Akribis Systems

Where Precision Matters
Akribis Logo

Akribis is a Latinized Greek word that means Precision. On the 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 is committed in providing customers with precise motion control systems, supported by its firm foundation and sound engineering expertise.

Company Profile

Akribis Systems designs and manufactures direct drive linear and rotary systems and precision stages that are used in equipment for manufacturing, inspection and testing.

With offices located in Singapore, Malaysia, Thailand, Taiwan and Japan, Akribis Systems supports a wide range of industries including semiconductor, flat panel display, hard disk, photonics, biomedical and electronics manufacturing.

Services we offer

Other than our standard products, we offer the following services:
- Motor design
- Design of custom stages to meet specific requirements
- Finite Element Analysis (static and dynamic) of mechanical structures
- Selection and sizing of motors and force requirements
- Aerostatic bearing stages
- High precision large stages (T-Drive, H-Drive, Active Yaw H-Drive)
- Motion control solutions (with high performance DSP controller)
- Laser calibration and measurement of repeatability, accuracy, straightness, flatness etc
- Natural frequency vibration analysis
Application areas:

- Semiconductor manufacturing (wafer inspection, BGA and IC inspection, wire bonding, die bonding and sorting, laser marking, sawing, 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, luggage manufacturing etc)
**Standard Products**

**ACM1-S Series (Compact Iron Core, Brushless Motor)**
- Iron core, direct drive brushless linear motors
- Low cogging design
- Compact form factor (coil length 96 mm; overall height 34 mm)
- Maximum peak force 794 N, maximum continuous force 174 N

**ACM Series (Iron Core, Brushless Motor)**
- Iron core, direct drive brushless linear motors
- Low cogging design
- 4 models (ACM2, 3, 4, 5) with coil lengths from 200 mm to 704 mm
- Maximum peak force of 10,500 N, maximum continuous force 3880 N

**AUM Series (Ironless, Brushless Motor)**
- Ironless, direct drive brushless linear motors
- Zero cogging
- Low moving mass and high force to mass ratio
- 4 models (AUM2, 3, 4, 5)
- Suitable for high accelerations (10G or more) and high speed
- Also suitable for high precision applications with air bearings

**AVM Series (Circular Voice Coil Actuators)**
- Direct drive actuators with two terminals
- Many models available with stroke from 5 mm to 30 mm
- Zero backlash, zero hysteresis and zero cogging
- Low coil mass with very fast response and high bandwidth
- Smooth motion at low speeds with limitless resolution (depends on feedback device)

**AVA Series (Flat Voice Coil Actuators)**
- Direct drive actuators with two terminals
- 3 models available (AVA1, 2, 3). Low profile; suitable for designs into linear stages
- Zero backlash, zero hysteresis and zero cogging
- Low coil mass with very fast response and high bandwidth
- Smooth motion at low speeds with limitless resolution (depends on feedback device)

**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 Series (Direct Drive Rotary Motor)
- Direct drive, brushless motor using iron core technology
- Diameter of 220 mm
- Integrated with high resolution encoder (up to 14,745,600 counts/rev)
- Precise homing through index pulse

ACD Series (Coreless Direct Drive Rotary Motor)
- Direct drive, brushless motor using slotless technology (zero cogging)
- Diameter of 62 mm, 120 mm and 150 mm
- Integrated with high resolution encoder (up to 8,388,608 counts/rev)
- Fast response and settling
- Smooth motion even at low speeds (low velocity ripple)
- Precise homing through index pulse

ARC Series (Coreless Brushless Motors)
- Zero cogging, coreless brushless motors
- Low inductance and small electrical time constant
- High accelerations and response
- Equipped with hall sensors for brushless commutation
- Standard diameters of 16, 22, 26, 30, 40 and 60 mm

ARC Series (Coreless Brushless Servo Motors)
- Zero cogging, coreless brushless servo motors
- Integrated with encoders for position feedback
- Compact size and the high torque/size ratio
- Ideal for equipment and machines that have limited space design
- Zero cogging, smooth rotation can be achieved even at low speeds
- Standard diameters of 16, 22, 26, 30, 40 and 60 mm

ARC-H Series (Hollow Shaft Coreless Brushless Servo Motors)
- Zero cogging, coreless brushless servo motors with through bore shaft
- Allow vacuum to be fed through for picking parts with a vacuum suction pad attached to the end of the motor shaft
- Two standard sizes of 26 mm and 40 mm are available
AZT Series (Z Theta pick and place actuator system)

- Combined Linear and Theta motion for pick and place applications
- Hollow through shaft for direct vacuum fittings (suction cup below and vacuum supply above)
- Low moving mass; high acceleration and fast response
- Linear stroke of up to 15 mm with linear encoder feedback of 0.5 um/0.1 um resolution
- Full rotary motion with encoder feedback resolution of 8192 cnts/rev

DGL140/150/180/200 Series

- Dual guide ironless/iron core linear motor modules
- DGL140, 150, 180, 200 models
- Stroke from 100 mm to 2.5 m
- Direct Drive, low settling time, zero backlash and cogging
- Integrated with linear encoder and guidance system
- Linear encoder resolutions of 5 um, 1.0 um and 0.1 um
- Speeds of 5 m/s; acceleration up to 10G

SGL78/80/100/120 Series

- Single guide ironless linear motor modules
- SGL78, 80, 100, 120 models
- Stroke from 100 mm to 2.5 m
- Direct Drive, low settling time, zero backlash and cogging
- Integrated with linear encoder and guidance system
- Linear encoder resolutions of 5 um, 1.0 um and 0.1 um
- Speeds of 5 m/s; acceleration up to 10G

MGV38/41/52/84 Series

- Miniature guide voice coil actuator modules
- Stroke from 15 mm to 30 mm
- Direct Drive, low settling time, zero backlash and cogging
- Integrated with linear encoder and guidance system
- Linear encoder resolution of 1.0 um or 0.1 um
- Fast response/high bandwidth

XRV76/92 Series

- Cross roller voice coil actuator stage
- Stroke 20 mm
- Integrated with linear encoder
- Linear encoder resolutions of 0.1 um, 20 nm or 5 nm
DGL150/180/200-CR Series
- Dual guide ironless linear motor modules
- Clean room compatible
- Stroke from 100 mm to 2.5 m
- Direct Drive, low settling time, zero backlash and cogging
- Integrated with linear encoder and guidance system
- Linear encoder resolutions of 5 um, 1.0 um and 0.1 um

DGL180/200-B Series
- Dual guide ironless linear motor modules
- With bellow covers for harsh environment
- Stroke from 100 mm to 600 mm
- Direct Drive, low settling time, zero backlash and cogging
- Integrated with linear encoder and guidance system
- Linear encoder resolutions of 5 um, 1.0 um and 0.1 um

XY-DGL200-DGL200 Series
- XY fully integrated linear motor modules
- Stacked up configuration

XY-DGL200-DGL180 Series
- XY fully integrated linear motor modules
- Traverse configuration

XY-DGL200B-DGL200B Series
- XY fully integrated linear motor modules (bellow)
- Stacked up configuration

VPL32/48/51
- Vertical pick and place system
- Stroke 20 mm
- Compact design; 3 models
- Direct Drive, high acceleration, low settling time
- Integrated with linear encoder and guidance system
- Linear encoder resolution of 1.0 um
SGB54/72 Series
- Single guide ball screw, servo motor/stepper motor modules
- SGB54 - width of 54 mm
- SGB72 - width of 72 mm
- Stroke from 100 mm to 500 mm

DGB150/DGB180/DGB200 Series
- Ball screw, servo motor/stepper motor modules
- 3 models - DGB150, 180, 200
- Stroke from 100 mm to 1 m

XY-XZ-DGB150/180/200 Series
- XY fully integrated modules

XRL200/XRL250 Series
- Cross roller ironless linear motor stages
- Good straightness and flatness with high load capacity
- 2 models - XRL200, XRL250
- Direct Drive, low settling time, zero backlash and cogging
- Integrated with linear encoder
- Linear encoder resolutions of 0.1 um, 20 nm or 5 nm

XRB200/XRB250 Series
- Cross roller precision ball screw modules with rotary servo motor
- Good straightness and flatness with high load capacity
- XRB200 - width of 200 mm
- XRB250 - width of 250 mm
- Optional linear encoder with resolution 0.1 um, 20 nm
XY-XRL200-XRL200 Series

- XY fully integrated cross roller stages
- Stacked up configuration

XRP100-2/XRP100-4/XRP100-8 Series

- Cross roller piezo motor stages
- Good straightness and flatness
- XRP100 - width of 100 mm
- Direct Drive, low settling time, zero backlash
- Linear encoder resolutions of 0.5 um, 0.1 um, 20 nm or 5 nm

XY, XYZ-XRP100 Series

- XY or XYZ fully integrated modules

GTD/GHD High Precision XYZ stage

- Gantry type, T-Drive or H-Drive linear motor stages
- Excellent straightness and flatness
- Direct Drive, low settling time, zero backlash
- Linear encoder resolutions of 0.5 um, 0.1 um, 20 nm or 5 nm
Customized Products

Akribis Systems also designs and builds customized stages for specific applications. Please contact us for more details!

- Air bearing XY gantry stage
- XYZ-Theta stage for alignment
- XYZ Stage for biomedical application
- XYZ Stage for epoxy dispensing
- XYZ stage for wafer microscope
- XYZ Stage for dispensing
Voice coil module for hard disk media texturing

XYZ stage for pick and place

Linear motor stage for earthquake simulation
(10,000 N force)

XYZ piezo stage for lens manipulation

XYZ stage for probing

XYZ stage for optical system assembly
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