

Akribis
where precision matters

Product Catalog

Akribis Systems

(EN)-17.10.1



Akribis is a Latinized Greek word that means “Precision”. On the Akribis logo, the letter “α” 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 Aug 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 15 patents applied, of which 6 have been granted. Backed by a very strong and committed engineering team, the company continues to develop custom motors and systems for the most demanding applications.

The corporate headquarters of Akribis Systems is situated in Singapore. We have manufacturing facilities both in Singapore and in Shanghai, China.

Our sales network includes our overseas sales offices in USA, South Korea, Japan and Thailand, and is reinforced by our comprehensive distribution channels in Asia, Europe and North America.



Akribis (Singapore)



Akribis China (Shanghai)



Akribis (Korea)



Akribis USA (Silicon Valley)



Akribis (Japan)



Akribis (Germany)

Services we offer

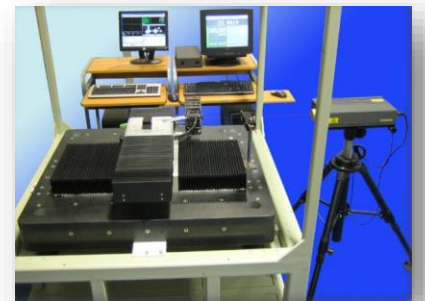
- Motor design
- Build to specification positioning stages
- Magnetic and mechanics finite element analysis
- High precision stages
- Aerostatic bearing design and stages
- Motion control platform design and software development
- Machine vision aided motion control solution
- Laser interferometry characterisation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

Application areas:

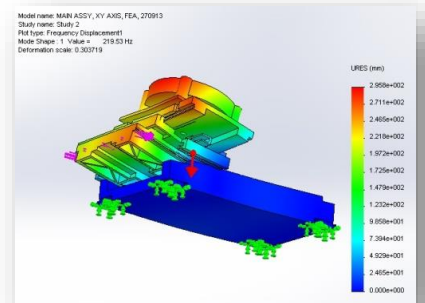
- Semiconductor manufacturing (wafer inspection, BGA and IC inspection, wire bonding, die bonding and sorting, laser marking, dicing, flip chip etc.)
- Hard disk (HGA, slider manufacturing, inspection, texturing of disk media etc.)
- Biomedical (DNA /Gene extraction, micro array, pharmaceutical manufacturing 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, automotive parts manufacturing, connectors manufacturing, dispensing systems, PCB manufacturing etc.)



Design and Analysis



Laser Calibration



Finite Element Analysis



Training Seminar

Akribis Standard Products Series

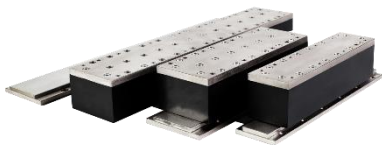
ACM1-S/L Series (Compact Ironcore, Brushless Motor)

- Ironcore, direct drive brushless linear motors
- Low cogging design
- Compact form factor (coil length 96 or 176 mm; overall height 34 mm)
- Maximum peak force of 1,588 N, maximum continuous force of 347 N



ACM Series (Ironcore, Brushless Motor)

- Ironcore, direct drive brushless linear motors
- Low cogging design
- 5 models (ACM2, 3, 4, 5,6) with coil lengths from 200 mm to 704 mm
- Maximum peak force of 13,575 N, maximum continuous force of 9,990 N

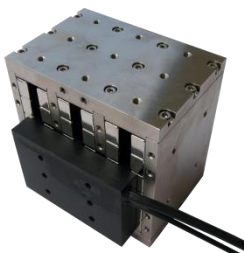


AUM Series (Ironless, Brushless Motor)

- Ironless, direct drive brushless linear motors
- Zero cogging design
- Low moving mass with high force density
- 5 models (AUM 1, 2, 3, 4, 5)
- Suitable for high accelerations (10G or more) and high speed
- Suitable for high precision applications with air bearings



Patented Design



AHM Series (Rectangular Ironless, Brushless Motor)

- Ironless, direct drive brushless linear motors
- Zero cogging
- Compact size with high force to mass ratio
- Suitable for short stroke and high acceleration applications

ADR-A Series (Direct Drive Rotary Motor)

- Direct drive, brushless motor using ironcore technology
- Diameter of 110 mm, 135 mm, 175 mm, 220 mm and 360 mm
- Integrated with high resolution encoder (up to 88,473,600 counts/rev)
- Precise homing through index pulse
- High torque with low inertia
- Low cogging torque



Akribis Standard Products Series

ADR-B Series (Direct Drive Rotary Motor)

- Direct drive, brushless motor using ironcore technology
- Diameter of 110 mm, 135 mm, 175 mm and 220 mm
- High torque with low inertia
- Low cogging torque
- Large centre hole



ADR-P Frameless Series

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

ACD Series (Direct Drive Ironless Rotary Motor)

- Direct drive, brushless motor using coreless technology
- Zero cogging torque
- Diameter of 62 mm, 120 mm and 200 mm
- Integrated with high resolution encoder (up to 58,982,400 counts/revolution)
- Fast response and short settling time
- Smooth motion even at low speed (low velocity ripple)
- Precision homing through index pulse



ACW Series (Direct Drive Brushless Rotary Motor)

- Ultra low profile direct drive brushless motor
- Zero cogging torque
- Fast response and short settling time
- Smooth motion even at low speed (low velocity ripple)
- Diameter of 120 mm, 170 mm and 220 mm

Akribis Standard Products Series

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

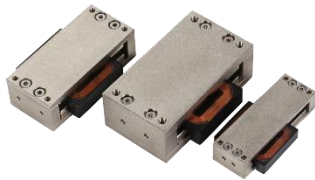
- Direct drive actuators with two terminals
- Stroke range from 5 mm to 30 mm
- Zero cogging force
- Low coil mass with fast response and high bandwidth
- Ultra high resolution motion (depends on the feedback device)



Patented Design

AVA Series (Flat Voice Coil Actuators)

- Direct drive actuators with two terminals
- 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)



MGV 38 / 41 / 52 / 84 Stage Series

- Miniature guide voice coil motor precision stage
- Stroke from 15 mm to 30 mm
- Zero backlash and zero cogging force
- Linear encoder resolution of 0.5 μm , 0.1 μm or 20 nm
- Fast response and high bandwidth



DGV Series

- Dual guide, compact voice coil motor pick and place stage
- Low moving mass
- High acceleration, fast response and short settling time

XRV 76 / 97 / 115 Stage Series

- Cross roller voice coil motor stage
- Stroke up to 20 mm
- Direct drive, zero backlash and zero cogging force
- Linear encoder resolution of 0.5 μm , 0.1 μm or 20 nm



Akribis Standard Products Series

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 0.5 μm , 0.1 μm or 20 nm
- Ideal for lens focusing applications



AZT Series

- Dual axis (Z and Theta) actuator
- Fast response and short settling time
- Compact size
- Rotary axis comes with hollow shaft for vacuum feed through

VPL 32 / 48 / 51 Stage Series

- Vertical pick and place linear motor stage
- Stroke up to 50 mm
- Linear encoder resolution of 0.5 μm , 0.1 μm or 20 nm
- Low moving mass with high acceleration, fast response and high bandwidth

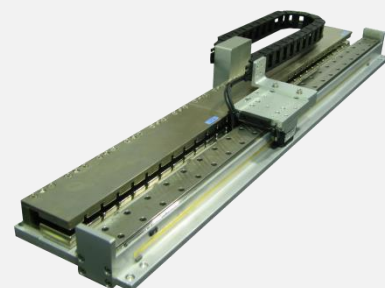


SGL 78 / 80 / 100 / 120 Stage Series

- Single guide linear motor stage
- Stroke from 100 mm to 2,700 mm
- Direct drive, zero backlash and zero cogging force
- Linear encoder resolution of 1 μm , 0.1 μm or 20 nm
- Velocity up to 5m/s, acceleration up to 10 G

WGL Stage Series

- Wide guide linear motor stage
- Direct drive, zero backlash and zero cogging force
- Linear encoder resolution of 5 μm , 1 μm or 0.1 μm
- Simple design with fewer parts
- Velocity up to 5 m/s, acceleration up to 10 G



DGHL Stage Series

- Dual guide, high force linear motor stage
- High force, low moving mass
- Stroke up to 30 mm
- No back iron on magnet track
- Zero attraction force on bearings
- No moving cable



Patent Pending

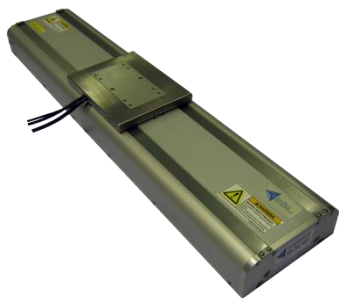
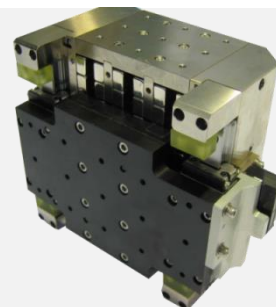


DGL 150 / 180 / 200 / 250 Stage Series

- Dual guide linear motor stage
- Stroke from 100 mm to 3,000 mm
- Direct drive, zero backlash
- Linear encoder resolution of 5 μm , 1 μm or 0.1 μm
- Velocity up to 5m/s, acceleration up to 10 G

DGL 166 Stage Series

- Dual guide, high force, compact size linear motor stage
- Stroke up to 29 mm
- Compact size and low moving mass
- Zero cogging force
- Suitable for applications with short stroke and high accelerations

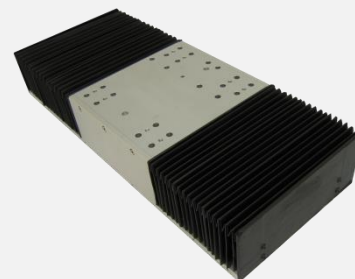


DGL 150 / 180 / 200-CR Stage Design

- Dual guide linear motor stage for clean room applications
- Clean room sealing strip design
- Linear encoder resolution of 5 μm , 1 μm or 0.1 μm

DGL 180 / 200-BC Stage Series

- Dual guide linear motor stage with bellow covers
- Direct drive, zero backlash
- Linear encoder resolution of 5 μm , 1 μm or 0.1 μm
- Suitable for harsh environment



XY-DGL 200-C-DGL 200-C Stacked Stage Series

- XY stacked linear motor stage



XY-DGL 180-C-DGL 200-C Series

- XY integrated linear motor stage

XY-DGL 200-BC -DGL 200-BC Stacked Stage Series

- XY stacked linear motor stage with bellow covers

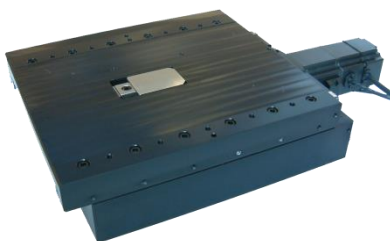


XRL 200 / XRL 250 Stage Series

- Cross roller linear motor stage
- Excellent straightness and flatness with high load capacity
- Direct drive, zero backlash and zero cogging force
- Linear encoder resolution of 0.5 μm , 0.1 μm , 20 nm and 5 nm

XY-XRL 200-XRL 200 Stacked Stage Series

- XY stacked cross roller linear motor stage



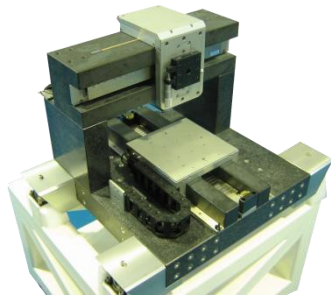
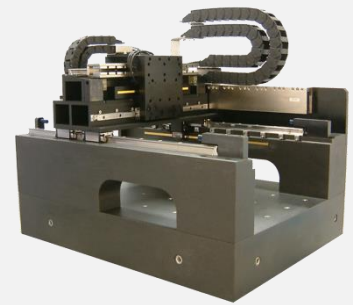
XRB 200 / XRB 250 Stage Series

- Cross roller precision ground ball screw stage
- Excellent straightness and flatness with high load capacity
- Suitable for vertical applications
- Linear encoder resolution of 5 μm , 1 μm and 0.1 μm

Akribis Standard Products Series

GTD Series

- Gantry high precision linear motor stage
- T-Drive or H-Drive configuration
- Linear encoder resolution of 1 μm , 0.5 μm and 0.1 μm
- Smooth motion at low speeds (low velocity ripple)

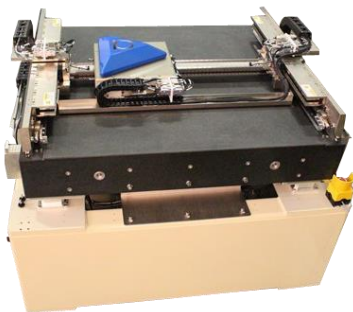


GAG Series

- Air bearing high precision linear motor stage
- Superior flatness and straightness due to non-contact air-bearing design
- Smooth motion and low particle generation operation

VRG Series

- Versatile gantry stage with T drive or H drive configuration
- Options of various ironcore motors (ACM series) or ironless motors (AUM series)
- T drive gantry using single linear encoder of resolution 0.5 μm , 1 μm or SINCOS encoder; or H drive gantry using dual 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



Patent Pending

AGTD Series

- Hybrid linear motor stage with vacuum preloaded air bearings and linear rails
- Direct drive, zero cogging, zero backlash
- Symmetrical design enable driving force to be through the centre of gravity
- Smooth motion at low speeds (low velocity ripple)
- Decoupled design gives excellent system flatness

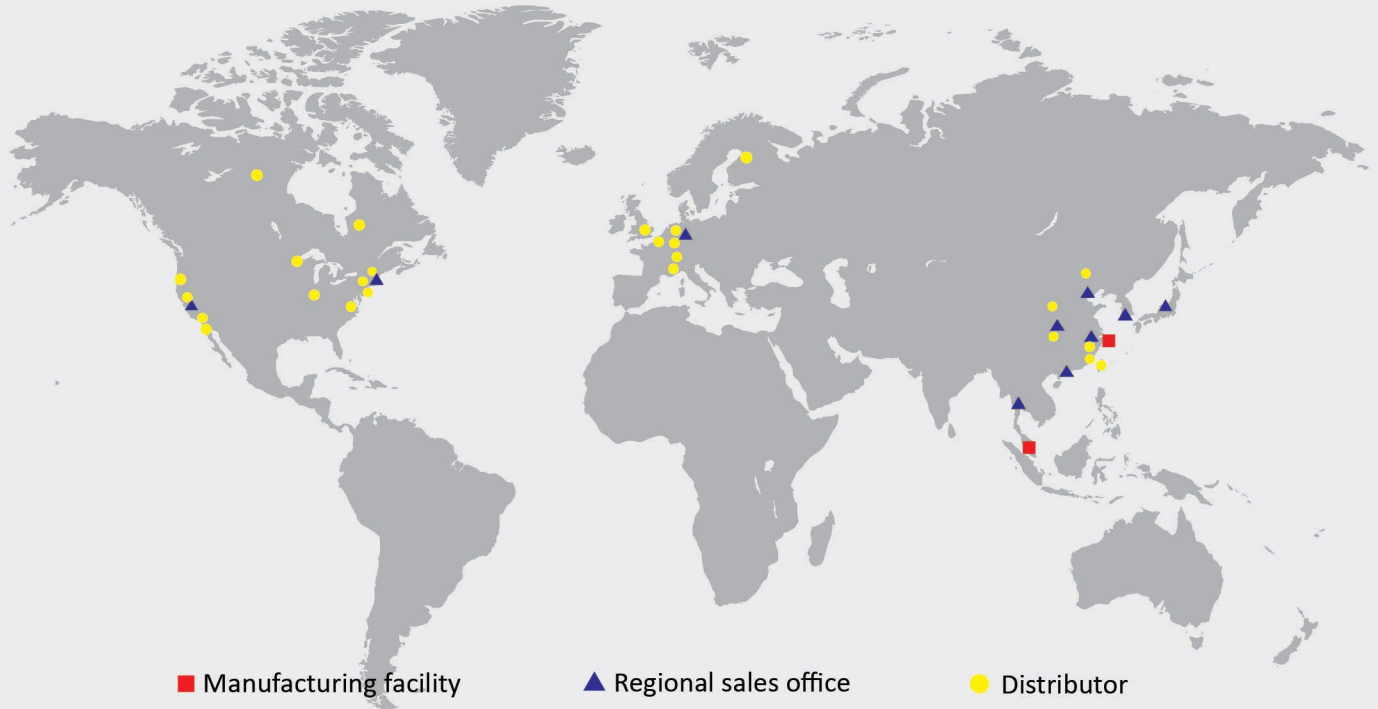
Custom Designs

Z motor for wire bonding	Voice coil motor for force control	Motor with carbon fibre coil plate
		
XYZ Stage for wafer microscope	XYZ Stage for biomedical application	XYZ Stage for epoxy dispensing
		
XYZ-Theta stage for alignment	Linear motor stage for earthquake simulation (10,000 N force)	XYZ Stage for probing
		
XYZ Stage for optical system assembly	XYZ Stage for laser application	Water cooled moving magnet linear motor
		

We design and build customized motors and stages for specific applications.

Please contact us for more details.

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