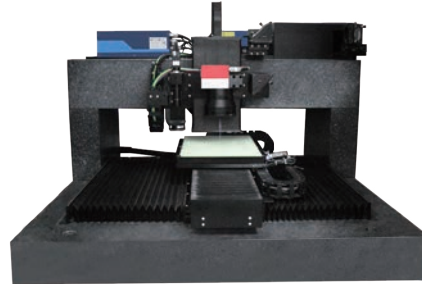


- ▶ Full direct drive technology
- ▶ Multi-configuration possible, vertical and horizontal
- ▶ Flexible configuration of conveyor length and multi-movers possible
- ▶ Independent and real time position control of every single mover
- ▶ Repeatability up to  $\pm 5\mu\text{m}$  and Max. speed up to 3m/s

**Applicable to:** Lithium battery, car assembly, semiconductors, biomedical, modern packing and 3C industries

## LASER MICROMACHINING WITH PRECISION GALVO AND STAGE

### Synchronized Galvo and Stage Motion Control Solution



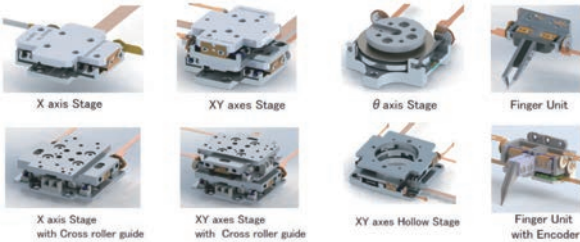
- ▶ High precision multiaxis stage with linear motor
- ▶ Synchronized galvo and stage control
- ▶ Stage following error compensation with galvo in real time, realizing high speed and high accuracy scanning
- ▶ Synchronized laser triggering with position feedback (PSO)
- ▶ Optimized trajectory planning 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.



## 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

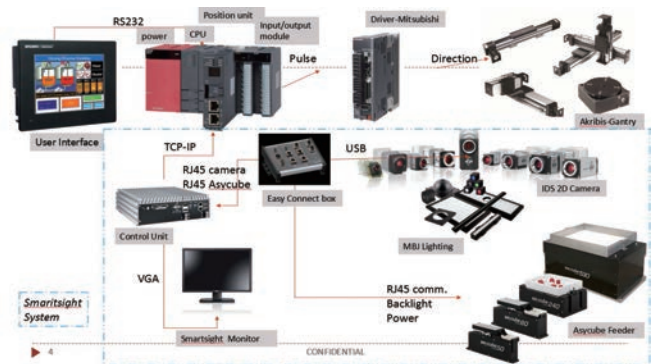
**Applicable to:** Medical equipments, semiconductor devices and optical components

## SMART MANUFACTURING

### Integrated Solution of Flexible Feeding

- ▶ Compatible with almost 99% of all kinds of complex geometric parts (less than 150mm)
- ▶ Adopted Asycube vibration disk from Swiss, Akribis direct drive, Smartsight system and Mitsubishi PLC manufacturer solution
- ▶ Asycube adopts innovative vibration technology of triaxial voice motor, which is capable of flipping parts in any direction gently
- ▶ Easy integration: Smartsight direct TCP/IP communication with PLC
- ▶ Operating the whole system by simple trigger, is able to connect several Asycube feeders and vision systems
- ▶ High precision: gantry move to the XY position in micrometers accuracy
- ▶ Multiple lighting selection: choosing the specified lighting depend on parts shape and material
- ▶ Powerful vision system: detect complex pattern, create multiples teaching patterns and define part's angle randomly

**Applicable to:** Assembling and feeding of precise parts in optical communication, SMT, semiconductor and medical industry



### Case



Helping the Swiss watch components corporation (Affolter) to achieve flexible production



Providing innovative solution of feeding materials in top-level pharmaceuticals industry



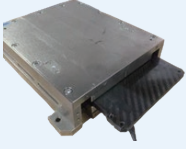
Helping FRITSCH to achieve flexible working of SMT mouter



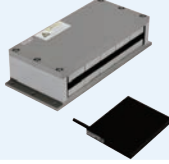
Helping the supplier of optical fiber connector (Radial) to improve the production line

## Special Motors

Linear motor with carbon fibre coil plate



Linear motor with multiple degrees of freedom of motion



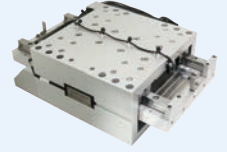
Water-cooled moving magnet linear motor



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



Voice coil motor with gravity compensation



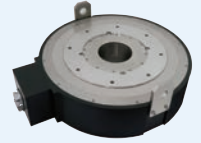
IP68 water resistance rotary motor



ISO Class 5 cleanroom rated rotary motor



High torque DDR with large diameter over 660mm

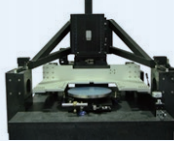


## Precision Stages for Industries

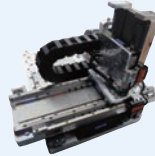
5-axis XYZT for 3D measurement



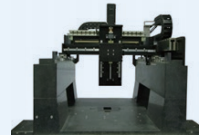
XYZ stage for wafer microscope



XYZ stage for mobile phone parts assembly



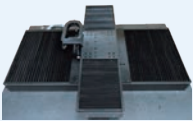
XYZ stage for glue dispensing



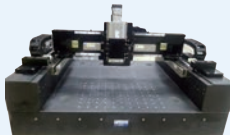
XYZ stage for optical system assembly



XYZ stage for laser application



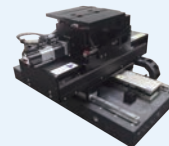
H-drive gantry stage



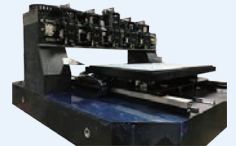
Hollow XY stage for wafer detection



XYZ stage for wafer detection



G6 FPD stage for laser application with 14 axis



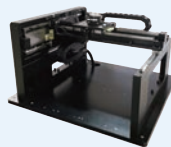
6 DOF mini stage for optical alignment



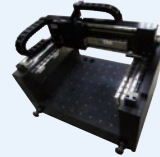
XYZ stage for fiber optic alignment



XY stage for glue dispensing



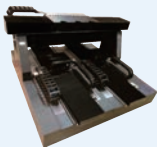
H-drive gantry stage for assembly and testing



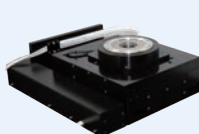
XYT stage for glass laser cutting



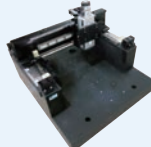
XYZ stage for PCB exposure



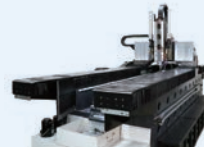
XYZ stage for wafer testing



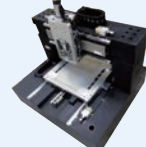
H-drive gantry stage for testing and laser application



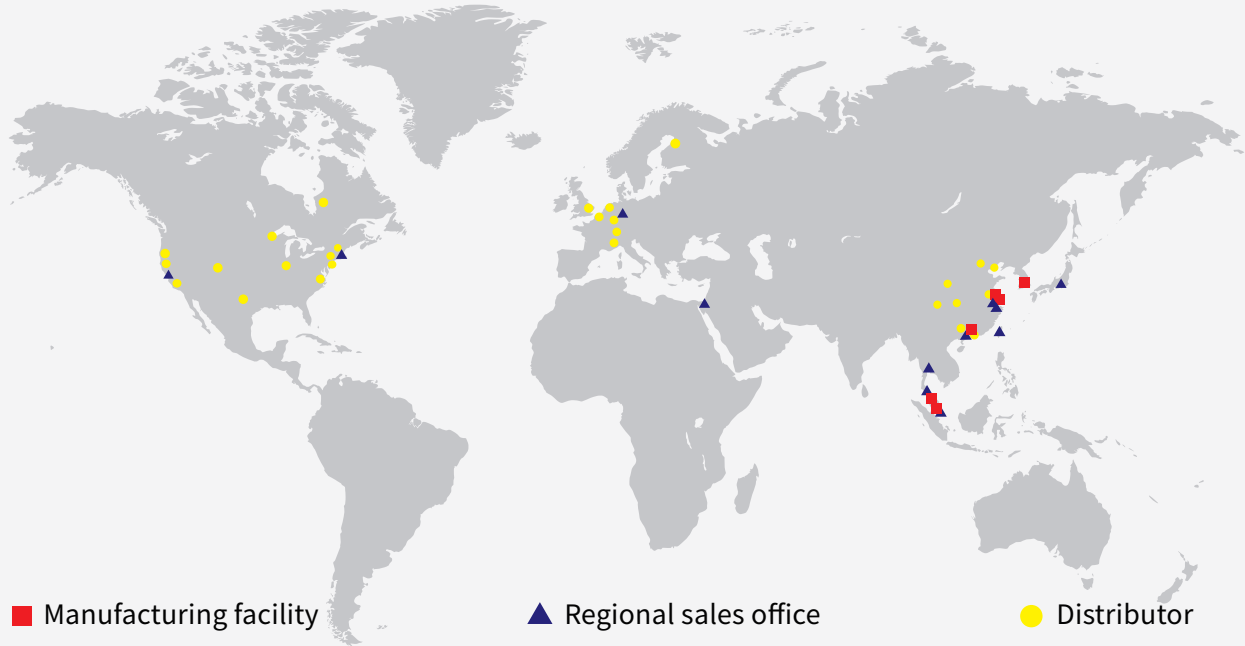
LX1030Z gantry machining center



XYZ stage for laser marking and precision parts assembly



# Akribis Worldwide Offices and Distribution Network



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