

Features



Air Fitting

- Meet ISO4(Class 10) with air fitting



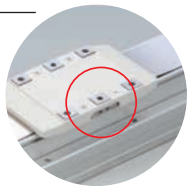
Low Dust Cover Sheet Design

- Special contact surface. Reducing friction and preventing dust.



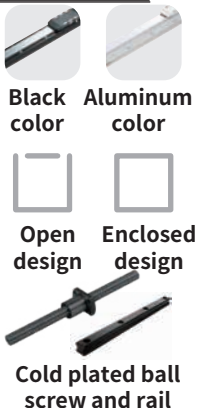
Easy Accessed Grease Fitting, Easier Maintenance

- External grease fitting for all series. Maintain ball screw and rail at once, no disassembly needed.
- Clean room level grease applied to all ball screw, rail and bearing.



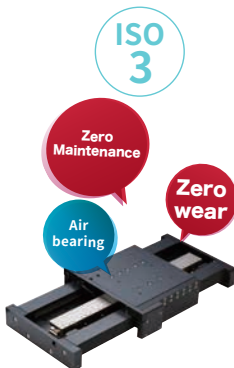
Suitable for different environment

- Offering Original and black color option.
- Open and enclose cover options.
- Optional cold plated ball screw and linear guide. Produce less dust, reduced wear, lower noise level, anti acid and no reflection. Only 2% reflection rate.



Zero Friction Air Bearing System

- Up to ISO 3 (Class 1)
- No wear, no lubrication needed
- None-contacted air bearing. No wear and performance drop.
- Unlimited life span. No lubrication pollution. The only requirement is air pressure. Ideal for clean room and medical environment.



Clean Room Certified Products(Attached Clean Room Standard)

ISO14644-1 Particle Concentration Standard(pcs/m3)

Clean Room Level		Particle Concentration					
ISO14644-1	Fed Std-209E	0.1µm	0.2µm	0.3µm	0.5µm	1µm	5µm
ISO 1		10	Invalid				
ISO 2		100	24	10	Invalid		
ISO 3	Class 1	1,000	237	102	35	Invalid	
ISO 4	Class 10	10,000	2,370	1,020	352	83	
ISO 5	Class 100	100,000	23,700	10,200	3,520	832	Invalid
ISO 6	Class 1,000	1,000,000	237,000	102,000	35,200	8,320	293
ISO 7	Class 10,000				352,000	83,200	2,930
ISO 8	Class 100,000				3,520,000	832,000	29,300
ISO 9					35,200,000	8,320,000	293,000

Application

- Exposure
- Wafer Inspection
- Laser Cutting
- Printing
- Optical Alignment
- Pick and Place



Global Location

ISO 14644-1



Catalog of Semiconductor Cleanroom Products

GLCH/GCH/ECH/GLCB/ECB/GCY/CGCH/CGCY/LGF/LCF2/LGCW/CHB2C/LBT/LXY/ETS/ZH/LTS/LTSU

Point



- All certification are coming from authorized institution examine base on ISO 14644-1.



- TOYO is few linear motion manufacturer in the world (Taiwan only) that can assemble actuators in clean room. Making sure minimized the contamination.



- Service location around the world. TOYO subsidiary in Taiwan/ China/ Japan/ Korea/ USA/ India/ Thailand.

Product



Linear Actuator



Servo Cylinder



Linear Motor Module



Electric Gripper



Nano Positioning Module



Nano Stages and Systems



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TOYO AUTOMATION CO., LTD



Semi-Conductor



LCD OLED



LED Packaging



Battery Pre-processing



Food Processing

Linear Motion Modules

None-motorized Actuator

Compatible with different motor brand. Maximized design freedom.

Ball Screw
GLCH


Ball Screw
GCH


Ball Screw
ECH


Ball Screw
GCY


Belt Drive
GLCB


Belt Drive
ECB


Repeatability	±0.005mm	Repeatability	±0.005mm	Repeatability	±0.005mm	Repeatability	±0.005mm	Repeatability	±0.06mm	Repeatability	±0.04mm
Max Payload	110 kg	Max Payload	110 kg	Max Payload	150 kg	Max Payload	110 kg	Max Payload	8 kg	Max Payload	85 kg
Stroke	50~1250 mm	Stroke	50~1250 mm	Stroke	50~2400 mm	Stroke	50~800 mm	Stroke	50~3000 mm	Stroke	50~4050 mm

Servo Cylinder

Best pneumatic replacement

Ball Screw
CGCH


Ball Screw
CGCY


Repeatability	±0.005mm	Repeatability	±0.005mm
Max Payload	30 kg	Max Payload	30 kg
Stroke	50~1050 mm	Stroke	50~800 mm

Electric Gripper

Controllable gripping strength, speed.

Ball Screw
CHS2C


Repeatability	±0.01mm
Max Gripping Strength	509 N
Stroke	68 mm

Linear Motor Module

High speed, acceleration. Multi-carriage. Increasing productivities

Ironcore Linear Motor
LGCW


Ironcore Linear Motor
LGF


Ironcore Linear Motor
LCF2


Repeatability	±0.002mm	Repeatability	±0.002mm	Repeatability	±0.002mm
Max Thrust	432~760 N	Max Thrust	25~266 N	Max Thrust	266~1532 N
Stroke	200~3000 mm	Stroke	160~2520 mm	Stroke	202~3053 mm

Air Bearing Axis

Zero Noise, zero wear, Nano level alignment

Air Bearing
LBT210

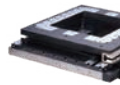

Air Bearing
LBT275


Repeatability	±0.2μm	Repeatability	±0.2μm
Speed ripple 100mm/s	0.1%	Speed ripple 100mm/s	0.1%
Straightness/Flatness	0.5μm	Straightness/Flatness	0.5μm

Alignment Stage

Hollow design, Superior linear accuracy, Geometric accuracy

Cross Roller Guide
LXY150


Cross Roller Guide
LXY300


Integrated bearing
LXY100-G


Repeatability	±0.25μm	Repeatability	±0.3μm	Repeatability	±2μm
Speed ripple 300mm/s	0.3%	Speed ripple 100mm/s	0.3%	Speed ripple 300mm/s	0.3%
Straightness/Flatness	±2/±12μm	Straightness/Flatness	±1.5/±3μm	Straightness/Flatness	±3/±3μm

Horizontal Z-Axis

Hollow design

Standard - Standard Steel Guide
ZH20H


Low Type - Aluminum Cross Roller Guide
ZH20


Repeatability	±1μm	Repeatability	±1μm
Max Payload	80Kg	Max Payload	20kg
Straightness/Flatness	10μm	Straightness/Flatness	10μm

Cast iron Axis

Cast iron structure, anti vibration

Ironcore Linear Motor
LTS22


Coreless Linear Motor
LTSU22

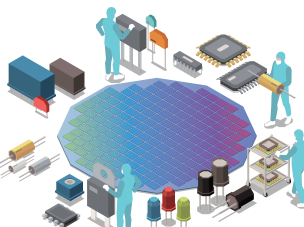

Ball Screw
ETS22


The following values are defined for a 300mm stroke:

Repeatability	±0.5μm	Repeatability	±0.5μm	Repeatability	±0.5μm
Accuracy	±2μm	Accuracy	±2μm	Accuracy	±2μm
Straightness/Flatness	±3μm	Straightness/Flatness	±3μm	Straightness/Flatness	±3μm

Nano Stages and Systems

Semiconductor Process Inspection Applications (Customized)



Wafer Inspection

An indispensable element in every wafer manufacturing plant is its optical inspection system. These surface characterization tools can detect various defects, including voids, pits, and scratches on the wafer surface. The inspection systems require smooth, high-speed line scanning, making the motion stability of the XY platform crucial to overall accuracy. TOYO NANO's nano platforms, with their exceptional dynamic performance, have long been a key supplier for these optical inspection applications.

Air bearing structures are particularly suitable for micron-level applications and wafer equipment due to their cleanroom compatibility.

Air Bearing Single Axis Platform



■ High Speed Pick And Place

Repeatability	±1μm
Max Accel	10G
Stroke	400mm

Dual Motor

Air Bearing XYZ Platform

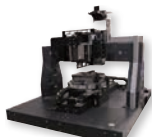


Precision Machining

Repeatability	<1μm
Flatness	<5μm
Stroke	200×200×150mm

Aluminum base air bearing used for Z axis

Air Bearing XYZθ Platform



■ Mask Inspection Machine

Repeatability	±1μm
Flatness	<5μm
Stroke	500mm×500mm

Air bearing for all axis, outstanding structure

Air Bearing XYZθ Gantry



■ White Light Interferometry

Repeatability	<1μm
V max	300mm/sec
Stroke	300×300×100mm

Air bearing for all axis

Linear Motor XY Stage



■ Laser Machining

Repeatability	<1μm
V max	500mm/sec
Stroke	300mm×300mm

Linear motor dual drive system

Linear Motor Dual Drive XYZθ Gantry

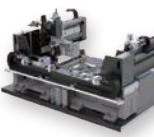


■ Exposure Machine

Repeatability	<1μm
V max	1000mm/sec
Stroke	450mm×450mm

Granite base gantry structure

Linear Motor Dual Drive XYZ Platform



■ Pick And Place

Repeatability	XY <1μm Z <2μm
V max	XY 1m/sec
Stroke	500×500×100mm

Air bearing for all axis, outstanding structure

XY Hollow Stage



■ Wafer AOI

Dimension of the cut out hole	350mm
Rotary angle	±20degrees
Repeatability	±0.5μm

Hollow XYZR configuration

Micro LED/PCB/LCD Panel Process Inspection Applications (Customized)



For multiple industries and applications

TOYONANO is at the forefront of critical technology development, continuously innovating high-precision components. In recent years, it has successfully entered the supply chains of high-precision semiconductor equipment, PCB, and panel industries, securing multiple patents for air-bearing platforms. With the rapid growth of the MicroLED industry and its high precision requirements, TOYONANO's platforms play a crucial role, providing precision positioning systems for applications such as mass transfer, electrical testing, and AOI inspection.

Linear Motor Dual Drive Gantry



■ 6 carriage printing machine

Repeatability	<5μm
V max	1m/sec
Stroke	600mm×2000mm

Linear motor dual drive system

XYZ Linear Motor Gantry



■ Laser machining

Repeatability	<2μm
V max	1m/sec
Stroke	600×600×100mm

Granite gantry structure

XYZ Linear Motor Gantry



■ Laser machining

Repeatability	±2μm
Flatness	XY 1m/sec
Stroke	1000×800×100mm

VC-C anti vibration

XYZ Linear Motor Dive Table Style Gantry



■ AOI

Dimension of the cut out hole	350mm
Rotary angle	±20degrees
Repeatability	±0.5μm

Hollow XYZR configuration