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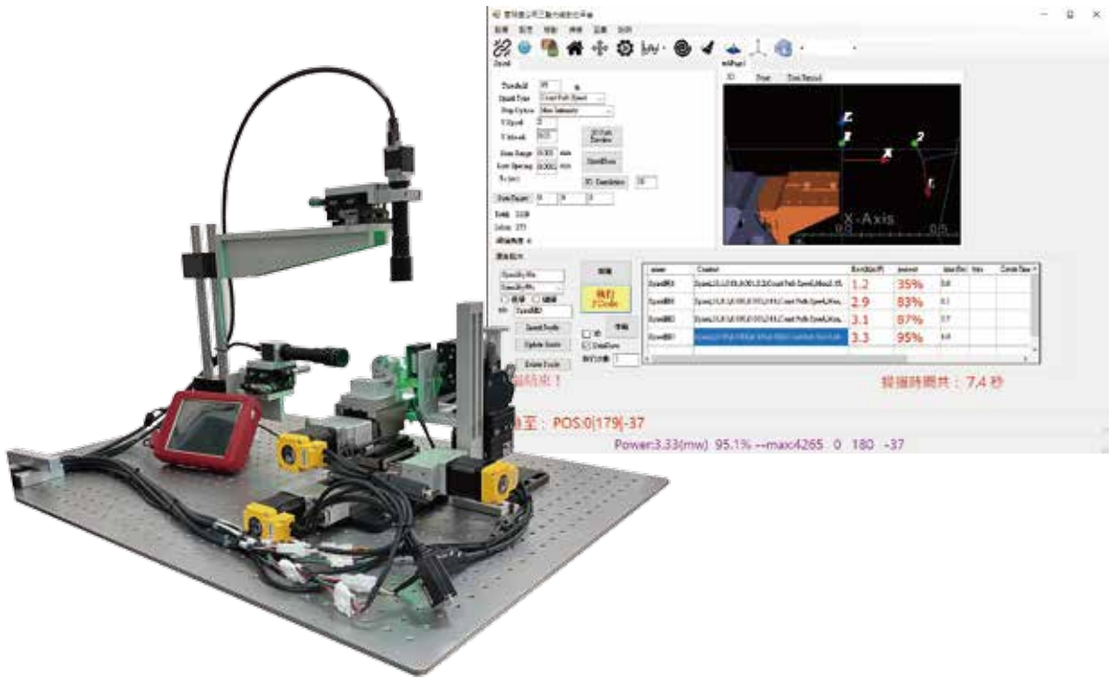
2024.7

GMT GLOBAL INC.

High-End Optical Communication Application Module



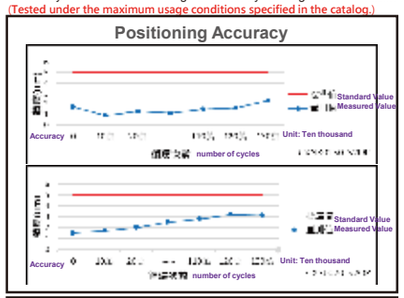
★Average data for shipment testing of electric CX limited-stroke/long-stroke ball guiding stage.

•Inspection Accuracy Items and Average Measurement Values

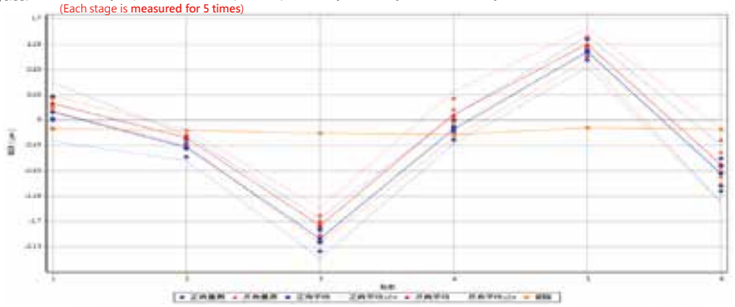
(The stage grade is high end. More than 100 mm of travel stroke is classified as precision grade.)

Model	CXS5030 series		CXS6030 series		CXS8030 series		CXN(C)5050 series		CXN(C)50100 series		CXN(C)6030 series		CXN(C)60100 series		CXN(C)8075 series		CXN(C)80150 series	
Data	Standard Value	Measured Value	Standard Value	Measured Value	Standard Value	Measured Value	Standard Value	Measured Value	Standard Value	Measured Value	Standard Value	Measured Value	Standard Value	Measured Value	Standard Value	Measured Value	Standard Value	Measured Value
Positioning Accuracy (μm)	5	3.7	5	3.7	5	3.1	5	3.1	10	6	5	3.2	10	7.2	5	4.7	10	7
Repeatability Positioning Accuracy (±μm)	±0.3	±0.22	±0.3	±0.2	±0.3	±0.28	±0.3	±0.25	±0.5	±0.3	±0.3	±0.3	±0.5	±0.3	±0.5	±0.3	±0.5	±0.25
Lost Motion Backlash (μm)	0.5	0.3	0.5	0.3	0.5	0.3	0.5	0.3	1	0.3	0.5	0.3	1	0.2	1	0.4	1	0.4
Dynamic Straightness (μm)	2	1.5	2	2	2	2	2	2	4	2	2	2	4	2	2	2	4	2.6
Dynamic Parallelism (μm)	10	7.8	10	7.3	10	6.1	10	5.4	10	4.3	10	5.7	10	4.7	10	4.1	10	3.9

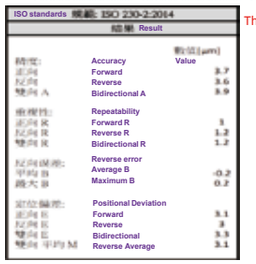
•Accuracy Curve Chart: The stage is tested by running-in over 1 million cycles.
(Tested under the maximum usage conditions specified in the catalog.)



Accuracy report chart: Multi-point repeatability accuracy is measured by a laser interferometer.
(Each stage is measured for 5 times)



*Forward measurement *Reverse measurement *Forward average * Forward average+/-2 *Reverse average *Reverse average+/-2 * Backlash



The laser interferometer data is tested with CXN80200-S2OPBN-P2-CH.

2024.3

To improve products and services, we reserve the right to change product engineering.
The catalogue is subject to addition, revision and deletion without notice.
Please visit GMT website, or contact the regional sales for the latest information.

High-End Optical Communication Application Module

Precautions

The stages in this catalog are high-accuracy products.

For operating them properly, please be familiar with the following precautions before using it.

Unpacking Precautions

Before unpacking, please check whether there's damaged appearance, loose screws or components. If there are concerns about structure and appearance, please take photographs as an evidence and e-mail to the responsible unit.

When the packages arrive, please make sure that the specifications and contents are consistent with the order, and check whether any peripheral parts are missing.

For any questions, please contact the responsible unit.

Safety Precautions

Before placement and use, please make sure that there is sufficient working space around to prevent the possibility of falling and rolling.
→ CAUTION: A violation may result in personal injuries or product damage.

For safe installations and operations, please follow the electrical safety instructions. Do not use in any explosive, flammable, corrosive, humid environments or wet conditions nor near to such materials. Otherwise, there would be risks of fire and electric shocks.
→ CAUTION: A violation may result in serious personal injuries or product damage.

Please always check that whether the movement space of the motors and mechanisms is enough in operations, and avoid any body parts or clothing accessories being close of / entering into the working areas of the stages. It otherwise will cause dangers as rolling, pinching, and pulling.
→ CAUTION: A violation may result in personal injuries or product damage.

Please turn off the power before starting maintenance to prevent the danger as an electric shock.
→ CAUTION: A violation may result in serious personal injuries or product damage.

If the product is used in a vertical direction as Z-axis, please use safety devices to prevent slides or power interruptions are caused due to an overload.
→ CAUTION: A violation may result in personal injuries or product damage.

Installation Precautions

Installation Precautions

If any unusual situations arise in operations (such as unusual sounds and vibrations), please immediately stop the machine.
→ CAUTION: A violation may result in personal injuries or product damage.

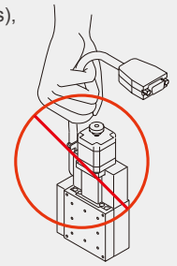
Do not forcibly pull or bend any electric wires and follow the wiring diagram for correct wiring.
→ CAUTION: A violation may result in personal injuries or product damage.

For tightening screws, please use a torque wrench corresponds to specifications of the screws.
→ CAUTION: A violation may cause loosening.

Please do not allow the setting of machine speed to excess the maximum default speed, and avoid extreme changes of the setting and parameters.
→ CAUTION: A violation may result in personal injuries or product damage.

If any malfunctions or damage arise, please do not continue the use.
→ CAUTION: A violation may result in personal injuries or product damage.

Please make sure the wiring and connections of electric equipment are secured and the parameters are set correctly.
→ CAUTION: A violation may cause fire, electric shocks, personal injuries or product damage.



Environment Precautions

If any foreign objects such as dust or metal powder that enters into the screws or slide rails, it may reduce the product life and cause abnormal wears of products.
→ CAUTION: If any concerns exist, please implement the dust control measures.

Once the product is used as a mechanical processing standard, it may affect the life, performances and precision.
→ CAUTION: For this case, please have the installation be on a reliably rigid base.

The product is designed and planned to operate in the specified directions mentioned in the catalog. Please check with GMT if other directions will be applied.
→ CAUTION: If the product is used beyond the usage of horizontal directions, it will reduce the life and increase the probability of malfunctions.

Before installing our products, please make sure there are no unnecessary objects in the area, and use alcohol for cleaning to prevent for losing precision of the installation.
→ CAUTION: A violation may cause the product precision unable to match the specifications marked on the catalog.

Do not apply any inappropriate forces on or strike the product to prevent damage and the loss of precision and warranties.
→ CAUTION: A violation may cause the product precision unable to match the specifications marked on the catalog.

Installation Precautions

Installation Precautions

Please do not turn off the travel stroke limitation sensors during the operation, it otherwise will cause the deactivations of the sensors, and do not overuse the travel strokes while turning the knob on the back of the motors.
CAUTION: A violation may result in personal injuries or product damage.

While installing the peripheral mechanisms on the upper / lower board of the stage, please have the stage horizontally fixed and then make sure the flatness and the inclination angle of the mounting surface is within 0.01mm and 1° respectively to prevent for the arising of poor precision due to the deformations of the stage.
CAUTION: A violation may result in personal injuries or product damage.

Do not remove any parts of the precision motorized stage arbitrarily to prevent the loss of precision and warranties. If a service is needed, please contact our salespersons.
→ CAUTION: A violation may cause damage on product and the precision unable to match the specifications marked on the catalog.

If any screw holes do not fit or need additional screw holes, please contact our salespersons and do not handle it by self to guarantee the precision and warranties.
→ CAUTION: A violation may cause damage on product and the precision unable to match the specifications marked on the catalog.

All of the accessories and parts of the product are not water-proof or dust-proof; please do not directly use in oil misty, dusty or humid environments.
→ CAUTION: A violation may cause damage on product and the precision unable to match the specifications marked on the catalog.

Installation Procedures:

1. Please make sure there is no flash, dust, or dent on the installation surface.
2. Please put the product on the installation surface.
3. The screw holes should be aligned with the ones located on the installation surface.
4. It is suggested to use the screws according to the compliances of the standard specifications.
5. Use a torque wrench to tighten screws.

Precautions for product use environments:

Transporting temperature	-10℃ ~ 70℃
Transporting humidity	below 90%RH (non-condensing)
Installation temperature	0℃ ~ 40℃
Installation humidity	below 20% ~ 80%RH (non-condensing)
Environmental gases	It must not contain any corrosive, flammable gas, oil mist or dust indoors.

Warranty Instructions

→ Within a warranty period, if any following failures occur, our company will be responsible for the repair.

→ The product is warranted for one year, and is started from when the product is delivered to the designated place.

→ If any mention below occurs, it will not be covered under warranty:

1. The damage caused by using the product in any unspecified environments or methods.
2. The damage caused by unauthorized modifications or repairs.
3. The damage caused by natural disasters or misuses.
4. The damage caused after the purchase due to the careless uses or motions.
5. The malfunctions or damage caused by unauthorized connections with the other machines.
6. The malfunctions or damage caused by the violations of precautions and instructions.

Trouble Shooting Suggestions

→ If the motors or mechanisms are hit by the external forces, please check whether the properties of screws are in normal.

→ Please do not arbitrarily adjust the positions of the origin and both left and right limits to prevent the collisions of machines and the loss of warranties.

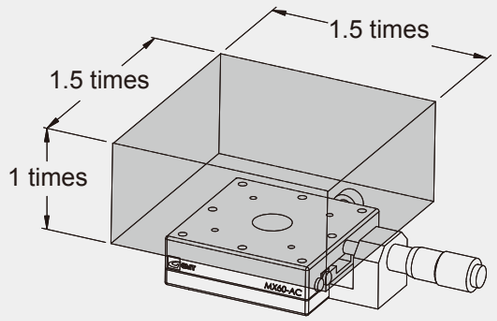
→ The wires and receptacles of limit switches must be secured to prevent loosening.

→ Do not arbitrarily loosen the couplings and transmission structures to guarantee the precision and warranties.

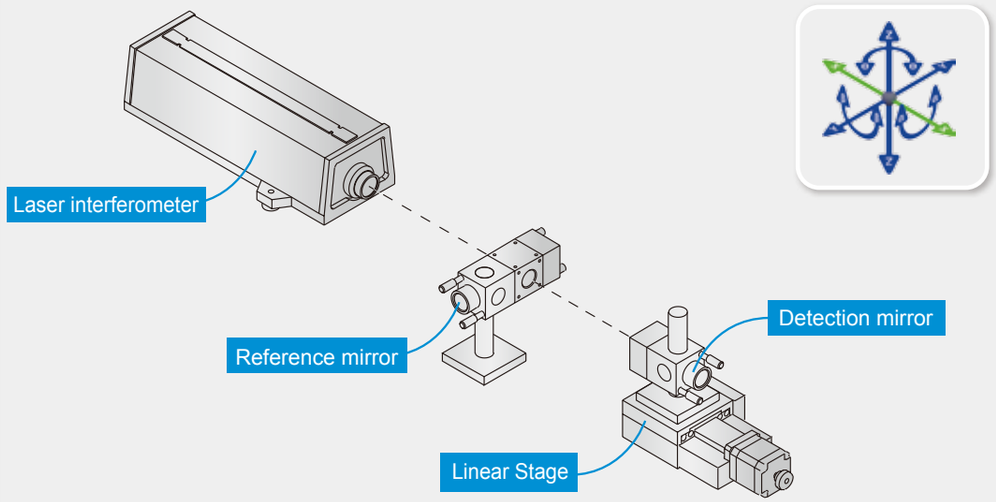
→ If any unusual noises or vibrations of the machines occur in operations, for safety, please turn off the power first.

→ To see Q&As regarding to the product, please visit our GMT website.

Load capacity recommended limitations



Straight Line Axis



Testing equipment : laser interferometer.
The bottom of the stage should be fixed during the operation, only the sliding block is working.

Positioning Accuracy (μm)

Within a predetermined stroke, set a laser interferometer or CMM for the measurement and start the stage from to a target point in one direction. As the motion is done, record the difference has occurred between the actual and target movement values. The difference is referred to as positioning accuracy.

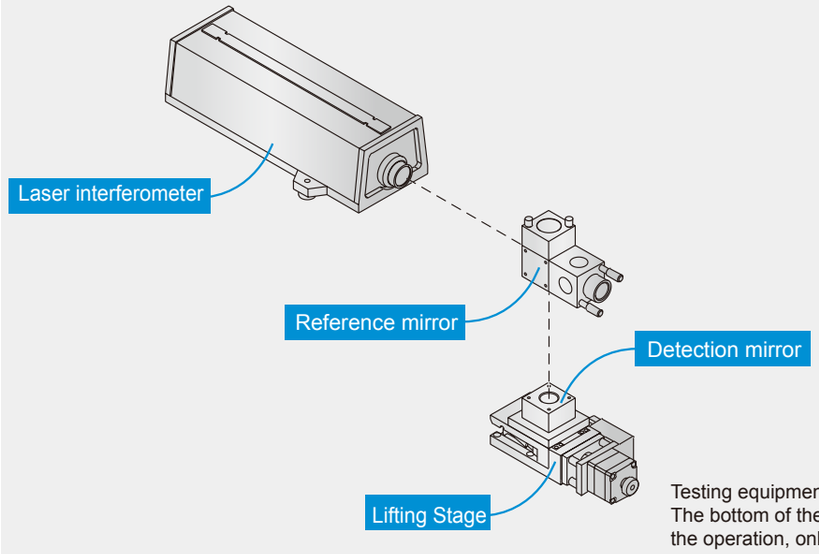
Repeatability Positioning Accuracy (±μm)

At the first half of the test of repeatability precision, the positioning test should have been repeated for seven times. Then record the maximum difference and the path including it to be used to perform the next step. With half value of the difference, test for the other differences at midpoint/both ends of the previous path and thence record the maximum again, which is referred to as a repeatability positioning precision.

Lost Motion (The Losses of Distance due to a Reverse Rotation) (μm)

Within a predetermined stroke, set a laser interferometer or CMM for the measurement and start working a homing linear stage to an unspecified point by giving a command of positive direction, once the movement is completed, record the difference between the actual and target values. Simultaneously, give a same value of movement command of negative direction with which the stage will be moved back, then record another difference as the motion completed, and continue to do the next repetition.
After the seven repetitions are done, an average value of all the differences recorded is finally referred to as a missed step.

Straight Line Z-Axis



Testing equipment : laser interferometer.
The bottom of the stage should be fixed during the operation, only the sliding block is working.

Positioning Accuracy (μm)

Within a predetermined stroke, set a laser interferometer or CMM for the measurement and start the stage from to a target point in one direction. As the motion is done, record the difference has occurred between the actual and target movement values. The difference is referred to as positioning accuracy.

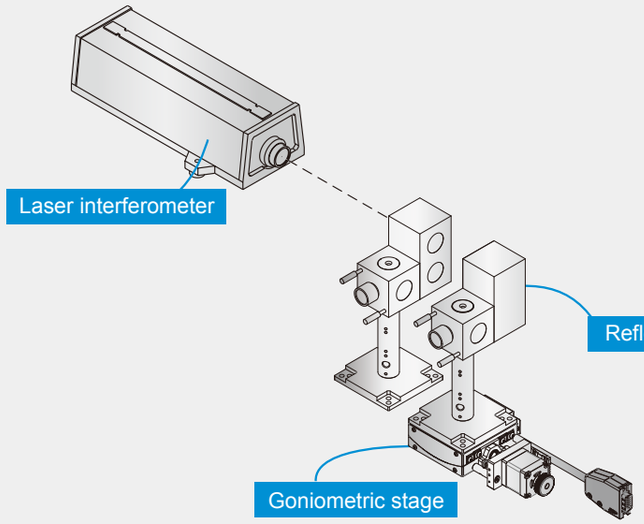
Repeatability Positioning Accuracy (±μm)

At the first half of the test of repeatability precision, the positioning test should have been repeated for seven times. Then record the maximum difference and the path including it to be used to perform the next step. With half value of the difference, test for the other differences at midpoint/both ends of the previous path and thence record the maximum again, which is referred to as a repeatability positioning precision.

Lost Motion (The Losses of Distance due to a Reverse Rotation) (μm)

Within a predetermined stroke, set a laser interferometer or CMM for the measurement and start working a homing linear stage to an unspecified point by giving a command of positive direction, once the movement is completed, record the difference between the actual and target values. Simultaneously, give a same value of movement command of negative direction with which the stage will be moved back, then record another difference as the motion completed, and continue to do the next repetition.
After the seven repetitions are done, an average value of all the differences recorded is finally referred to as a missed step.

Goniometric Axis



Testing equipment : laser interferometer.
The bottom of the stage should be fixed during the operation, only the sliding block is working.

Laser

Positioning Accuracy (°)

Within a predetermined stroke, set a laser interferometer or CMM for the measurement and start the stage from to a target point in one direction. As the motion is done, record the difference has occurred between the actual and target movement values. The difference is referred to as positioning accuracy.

Laser

Repeatability Positioning Accuracy (±°)

According to the baseline, the moving surface was set as the detection angle position. Rotate and position the object at a fixed angle in a unidirectional (clockwise/counterclockwise) manner, and repeat the measurement seven times. Take half of the maximum error and measure the directions at the center and ends of the moving distance to obtain the maximum value. The value represents the repeatability of the positioning precision accuracy during movement.

Laser

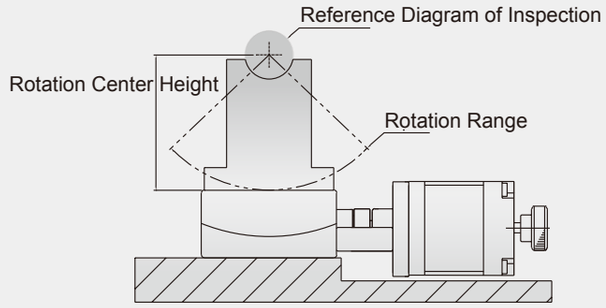
Lost Motion (The Losses of Distance due to a Reverse Rotation) (°)

Select a clockwise rotation angle for positioning and detect the position setting (x1). Then, rotate counterclockwise by the same angle for positioning and detect the position setting (y1). Perform seven measurements at arbitrary positions. Measure the directions at the center and ends of the moving distance to find the maximum value, which represents the lost motion.

Lost Motion Calculation Formula:

$$\max \left| \frac{(x1+x2+x3\ldots\ldots+x7)}{7} - \frac{(y1+y2+y3\ldots\ldots+y7)}{7} \right|$$

Goniometric Axis

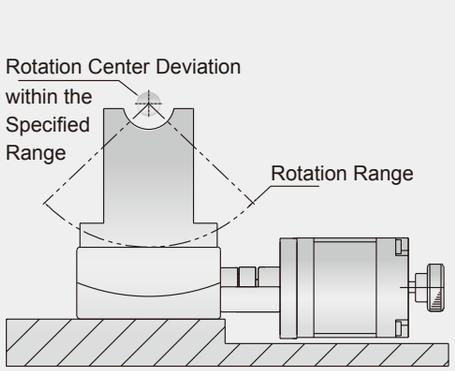


Inspection Instrument: Altimeter

During inspection, fix the stage and move the dial indicators.

Rotation Center Height (Unit : mm)

Within the predetermined inspection, the travel stroke starts from an initial position and moves sequentially in a certain direction. Measure the value from the table surface to the actual center of the circle and check whether it falls within the target value. This value is the rotation center height.



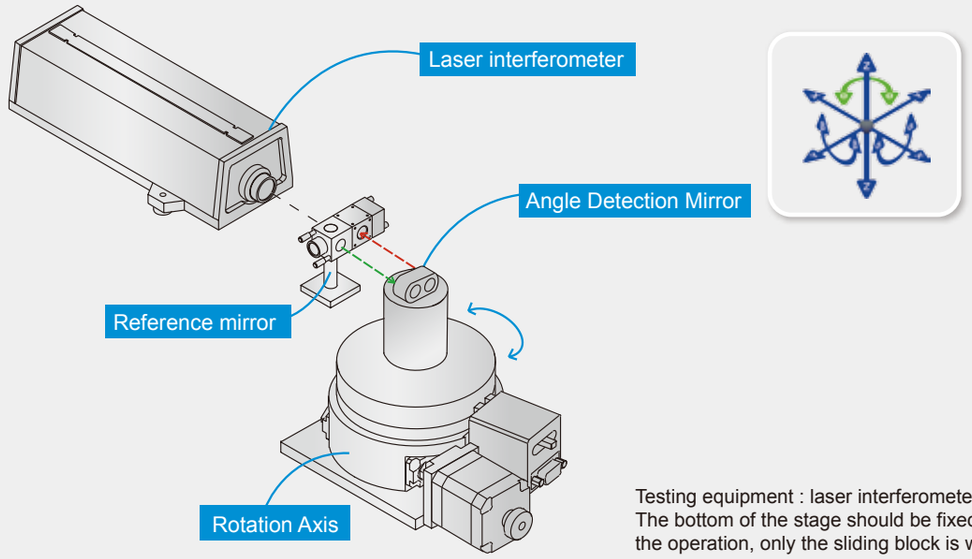
Inspection Instrument: Altimeter

During inspection, fix the stage baseplate and move the stage's worktable.

Rotation Center Accuracy (Unit : mm)

Within the predetermined inspection travel stroke range, start from an initial position and move sequentially in a certain direction. The vibration value of the actual center of the circle position of the inspection fixture was measured. The value represents the rotation center accuracy.

Rotation Axis



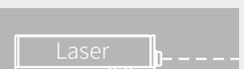
Testing equipment : laser interferometer.
The bottom of the stage should be fixed during the operation, only the sliding block is working.

Positioning Accuracy (°)

According to the baseline, the moving surface was set as the detection angle position. Rotate and position the object at a fixed angle in a unidirectional (clockwise/counterclockwise) manner. Difference between actual and object movements within 360° rotation and taking the maximum error value. The value represents the positioning accuracy during movement.

Repeatability Positioning Accuracy (±°)

For a single unidirectional (clockwise or counterclockwise) arbitrary angle as a reference, measure the deviation of the stopping angle. Repeat the measurement seven times and take half of the maximum error. Measure the directions at the center and ends of the moving distance to obtain the maximum value. The value represents the repeatability positioning accuracy during movement.



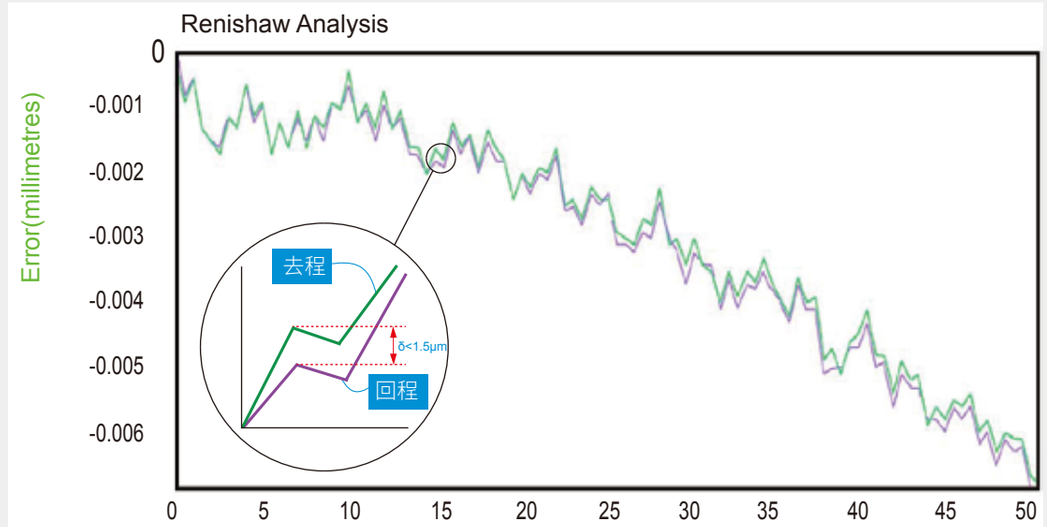
Lost Motion (The Losses of Distance due to a Reverse Rotation) (°)

Select a clockwise rotation angle for positioning and detect the position setting (x1). Then, rotate counterclockwise by the same angle for positioning and detect the position setting (y1). Perform seven measurements at arbitrary positions. Measure the directions at the center and ends of the moving distance to find the maximum value, which represents the lost motion.

Lost Motion Calculation Formula :

$$\max \left| \frac{(x1+x2+x3\ldots\ldots+x7)}{7} - \frac{(y1+y2+y3\ldots\ldots+y7)}{7} \right|$$

Multi-Point Repeatability Accuracy



Accuracy Measurement Instructions

1. Positioning Accuracy: Within the predetermined inspection travel stroke range, start from an initial position and move sequentially in a certain direction for positioning. The difference between the actual and object movement values was taken as the maximum error.The value represents the positioning accuracy.
2. Multi-Point Repeatability Positioning Accuracy: Within the predetermined inspection travel stroke range, the position accuracy was measured during the execution of the machine program by repeatedly running the same program code. Calculate the positional deviation generated when repeatedly returning to the same position and obtain the deviation value between these measurements.

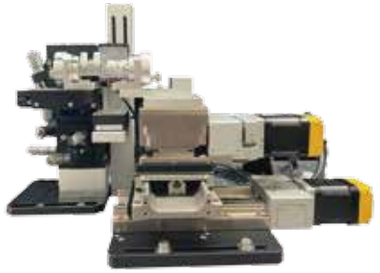
Accuracy Introduction Explanation

1. GMT high-end detection accuracy method is designed to meet the accuracy requirements of optic fiber alignment systems and semiconductor production processes.
2. The GMT high-end optical linear stage module series use a multi-point repeated measurement method for inspection. This method involves measuring multiple points within a fixed travel-stroke range (adjusting the number of points based on the length of the travel stroke) and recording the actual variation in position error during the back-and-forth movement to achieve high reproducibility of accuracy.
3. Through non-contact laser interferometer measurements, we can ensure unidirectional positioning within 10μm and multi-point repeatability positioning accuracy within 1.5μm. For higher accuracy requirements, please contact our local sales team.

Innovative and Vertical Integration Technology by GMT

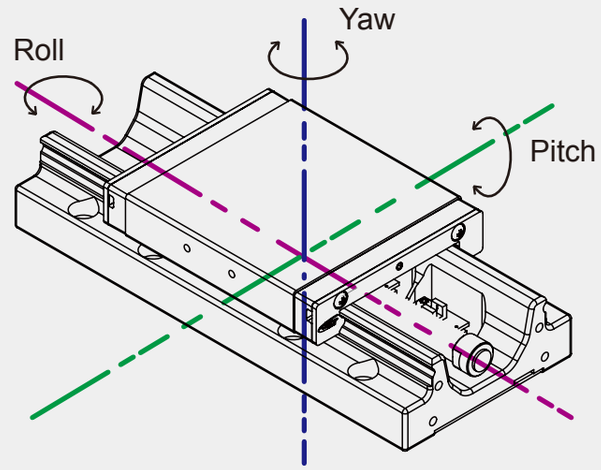
GMT developed linear stages and module series by utilizing internally manufactured key components. Quality control begins with product compositional elements: product design, precision machining of key parts and mechanisms, heat treatment processes for mechanism reliability, accuracy performance of product assembly, and factory quality verification systems. Starting from core precision craftsmanship, GMT ensures product stability and customer recognition, demonstrating its commitment to high-accuracy stage and module series.

Precision Optical Fiber Alignment System



Definition of Pitch, Yaw and Roll

Please indicate the "Allowable Torque Load" and "Torque Rigidity" as shown in the following diagram. Please refer to the respective specification tables based on the operating conditions.



Advantages of Solutions

High Repeatability Positioning Accuracy	By employing precise machining, crossed roller slide rail set/crossed roller bearing gonio-way technology, ball screw, and meticulous assembly craftsmanship, the accuracy of the stage is significantly enhanced.
Durable and wear resistance	GMT high-end stages are mostly made of stainless steel, and they undergo special heat treatment to enhance their rigidity and wear resistance and reduce deformation to reach stable conditions. In short-stroke and high-repetition-frequency movements, the proposed device exhibits wear resistance and accuracy stability.
High rigidity reduces deformation	Precision stages are all made from 6061 aluminum alloy or stainless steel and processed through special heat treatment to ensure material stability and accurate performance.
Accuracy Inspection	High-accuracy consistency for each axis meets the accuracy adjustment efficiency requirements for multi-axis assemblies.
Customized Services	Integrating customers' requirements through standardized processes and customized services to create unique value and functionality, maximizing satisfaction of customer needs.

Model Description

CXS6020

Material	Drive Type	Accuracy Level	Wiring Method	Motor Model	Connector Type
S Stainless steel	2 Ball screw	OP High-End	N GMT standard	M 5-phase high resolution J 5-phase stepper motor	D D-SUB H HRS

CXS 60 20 - S 2 OP A N - M D - 2R A

Axis & Serial Numbers	Table Size	Stroke (mm)	Multi-Point Repeatability Accuracy	Connecting Cable (Optional)	Driver (Optional)
CXS Single Axis	60 60*60mm	20	A 1.5μm B 1μm	Blank Not equipped 2 2m cable one end loose wire (Bending Cable) 4 4m cable one end loose wire (Bending Cable) 6 6m cable one end loose wire (Bending Cable) 2R 2m cable one end loose wire (High-Flex Cable) 4R 4m cable one end loose wire (High-Flex Cable) 6R 6m cable one end loose wire (High-Flex Cable)	Blank Not equipped A 5-phase CVD

*Bending Cable
*High-Flex Cable

Model No.			CXS6020	
Mechanical Specifications	Table Size		60X60 mm	
	Travel Stroke (mm)		20 mm	
	Drive Type		Ball screw Ø8 , lead 1mm	
	Rail		Linear ball guiding	
	Stage Material / Surface Treatment		Stainless Steel / Nickel plating	
	Accuracy Level		OP：High-End	
	Wiring Method		N：GMT standard	
Precision Specifications	Resolution◎ (Pulse)	Full / Half M	1 μm (Full) / 0.5 μm (Half)	
		Full / Half J	2 μm (Full) / 1 μm (Half)	
	Maximum Speed (Full Step)		15 mm / sec	
	Positioning Accuracy		5 μm	
	Repeatability Accuracy		±0.3 μm	
	Multi-Point Repeatability Accuracy		A：1.5 μm / B：1 μm	
	Load Capacity (Horizontal installation)		7 Kgf	
	Lost Motion		<0.5 μm	
	Torque Rigidity		Pitch 0.085 / Yaw 0.065 / Roll 0.065 ("/N-cm)	
	Pitch / Yaw		Pitch：under 20" / Yaw：under 15"	
	Parallelism		20 μm	
	Dynamic Straightness		2 μm	
	Dynamic Parallelism		10 μm	
Electrical Specifications	Motor	Type / Shaft Numbers	M：5-phase high resolution stepper motor / □28 double shafts	J：5-phase stepper motor / □28 double shafts
		Brand / Model	M：Oriental motor / PK523HPMB	J：Oriental motor / PKP523N12B
	Driver Brand / Model		Oriental motor / 5-phase CVD series (optional)	
	Connector	Stage Side Connector	15-pin male end connector D-SUB	12-pin male end connector HRS
		Controller Side Connector	15-pin female end connector D-SUB (optional)	12-pin female end connector HRS (optional)
	Sensor	Origin Sensor	Photoelectric sensor GMT-sensor	
		Limit Sensor		
		Origin Approximation Sensor	N / A	
		Power Voltage	24V±10%	
		Control output	NPN open collector output under 24V 8mA	
		Output Control	Testing (sensing) : output transistor OFF (closed)	

◎ When using micro divisions, the resolution should be calculated separately.
◎ For specifications of the linear scale, please contact our sales team.
◎ The length of the connector cable is approximately 26 cm.

GMT GLOBAL INC.
High-End Optical Communication Application Module
CXS6020
CXS series

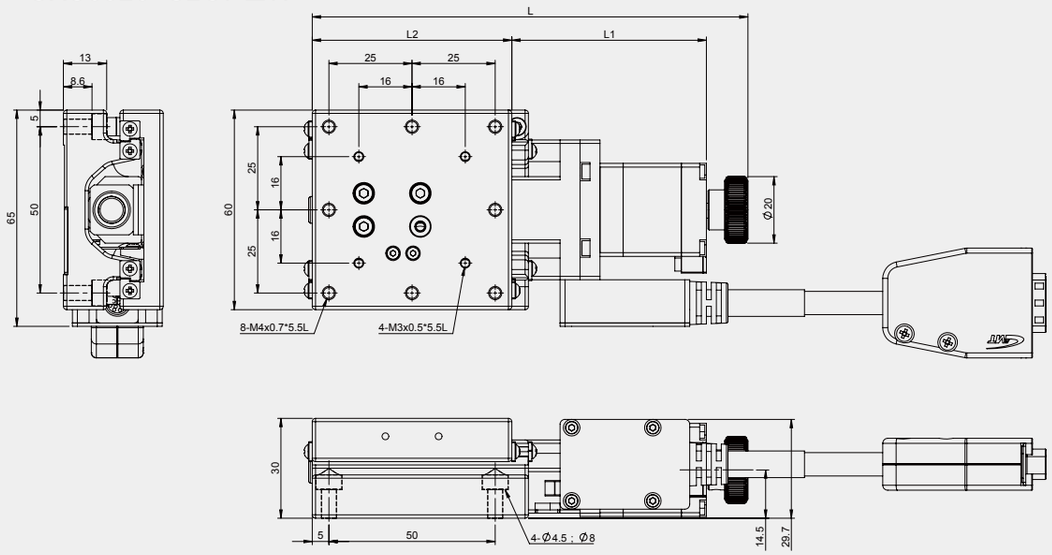
X-Axis

CXS6020-S2OP□N

◎ The connector type in this product photo is HRS.

* Product photo is for reference only. For detailed specifications, please refer to the catalog.

CXS6020-S2OP□N



◎ The connector type in this product drawing is D-SUB.

Table Size \ stroke	20		
	L	L1	L2
60	131	58.5	60

Model Description

CXS6030

Material	Drive Type	Accuracy Level	Wiring Method	Motor Model	Connector Type
S Stainless steel	2 Ball screw	OP High-End	N GMT standard	M 5-phase high resolution J 5-phase stepper motor	D D-SUB H HRS

CXS 60 30 - S 2 OP A N - M D - 2R A

Axis & Serial Numbers	Table Size	Stroke (mm)	Multi-Point Repeatability Accuracy
CXS Single Axis	60 60*60mm	30	A 1.5μm B 1μm

Connecting Cable (Optional)	
Blank	Not equipped
2	2m cable one end loose wire (Bending Cable)
4	4m cable one end loose wire (Bending Cable)
6	6m cable one end loose wire (Bending Cable)
2R	2m cable one end loose wire (High-Flex Cable)
4R	4m cable one end loose wire (High-Flex Cable)
6R	6m cable one end loose wire (High-Flex Cable)

Driver (Optional)	
Blank	Not equipped
A	5-phase CVD

*Bending Cable
*High-Flex Cable

Model No.			CXS6030	
Mechanical Specifications	Table Size		60X60 mm	
	Travel Stroke (mm)		30 mm	
	Drive Type		Ball screw Ø8 , lead 1mm	
	Rail		Linear ball guiding	
	Stage Material / Surface Treatment		Stainless Steel / Nickel plating	
	Accuracy Level		OP：High-End	
	Wiring Method		N：GMT standard	
Precision Specifications	Resolution ◎ (Pulse)	Full / Half M	1 μm (Full) / 0.5 μm (Half)	
		Full / Half J	2 μm (Full) / 1 μm (Half)	
	Maximum Speed (Full Step)		15 mm / sec	
	Positioning Accuracy		5 μm	
	Repeatability Accuracy		±0.3 μm	
	Multi-Point Repeatability Accuracy		A：1.5 μm / B：1 μm	
	Load Capacity (Horizontal installation)		7 Kgf	
	Lost Motion		<0.5 μm	
	Torque Rigidity		Pitch 0.085 / Yaw 0.065 / Roll 0.065 ("/N-cm)	
	Pitch / Yaw		Pitch：under 20" / Yaw：under 15"	
	Parallelism		20 μm	
	Dynamic Straightness		2 μm	
	Dynamic Parallelism		10 μm	
Electrical Specifications	Motor	Type / Shaft Numbers	M：5-phase high resolution stepper motor / □28 double shafts	J：5-phase stepper motor / □28 double shafts
		Brand / Model	M：Oriental motor / PK523HPMB	J：Oriental motor / PKP523N12B
	Driver Brand / Model		Oriental motor / 5-phase CVD series (optional)	
	Connector	Stage Side Connector	15-pin male end connector D-SUB	12-pin male end connector HRS
		Controller Side Connector	15-pin female end connector D-SUB (optional)	12-pin female end connector D-SUB (optional)
	Sensor	Origin Sensor	Photoelectric sensor GMT-sensor	
		Limit Sensor		
		Origin Approximation Sensor	N / A	
		Power Voltage	24V±10%	
		Control output	NPN open collector output under 24V 8mA	
		Output Control	Testing (sensing) : output transistor OFF (closed)	

◎ When using micro divisions, the resolution should be calculated separately.
◎ For specifications of the linear scale, please contact our sales team.
◎ The length of the connector cable is approximately 26 cm.

GMT GLOBAL INC.
High-End Optical Communication Application Module
CXS6030
CXS series

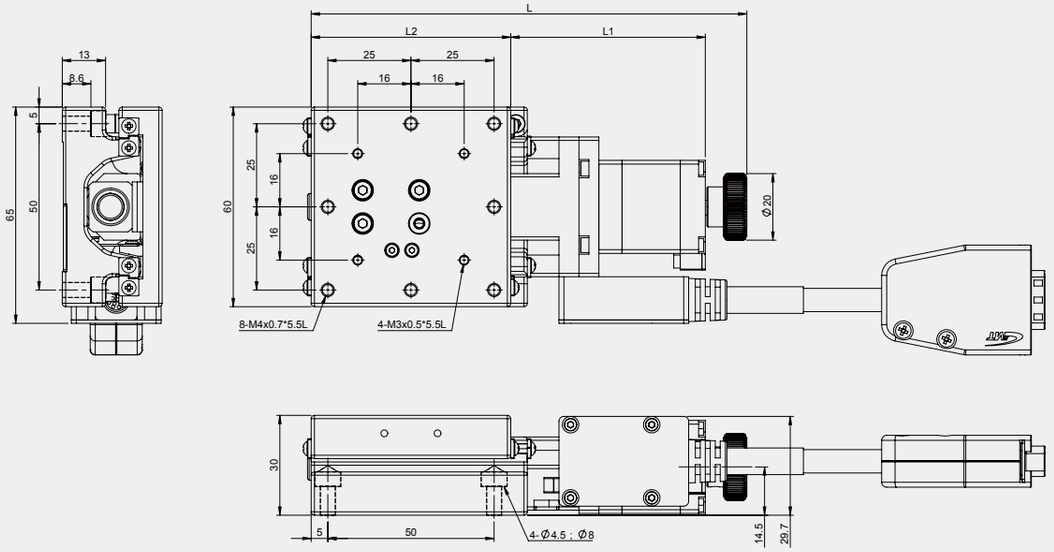
X-Axis

CXS6030-S2OP□N

◎ The connector type in this product photo is HRS.

* Product photo is for reference only. For detailed specifications, please refer to the catalog.

CXS6030-S2OP□N



◎ The connector type in this product drawing is D-SUB.

Table Size \ stroke	30		
	L	L1	L2
60	141	68.5	60

CXN6030

Model Description

Material	Drive Type	Accuracy Level	Multi-Point Repeatability Accuracy	Wiring Method	Motor Model	Connector Type
S Stainless steel	2 Ball screw	OP High-End	A 1.5μm B 1μm	N GMT standard	M 5-phase high resolution J 5-phase stepper motor	D D-SUB H HRS

CXN 60 30 - S 2 OP A N - M D - P1 - 2R A

Axis & Serial Numbers	Table Size	Stroke (mm)	Pitch	Connecting Cable (Optional)	Driver (Optional)
CXN Single Axis (W/O dustproof cover)	60 60*60mm	30	P1 1mm P2 2mm	Blank Not equipped 2 2m cable one end loose wire (Bending Cable) 4 4m cable one end loose wire (Bending Cable) 6 6m cable one end loose wire (Bending Cable) 2R 2m cable one end loose wire (High-Flex Cable) 4R 4m cable one end loose wire (High-Flex Cable) 6R 6m cable one end loose wire (High-Flex Cable)	Blank Not equipped A 5-phase CVD

*Bending Cable
*High-Flex Cable

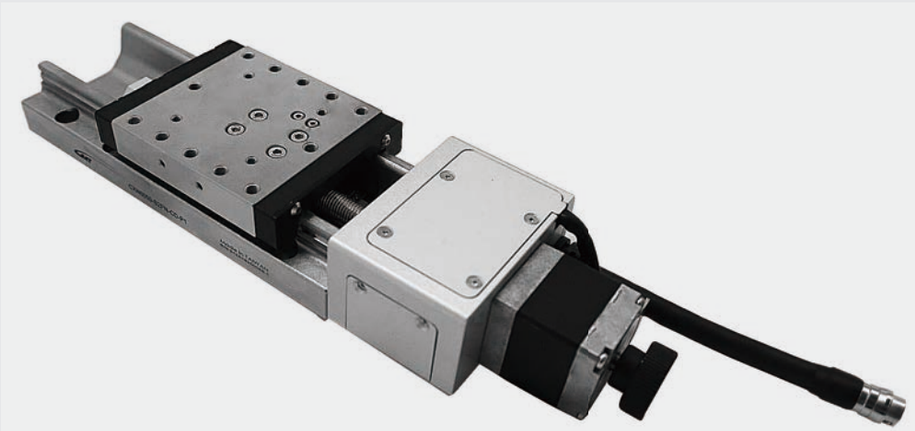
Model No.				CXN6030	
Mechanical Specifications	Table Size			60X60 mm	
	Travel Stroke (mm)			30mm	
	Drive Type			Ball screw Ø8 , lead 1mm	Ball screw Ø8 , lead 2mm
	Rail			Linear ball guiding	
	Stage Material / Surface Treatment			Stainless Steel / Nickel plating	
	Accuracy Level			OP : High-End	
	Wiring Method			N : GMT standard	
Precision Specifications	Resolution ◎ (Pulse)	Full / Half	M	1 μm (Full) / 0.5 μm (Half)	2 μm (Full) / 1 μm (Half)
			J	2 μm (Full) / 1 μm (Half)	4 μm (Full) / 2 μm (Half)
	Maximum Speed (Full Step)			15 mm / sec	30 mm / sec
	Positioning Accuracy			5 μm	
	Repeatability Accuracy			±0.3 μm	
	Multi-Point Repeatability Accuracy			A : 1.5 μm / B : 1 μm	
	Load Capacity (Horizontal installation)			12 Kgf	
	Lost Motion			<0.5 μm	
	Torque Rigidity			Pitch 0.06 / Yaw 0.06 / Roll 0.06 ("/N-cm)	
	Pitch / Yaw			Pitch : under 20" / Yaw : under 15"	
	Parallelism			20 μm	
	Dynamic Straightness			2 μm	
	Dynamic Parallelism			10 μm	
Electrical Specifications	Motor	Type / Shaft Numbers		M : 5-phase high resolution stepper motor / □28 double shafts	J : 5-phase stepper motor / □28 double shafts
		Brand / Model		M : Oriental motor / PKP523MN07B	J : Oriental motor / PKP523N12B
	Driver Brand / Model			Oriental motor / 5-phase CVD series (optional)	
	Connector	Stage Side Connector		15-pin male end connector D-SUB	12-pin male end connector HRS
		Controller Side Connector		15-pin female end connector D-SUB (optional)	12-pin female end connector HRS (optional)
	Sensor	Origin Sensor		Photoelectric sensor GMT-sensor	
		Limit Sensor			
		Origin Approximation Sensor		N / A	
		Power Voltage		24V±10%	
		Control output		NPN open collector output under 24V 8mA	
		Output Control		Testing (sensing) : output transistor OFF (closed)	

◎ When using micro divisions, the resolution should be calculated separately.
◎ For specifications of the linear scale, please contact our sales team.
◎ The length of the connector cable is approximately 26 cm.

GMT GLOBAL INC.
High-End Optical Communication Application Module
CXN6030
CXN series

X-Axis

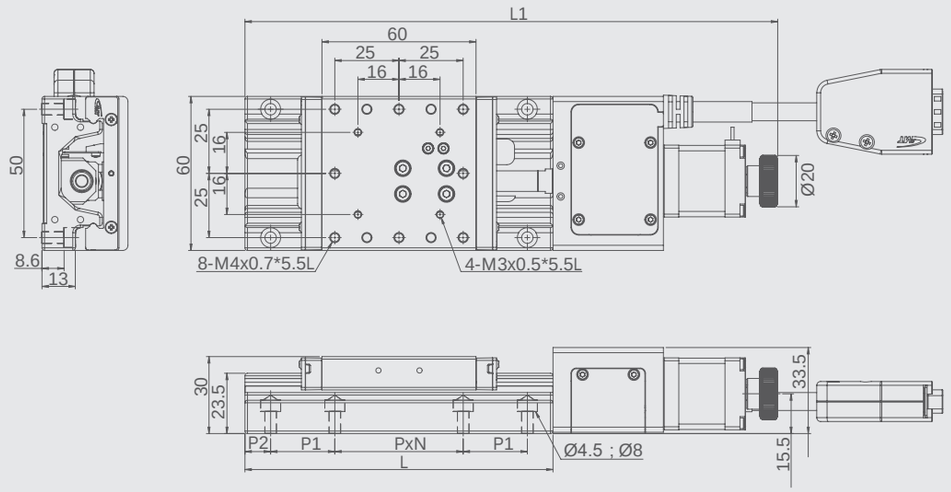
CXN6030-S2OP□N



◎ The connector type in this product photo is HRS.

* Product photo is for reference only. For detailed specifications, please refer to the catalog.

CXN6030-S2OP□N



◎ The connector type in this product drawing is D-SUB.

Stroke	L	L1	P	N	P1	P2
30	120	207.5	50	1	25	10

CXN6050

Model Description

Material	Drive Type	Accuracy Level	Multi-Point Repeatability Accuracy	Wiring Method	Motor Model	Connector Type
S Stainless steel	2 Ball screw	OP High-End	A 1.5μm B 1μm	N GMT standard	M 5-phase high resolution J 5-phase stepper motor	D D-SUB H HRS

CXN 60 50 - S 2 OP A N - M D - P1 - 2R A

Axis & Serial Numbers	Table Size	Stroke (mm)	Pitch	Connecting Cable (Optional)	Driver (Optional)
CXN Single Axis (W/O dustproof cover)	60 60*60mm	50	P1 1mm P2 2mm	Blank Not equipped 2 2m cable one end loose wire (Bending Cable) 4 4m cable one end loose wire (Bending Cable) 6 6m cable one end loose wire (Bending Cable) 2R 2m cable one end loose wire (High-Flex Cable) 4R 4m cable one end loose wire (High-Flex Cable) 6R 6m cable one end loose wire (High-Flex Cable)	Blank Not equipped A 5-phase CVD

*Bending Cable
*High-Flex Cable

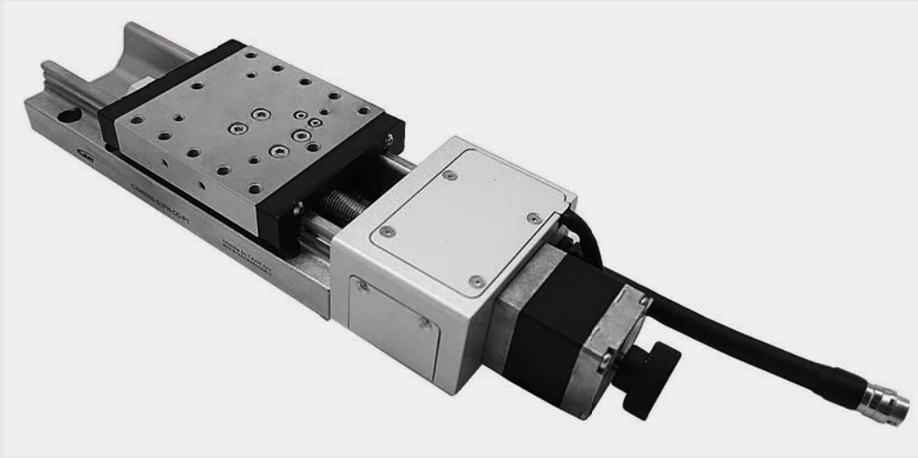
Model No.				CXN6050	
Mechanical Specifications	Table Size			60X60 mm	
	Travel Stroke (mm)			50mm	
	Drive Type			Ball screw Ø8 , lead 1mm	Ball screw Ø8 , lead 2mm
	Rail			Linear ball guiding	
	Stage Material / Surface Treatment			Stainless Steel / Nickel plating	
	Accuracy Level			OP：High-End	
	Wiring Method			N：GMT standard	
Precision Specifications	Resolution ◎ (Pulse)	Full / Half	M	1 μm (Full) / 0.5 μm (Half)	2 μm (Full) / 1 μm (Half)
			J	2 μm (Full) / 1 μm (Half)	4 μm (Full) / 2 μm (Half)
	Maximum Speed (Full Step)			15 mm / sec	30 mm / sec
	Positioning Accuracy			5 μm	
	Repeatability Accuracy			±0.3 μm	
	Multi-Point Repeatability Accuracy			A：1.5 μm / B：1 μm	
	Load Capacity (Horizontal installation)			12 Kgf	
	Lost Motion			<0.5 μm	
	Torque Rigidity			Pitch 0.06 / Yaw 0.06 / Roll 0.06 ("/N-cm)	
	Pitch / Yaw			Pitch：under 20" / Yaw：under 15"	
	Parallelism			20 μm	
	Dynamic Straightness			2 μm	
	Dynamic Parallelism			10 μm	
Electrical Specifications	Motor	Type / Shaft Numbers		M：5-phase high resolution stepper motor / □28 double shafts	J：5-phase stepper motor / □28 double shafts
		Brand / Model		M：Oriental motor / PKP523MN07B	J：Oriental motor / PKP523N12B
	Driver Brand / Model			Oriental motor / 5-phase CVD series (optional)	
	Connector	Stage Side Connector		15-pin male end connector D-SUB	12-pin male end connector HRS
		Controller Side Connector		15-pin female end connector D-SUB (optional)	12-pin female end connector HRS (optional)
	Sensor	Origin Sensor		Photoelectric sensor GMT-sensor	
		Limit Sensor			
		Origin Approximation Sensor		N / A	
		Power Voltage		24V±10%	
		Control output		NPN open collector output under 24V 8mA	
		Output Control		Testing (sensing) : output transistor OFF (closed)	

◎ When using micro divisions, the resolution should be calculated separately.
◎ For specifications of the linear scale, please contact our sales team.
◎ The length of the connector cable is approximately 26 cm.

High-End Optical Communication Application Module
CXN6050
CXN series

X-Axis

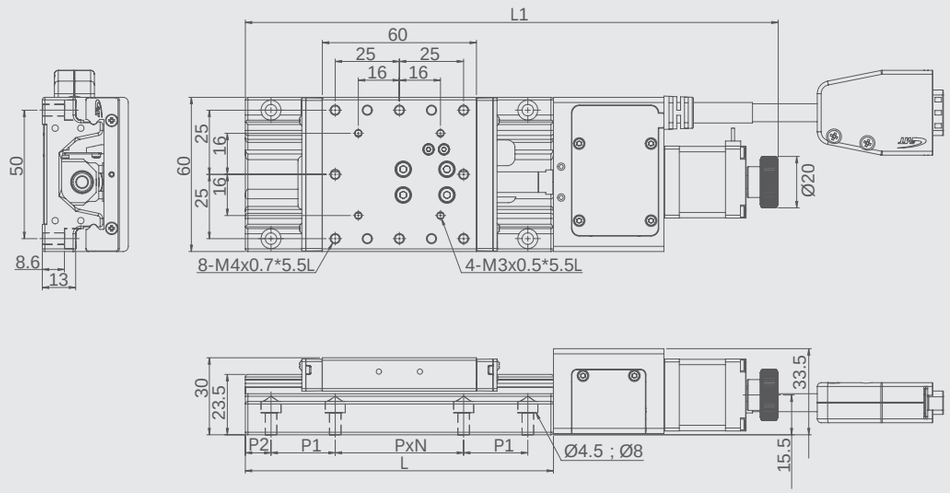
CXN6050-S2OP□N



◎ The connector type in this product photo is HRS.

* Product photo is for reference only. For detailed specifications, please refer to the catalog.

CXN6050-S2OP□N



◎ The connector type in this product drawing is D-SUB.

Stroke	L	L1	P	N	P1	P2
50	140	227.5	50	1	25	20

CXN60100

Model Description

Material	Drive Type	Accuracy Level	Multi-Point Repeatability Accuracy	Wiring Method	Motor Model	Connector Type
S Stainless steel	2 Ball screw	OP High-End	A 1.5μm B 1μm	N GMT standard	M 5-phase high resolution J 5-phase stepper motor	D D-SUB H HRS

CXN 60 100 - S 2 OP A N - M D - P1 - 2R A

Axis & Serial Numbers	Table Size	Stroke (mm)	Pitch	Connecting Cable (Optional)	Driver (Optional)
CXN Single Axis (W/O dustproof cover)	60 60*60mm	100	P1 1mm P2 2mm	Blank Not equipped 2 2m cable one end loose wire (Bending Cable) 4 4m cable one end loose wire (Bending Cable) 6 6m cable one end loose wire (Bending Cable) 2R 2m cable one end loose wire (High-Flex Cable) 4R 4m cable one end loose wire (High-Flex Cable) 6R 6m cable one end loose wire (High-Flex Cable)	Blank Not equipped A 5-phase CVD

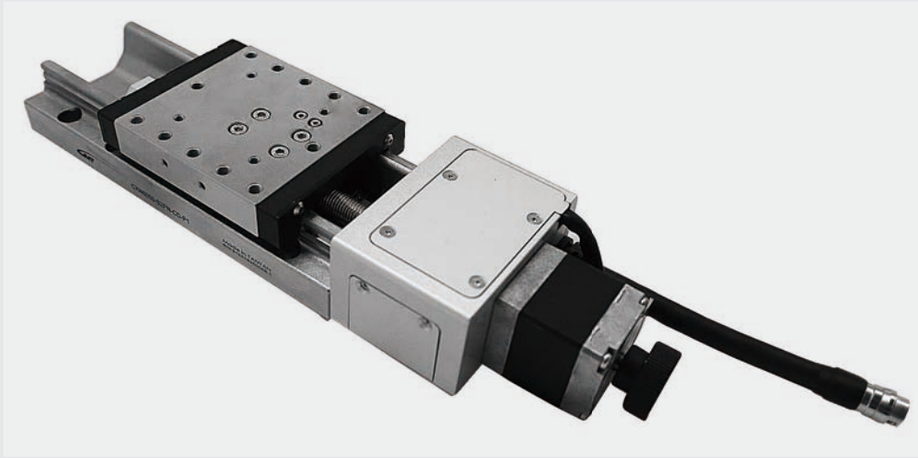
*Bending Cable
*High-Flex Cable

Model No.			CXN60100	
Mechanical Specifications	Table Size		60X60 mm	
	Travel Stroke (mm)		100mm	
	Drive Type		Ball screw Ø8 , lead 1mm	Ball screw Ø8 , lead 2mm
	Rail		Linear ball guiding	
	Stage Material / Surface Treatment		Stainless Steel / Nickel plating	
	Accuracy Level		OP : High-End	
	Wiring Method		N : GMT standard	
Precision Specifications	Resolution ◎ (Pulse)	Full / Half M	1 μm (Full) / 0.5 μm (Half)	2 μm (Full) / 1 μm (Half)
		Full / Half J	2 μm (Full) / 1 μm (Half)	4 μm (Full) / 2 μm (Half)
	Maximum Speed (Full Step)		15 mm / sec	30 mm / sec
	Positioning Accuracy		10 μm	
	Repeatability Accuracy		±0.3 μm	
	Multi-Point Repeatability Accuracy		A : 1.5 μm / B : 1 μm	
	Load Capacity (Horizontal installation)		12 Kgf	
	Lost Motion		<0.5 μm	
	Torque Rigidity		Pitch 0.06 / Yaw 0.06 / Roll 0.06 ("/N-cm)	
	Pitch / Yaw		Pitch：under 20" / Yaw：under 15"	
	Parallelism		20 μm	
	Dynamic Straightness		4 μm	
	Dynamic Parallelism		10 μm	
Electrical Specifications	Motor	Type / Shaft Numbers	M : 5-phase high resolution stepper motor / □28 double shafts	J : 5-phase stepper motor / □28 double shafts
		Brand / Model	M:Oriental motor / PKP525MN07B	J : Oriental motor / PKP525N12B
	Driver Brand / Model		Oriental motor / 5-phase CVD series (optional)	
	Connector	Stage Side Connector	15-pin male end connector D-SUB	12-pin male end connector HRS
		Controller Side Connector	15-pin female end connector D-SUB (optional)	12-pin female end connector HRS (optional)
	Sensor	Origin Sensor	Photoelectric sensor GMT-sensor	
		Limit Sensor		
		Origin Approximation Sensor	N / A	
		Power Voltage	24V±10%	
		Control output	NPN open collector output under 24V 8mA	
		Output Control	Testing (sensing) : output transistor OFF (closed)	

◎ When using micro divisions, the resolution should be calculated separately.
◎ For specifications of the linear scale, please contact our sales team.
◎ The length of the connector cable is approximately 26 cm.

X-Axis

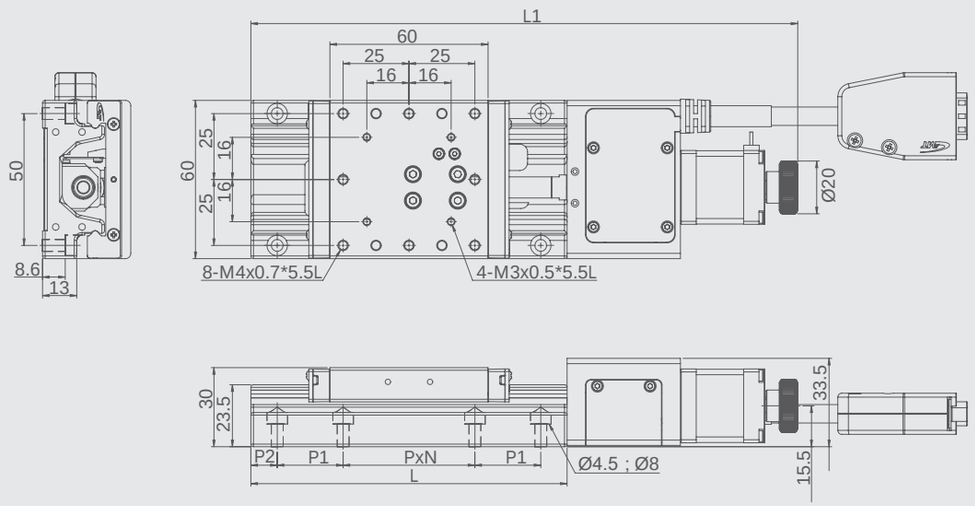
CXN60100-S2OP□N



◎ The connector type in this product photo is HRS.

* Product photo is for reference only. For detailed specifications, please refer to the catalog.

CXN60100-S2OP□N



◎ The connector type in this product drawing is D-SUB.

Stroke	L	L1	P	N	P1	P2
100	190	296.5	50	1	50	20

AXG 6-75 VMC

Model Description

Material / Rail Type		Accuracy Level		Wiring Method		Motor Model		Connector Type	
VM	Aluminum alloy / V type rail	OP	High-End	R	Right wiring	M	5-phase high resolution	D	D-SUB
				L	Left wiring	J	5-phase stepper motor	H	HRS

AXG 6 - 75 VM C - 2 OP R - M D - 2R A

Axis & Serial Numbers		Main Unit Width	Centre Height	Transmission position		transmission element	
AXG	single axis	6	:□60	75	C	Central drive	2	Ball screw

Connecting Cable (Optional)	
Blank	Not equipped
2	2m cable one end loose wire (Bending Cable)
4	4m cable one end loose wire (Bending Cable)
6	6m cable one end loose wire (Bending Cable)
2R	2m cable one end loose wire (High-Flex Cable)
4R	4m cable one end loose wire (High-Flex Cable)
6R	6m cable one end loose wire (High-Flex Cable)

Driver (Optional)	
Blank	Not equipped
A	5-phase CVD

*Bending Cable
*High-Flex Cable

Model No.			AXG6-75VMC-2OP	
Mechanical Specifications	Table Size		60X60 mm	
	Travel Stroke		±6°	
	Drive Type		Ball screw Ø8	
	Rail		Crossed-roller guiding	
	Stage Material / Surface Treatment		Aluminum alloy / Black anodized	
	Accuracy Level		OP : High-End	
	Wiring Method		R: Right wiring (Inventory specification) / L: Left wiring	
Precision Specifications	Resolution (Pulse) ◎	Full / Half M	0.00071°/0.000355°	
		Full / Half J	0.00142°/0.00071°	
	Maximum Speed (Full Step)		7.1°/sec	
	Positioning Accuracy		0.02°	
	Repeatability Accuracy		±0.002°	
	Load Capacity (Horizontal installation)		5Kgf	
	Lost Motion		<0.002°	
	Torque Rigidity		Pitch 0.3 / Yaw 0.12 / Roll 0.15 ("/N-cm)	
	Height of Rotation Center		75±0.1mm	
	Accuracy of Rotation Center		<0.01mm	
Electrical Specifications	Motor	Type / Shaft Numbers	M : 5-phase high resolution stepper motor / □28 double shafts	J : 5-phase stepper motor / □28 double shafts
		Brand / Model	M : Oriental motor / PK523HPMB	J : Oriental motor / PKP523N12B
	Driver Brand / Model		Oriental motor / 5-phase CVD series (optional)	
	Connector	Stage Side Connector	15-pin male end connector D-SUB	12-pin male end connector HRS
		Controller Side Connector	15-pin female end connector D-SUB (optional)	12-pin female end connector HRS (optional)
	Sensor	Origin Sensor	Photoelectric sensor GMT-sensor	
		Limit Sensor		
		Origin Approximation Sensor	N / A	
		Power Voltage	24V±10%	
		Control output	NPN open collector output under 24V 8mA	
		Output Control	Testing (sensing) : output transistor OFF (closed)	

◎The value will be halved when the motor is changed to a high-resolution motor.
◎For specifications of the linear scale, please contact our sales team.
◎The length of the connector cable is approximately 26 cm.

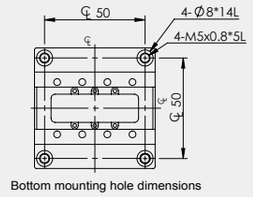
α-Axis

AXG6-75VMC-2OPR

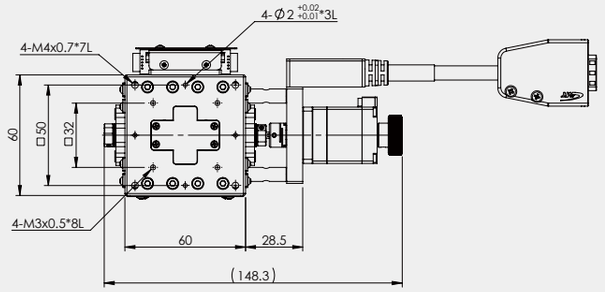
◎ The connector type in this product photo is HRS.

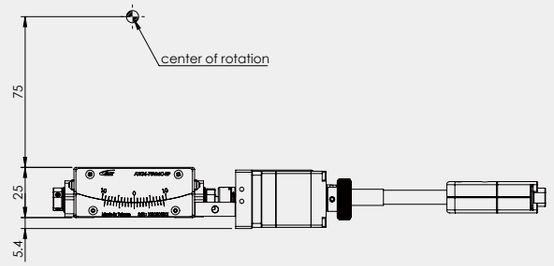
* Product photo is for reference only. For detailed specifications, please refer to the catalog.

AXG6-75VMC-2OPR



Bottom mounting hole dimensions





AXG 6-100 VMC

Model Description

Material / Rail Type		Accuracy Level		Wiring Method		Motor Model		Connector Type	
VM	Aluminum alloy / V type rail	OP	High-End	R	Right wiring	M	5-phase high resolution	D	D-SUB
				L	Left wiring	J	5-phase stepper motor	H	HRS

AXG 6 - 100 VM C - 2 OP R - MD - 2R A

Axis & Serial Numbers		Main Unit Width	Centre Height	Transmission position		transmission element	
AXG	single axis	6	:□60	100	C	Central drive	2	Ball screw

Connecting Cable (Optional)	
Blank	Not equipped
2	2m cable one end loose wire (Bending Cable)
4	4m cable one end loose wire (Bending Cable)
6	6m cable one end loose wire (Bending Cable)
2R	2m cable one end loose wire (High-Flex Cable)
4R	4m cable one end loose wire (High-Flex Cable)
6R	6m cable one end loose wire (High-Flex Cable)

Driver (Optional)	
Blank	Not equipped
A	5-phase CVD

*Bending Cable
*High-Flex Cable

Model No.			AXG6-100VMC-2OP	
Mechanical Specifications	Table Size		60X60 mm	
	Travel Stroke		±5°	
	Drive Type		Ball screw Ø8	
	Rail		Crossed-roller guiding	
	Stage Material / Surface Treatment		Aluminum alloy / Black anodized	
	Accuracy Level		OP：High-End	
	Wiring Method		R: Right wiring (Inventory specification) / L: Left wiring	
Precision Specifications	Resolution (Pulse)◎	Full / Half M	0.00055°/0.000275°	
		Full / Half J	0.0011°/0.00055°	
	Maximum Speed (Full Step)		5.4°/sec	
	Positioning Accuracy		0.02°	
	Repeatability Accuracy		±0.002°	
	Load Capacity (Horizontal installation)		5Kgf	
	Lost Motion		<0.002°	
	Torque Rigidity		Pitch 0.3 / Yaw 0.12 / Roll 0.15 ("/N-cm)	
	Height of Rotation Center		100±0.1mm	
	Accuracy of Rotation Center		<0.01mm	
Electrical Specifications	Motor	Type / Shaft Numbers	M：5-phase high resolution stepper motor / □28 double shafts	J：5-phase stepper motor / □28 double shafts
		Brand / Model	M：Oriental motor / PK523HPMB	J：Oriental motor / PKP523N12B
	Driver Brand / Model		Oriental motor / 5-phase CVD series (optional)	
	Connector	Stage Side Connector	15-pin male end connector D-SUB	12-pin male end connector HRS
		Controller Side Connector	15-pin female end connector D-SUB (optional)	12-pin female end connector HRS (optional)
	Sensor	Origin Sensor	Photoelectric sensor GMT-sensor	
		Limit Sensor		
		Origin Approximation Sensor	N / A	
		Power Voltage	24V±10%	
		Control output	NPN open collector output under 24V 8mA	
		Output Control	Testing (sensing) : output transistor OFF (closed)	

◎The value will be halved when the motor is changed to a high-resolution motor.
◎For specifications of the linear scale, please contact our sales team.
◎The length of the connector cable is approximately 26 cm.

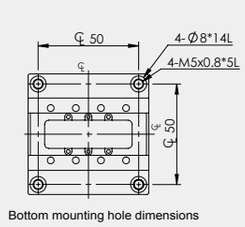
α-Axis

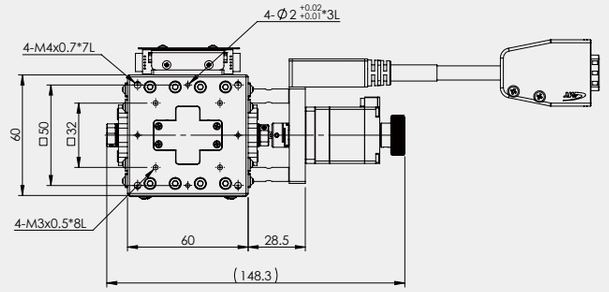
AXG6-100VMC-2OPR

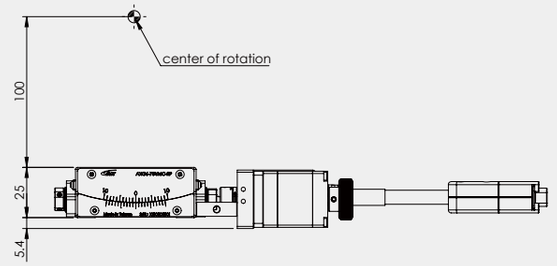
◎ The connector type in this product photo is HRS.

* For detailed specifications, please refer to the catalog. Product photo is for reference only.

AXG6-100VMC-2OPR







AXG 6-125 VMC

Model Description

Material / Rail Type		Accuracy Level		Wiring Method		Motor Model		Connector Type	
VM	Aluminum alloy / V type rail	OP	High-End	R	Right wiring	M	5-phase high resolution	D	D-SUB
				L	Left wiring	J	5-phase stepper motor	H	HRS

AXG 6 - 125 VM C - 2 OP R - MD - 2R A

Axis & Serial Numbers		Main Unit Width	Centre Height	Transmission position		transmission element	
AXG	single axis	6	:□60	125	C	Central drive	2	Ball screw

Connecting Cable (Optional)	
Blank	Not equipped
2	2m cable one end loose wire (Bending Cable)
4	4m cable one end loose wire (Bending Cable)
6	6m cable one end loose wire (Bending Cable)
2R	2m cable one end loose wire (High-Flex Cable)
4R	4m cable one end loose wire (High-Flex Cable)
6R	6m cable one end loose wire (High-Flex Cable)

Driver (Optional)	
Blank	Not equipped
A	5-phase CVD

*Bending Cable
*High-Flex Cable

Model No.			AXG6-125VMC-2OP	
Mechanical Specifications	Table Size		60X60 mm	
	Travel Stroke		±4°	
	Drive Type		Ball screw Ø8	
	Rail		Crossed-roller guiding	
	Stage Material / Surface Treatment		Aluminum alloy / Black anodized	
	Accuracy Level		OP：High-End	
	Wiring Method		R: Right wiring (Inventory specification) / L: Left wiring	
Precision Specifications	Resolution◎ (Pulse)	Full / Half M	0.00044°/0.00022°	
		Full / Half J	0.00088°/0.00044°	
	Maximum Speed (Full Step)		4.4°/sec	
	Positioning Accuracy		0.02°	
	Repeatability Accuracy		±0.002°	
	Load Capacity (Horizontal installation)		5Kgf	
	Lost Motion		<0.002°	
	Torque Rigidity		Pitch 0.3 / Yaw 0.12 / Roll 0.15 ("/N-cm)	
	Height of Rotation Center		125±0.1mm	
	Accuracy of Rotation Center		<0.01mm	
Electrical Specifications	Motor	Type / Shaft Numbers	M：5-phase high resolution stepper motor / □28 double shafts	J：5-phase stepper motor / □28 double shafts
		Brand / Model	M：Oriental motor / PK523HPMB	J：Oriental motor / PKP523N12B
	Driver Brand / Model		Oriental motor / 5-phase CVD series (optional)	
	Connector	Stage Side Connector	15-pin male end connector D-SUB	12-pin male end connector HRS
		Controller Side Connector	15-pin female end connector D-SUB (optional)	12-pin female end connector HRS (optional)
	Sensor	Origin Sensor	Photoelectric sensor GMT-sensor	
		Limit Sensor		
		Origin Approximation Sensor	N / A	
		Power Voltage	24V±10%	
		Control output	NPN open collector output under 24V 8mA	
		Output Control	Testing (sensing) : output transistor OFF (closed)	

◎The value will be halved when the motor is changed to a high-resolution motor.
◎ For specifications of the linear scale, please contact our sales team.
◎ The length of the connector cable is approximately 26 cm.

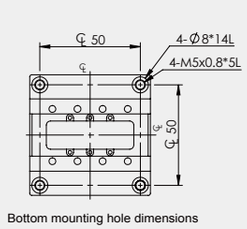
α-Axis

AXG6-125VMC-2OPR

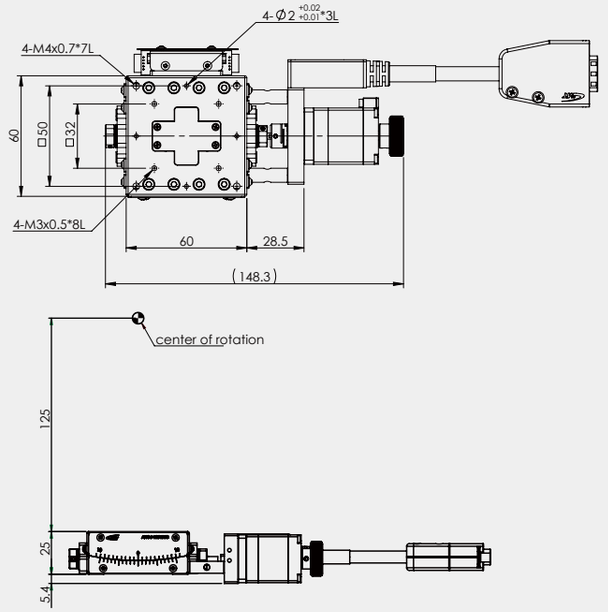
◎ The connector type in this product photo is HRS.

* Product photo is for reference only. For detailed specifications, please refer to the catalog.

AXG6-125VMC-2OPR

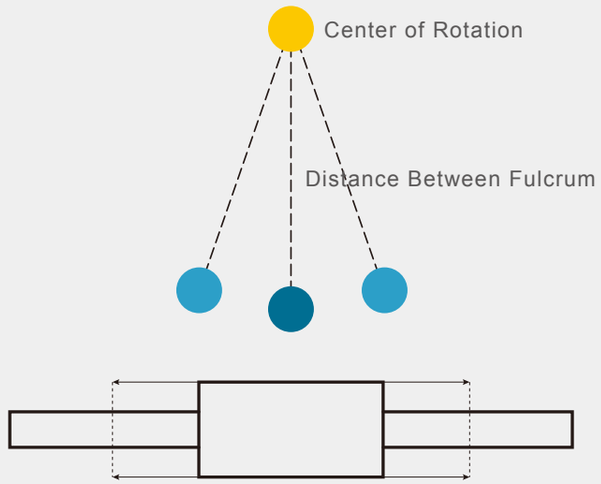


Bottom mounting hole dimensions



AXG-VMC-2OP Distance Between Fulcrum

Moving Angle (°)=arcSin (Input Pulse / Distance Between Fulcrum) / Number of Divisions



5-phase stepper motor division numbers:
Full step 500 divisions; half step 1000 divisions

Distance Between Fulcrum :
Distance between center of rotation and bearing

Model	Distance Between Fulcrum
AXG6-75VMC-2OP	80.9 mm
AXG6-100VMC-2OP	105.9 mm
AXG6-125VMC-2OP	130.9 mm

Calculation Formula:

Ball screw feeding distance: $L' = R \times \sin\theta$

Table Rotation Angle: $\theta = \sin^{-1}\left(\frac{L'}{R}\right)$

R = Distance Between Fulcrum

θ = Table Rotation Angle

L' = Ball Screw feeding distance calculation

Code	model	AXG6-75VMC	AXG6-100VMC	AXG6-125VMC
	R	80.9	105.9	130.9
	θ	12°	10°	8°

例:AXG6-75VMC Table rotation angle calculation

$$\theta = \sin^{-1}\left(\frac{1}{80.9}\right) = 0.708°$$

例:AXG6-75VMC Ball Screw feeding distance calculation

$$L' = 80.9 \times \sin(0.708°) = 1$$

Note: Actual values may have slight discrepancies due to trigonometric function conversions.

Model Description

AR59

Material	Drive Type	Accuracy Level	Wiring Method	Motor Model	Motor Model
A Aluminum alloy	3 worm & worm gear	P Precision grade	N GMT standard	C 5-phase stepper X Not equipped	D D-SUB H HRS

AR 59 - A 3 P N - C D - 2R C

Axis & Serial Numbers	Table Size
AR θ-Axis	59 Ø59mm

Connecting Cable (Optional)	
Blank	Not equipped
2	2m cable one end loose wire (Bending Cable)
4	4m cable one end loose wire (Bending Cable)
6	6m cable one end loose wire (Bending Cable)
2R	2m cable one end loose wire (High-Flex Cable)
4R	4m cable one end loose wire (High-Flex Cable)
6R	6m cable one end loose wire (High-Flex Cable)

Driver (Optional)	
Blank	Not equipped
C	GMT standard

*Bending Cable
*High-Flex Cable

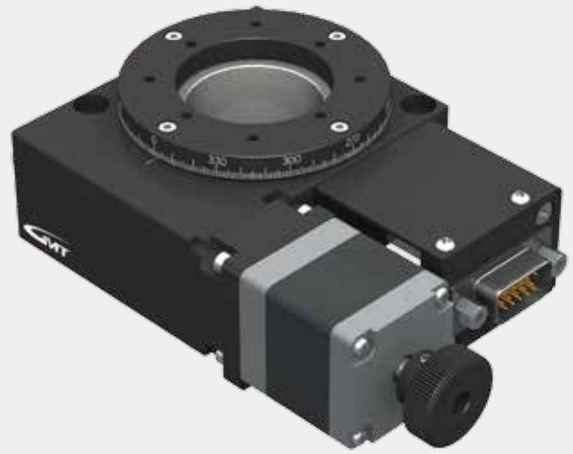
Model No.			AR59-A3PN-CD
Mechanical Specifications		Table Size	Ø59
		Travel Stroke	360°
		Drive Type	Worm & worm gear (ratio 1 / 180)
		Rail	Assembled deep groove ball bearing
		Stage Material / Surface Treatment	Aluminum alloy / Black anodized
		Main Unit Weight	0.62 Kg
		Coupling	FAMMS12-5*6
		Accuracy Level	P: Precision grade
		Wiring Method	N: GMT Standard
Precision Specifications		Resolution (Pulse)	0.004° (Full) / 0.002° (Half)
		Maximum Speed (Full Step)	20 deg / sec
		Positioning Accuracy	0.05°
		Repeatability Accuracy	±0.01°
		Load Capacity (Horizontal installation)	3 Kgf
		Lost Motion	0.05°
		Parallelism	30 μm
		Dynamic Concentricity	30 μm
		Dynamic Parallelism	20 μm
Electrical Specifications	Motor	Type / Shaft Numbers	5-phase stepper motor / □28 double shafts
		Brand / Model	SANYO / SH5281-7211
	Driver Brand / Model		GTR515B
	Connector	Stage Side Connector	15-pin male end connector D-SUB / 12-pin male end connector HRS
		Controller Side Connector	15-pin female end connector D-SUB / 12Pin-pin female end connector HRS (optional)
	Sensor	Origin Sensor	Photoelectric sensor GMT-sensor
		Limit Sensor	
		Origin Approximation Sensor	N/A
		Power Voltage	24V±10%
		Control output	NPN open collector output under 24V 8mA
		Output Control	Testing (sensing) : output transistor OFF (closed)

◎ GMT standard wiring method has no distinction between left and right wiring.
◎ The standard connector types for the product are D-SUB and HRS.

GMT GLOBAL INC.
High-End Optical Communication Application Module
AR59
AR 59

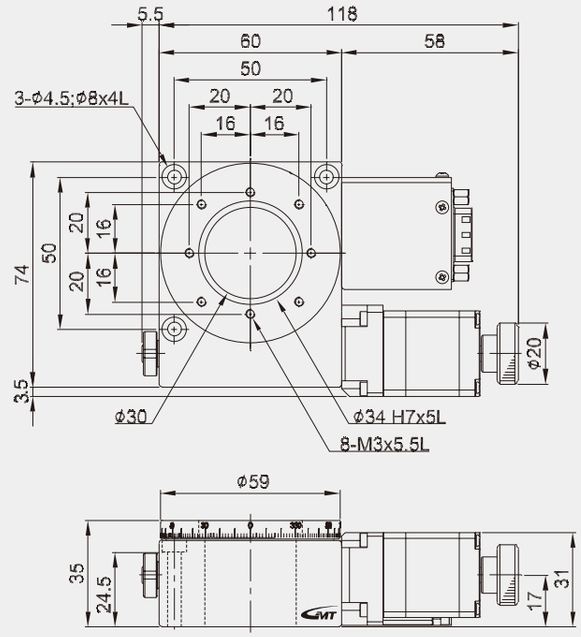
θ-Axis

AR59-A



* Product photo is for reference only. For detailed specifications, please refer to the catalog.

AR59-A



Model Description

ARH60

Material		Drive Type		Accuracy Level		Wiring Method	
A	Aluminum alloy	2	Ball Screw	OP	High-End	N	Right wiring (general wiring)
						L	Left wiring

ARH 60 - A 2 OP N - M D - 2R A

Axis & Serial Numbers	
ARH	θ-Axis

Table Size	
60	Ø60mm
80	Ø80mm

Motor Model	
M	5-phase high resolution
J	5-phase stepper motor

Connector Type	
D	D-SUB
H	HRS

Connecting Cable (Optional)	
Blank	Not equipped
2	2m cable one end loose wire (Bending Cable)
4	4m cable one end loose wire (Bending Cable)
6	6m cable one end loose wire (Bending Cable)
2R	2m cable one end loose wire (High-Flex Cable)
4R	4m cable one end loose wire (High-Flex Cable)
6R	6m cable one end loose wire (High-Flex Cable)

Driver (Optional)	
Blank	Not equipped
A	5-phase CVD

*Bending Cable
*High-Flex Cable

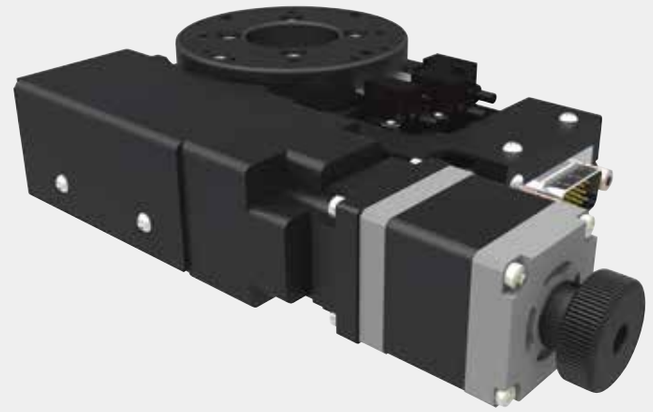
Model No.			ARH60-A2OPN	
Mechanical Specifications	Table Size		Ø60 mm	
	Travel Stroke		±7.5°	
	Drive Type		Ball Screw	
	Rail		deep groove ball bearing	
	Stage Material / Surface Treatment		Aluminum alloy / Black anodized	
	Accuracy Level		OP：High-End	
	Wiring Method		N: GMT Standard (Right wiring) / L: Left wiring	
Precision Specifications	Resolution ◎ (Pulse)	Full / Half M	0.00105° (Full) / 0.00055° (Half)	
		Full / Half J	0.0021° (Full) / 0.0011° (Half)	
	Maximum Speed (Full Step)		10.5° / sec	
	Positioning Accuracy		0.03°	
	Repeatability Accuracy		±0.003°	
	Load Capacity (Horizontal installation)		8 Kgf	
	Lost Motion		<0.003°	
	Torque Rigidity		0.32("/N-cm)	
	Parallelism		30 μm	
	Dynamic Concentricity		30 μm	
	Dynamic Parallelism		10 μm	
Electrical Specifications	Motor	Type / Shaft Numbers	M：5-phase high resolution stepper motor / □28 double shafts	J：5-phase stepper motor / □28 double shafts
		Brand / Model	M：Oriental motor / PK523HPMB	J：Oriental motor / PKP523N12B
	Driver Brand / Model		Oriental motor / 5-phase CVD series (optional)	
	Connector	Stage Side Connector	15-pin male end connector D-SUB	12-pin male end connector HRS
		Controller Side Connector	15-pin female end connector D-SUB (optional)	12-pin female end connector HRS (optional)
	Sensor	Power Voltage	24V±10%	
		Control output	NPN open collector output under 24V 8mA	
		Output Control	Testing (sensing) : output transistor OFF (closed)	

◎The value will be halved when the motor is changed to a high-resolution motor.
◎For specifications of the linear scale, please contact our sales team.

High-End Optical Communication Application Module
ARH60
GMT GLOBAL INC.
ARH 60

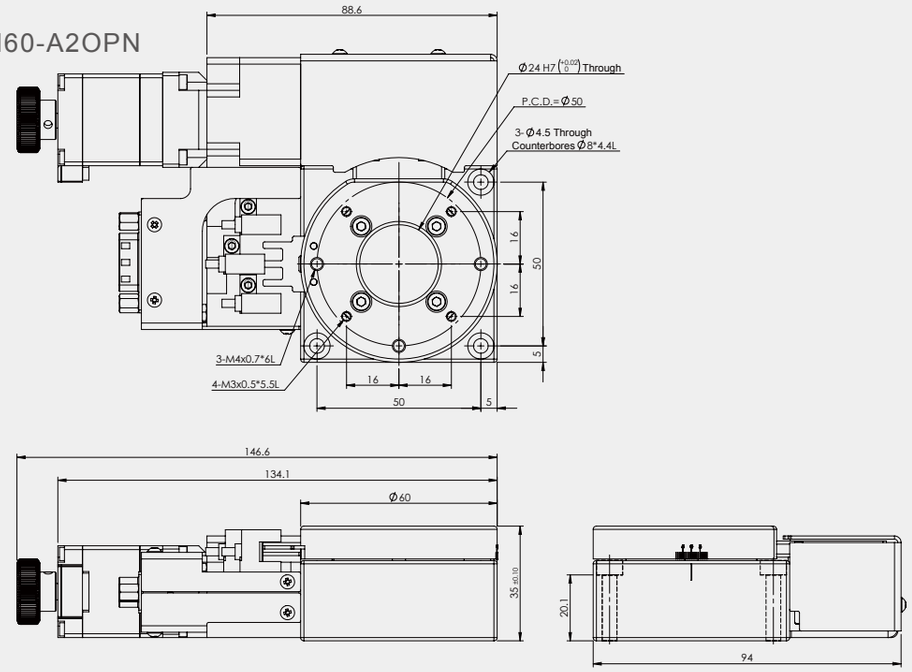
θ-Axis

ARH60-A2OPN



* Product photo is for reference only. For detailed specifications, please refer to the catalog.

ARH60-A2OPN



Model Description

ARH80

Material	Drive Type	Accuracy Level	Wiring Method
A Aluminum alloy	2 Ball Screw	OP High-End	N Right wiring (general wiring) L Left wiring

ARH 80 - A 2 OP N - M D - 2R A

Axis & Serial Numbers	Table Size	Motor Model	Connector Type	Connecting Cable (Optional)	Driver (Optional)
ARH θ-Axis	40 Ø40mm 60 Ø60mm 80 Ø80mm	M 5-phase high resolution J 5-phase stepper motor	D D-SUB H HRS	Blank Not equipped 2 2m cable one end loose wire (Bending Cable) 4 4m cable one end loose wire (Bending Cable) 6 6m cable one end loose wire (Bending Cable) 2R 2m cable one end loose wire (High-Flex Cable) 4R 4m cable one end loose wire (High-Flex Cable) 6R 6m cable one end loose wire (High-Flex Cable)	Blank Not equipped A 5-phase CVD

*Bending Cable
*High-Flex Cable

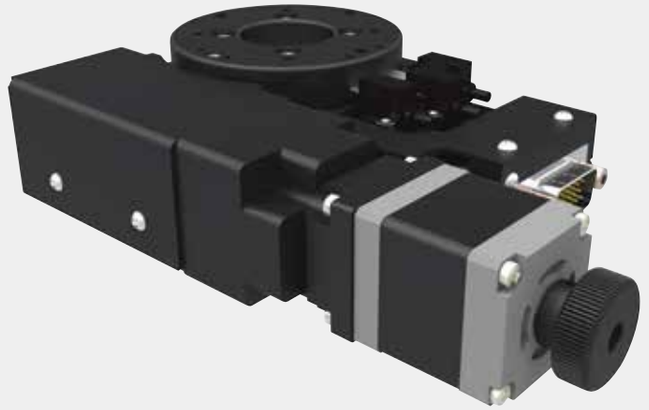
Model No.				ARH80-A2OPN	
Mechanical Specifications	Table Size			Ø80 mm	
	Travel Stroke			±10°	
	Drive Type			Ball Screw	
	Rail			deep groove ball bearing	
	Stage Material / Surface Treatment			Aluminum alloy / Black anodized	
	Accuracy Level			OP：High-End	
	Wiring Method			N: GMT Standard (Right wiring) / L: Left wiring	
Precision Specifications	Resolution ◎ (Pulse)	Full / Half	M	0.0009° (Full) / 0.00045° (Half)	
			J	0.0018° (Full) / 0.0009° (Half)	
	Maximum Speed (Full Step)			11° / sec	
	Positioning Accuracy			0.03°	
	Repeatability Accuracy			±0.003°	
	Load Capacity (Horizontal installation)			10 Kgf	
	Lost Motion			<0.003°	
	Torque Rigidity			0.25(″/N-cm)	
	Parallelism			30 μm	
	Dynamic Concentricity			30 μm	
	Dynamic Parallelism			10 μm	
Electrical Specifications	Motor	Type / Shaft Numbers		M：5-phase high resolution stepper motor / □28 double shafts	J：5-phase stepper motor / □28 double shafts
		Brand / Model		M：Oriental motor / PK525HPMB	J：Oriental motor / PKP525N12B
	Driver Brand / Model			Oriental motor / 5-phase CVD series (optional)	
	Connector	Stage Side Connector		15-pin male end connector D-SUB	12-pin male end connector HRS
		Controller Side Connector		15-pin female end connector D-SUB (optional)	12-pin female end connector HRS (optional)
	Sensor	Power Voltage		24V±10%	
		Control output		NPN open collector output under 24V 8mA	
		Output Control		Testing (sensing) : output transistor OFF (closed)	

◎The value will be halved when the motor is changed to a high-resolution motor.
◎For specifications of the linear scale, please contact our sales team.

High-End Optical Communication Application Module
ARH80
ARH 80

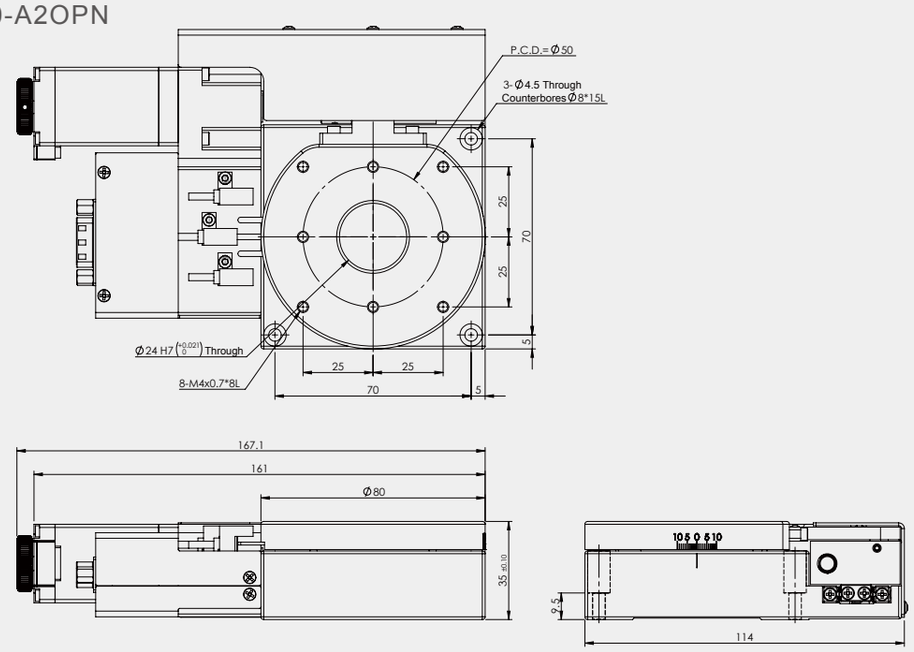
θ-Axis

ARH80-A2OPN



* Product photo is for reference only. For detailed specifications, please refer to the catalog.

ARH80-A2OPN



Model Description

AZ7010

Material		Drive Type		Accuracy Level		Wiring Method		Motor Model		Connector Type	
S	Stainless steel	6	Ball screw and Slide wedge	OP	High-End	R	Right wiring	M	5-phase high resolution	D	D-SUB
A	Aluminum alloy					L	Left wiring	J	5-phase stepper motor	H	HRS

AZ 7010 - A 6 OP R - M D - 2R A

Axis & Serial Numbers		Table Size / Travel Stroke	
AZ	Z-Axis	7010	70*70mm / 10mm

Connecting Cable (Optional)	
Blank	Not equipped
2	2m cable one end loose wire (Bending Cable)
4	4m cable one end loose wire (Bending Cable)
6	6m cable one end loose wire (Bending Cable)
2R	2m cable one end loose wire (High-Flex Cable)
4R	4m cable one end loose wire (High-Flex Cable)
6R	6m cable one end loose wire (High-Flex Cable)

Driver (Optional)	
Blank	Not equipped
A	5-phase CVD

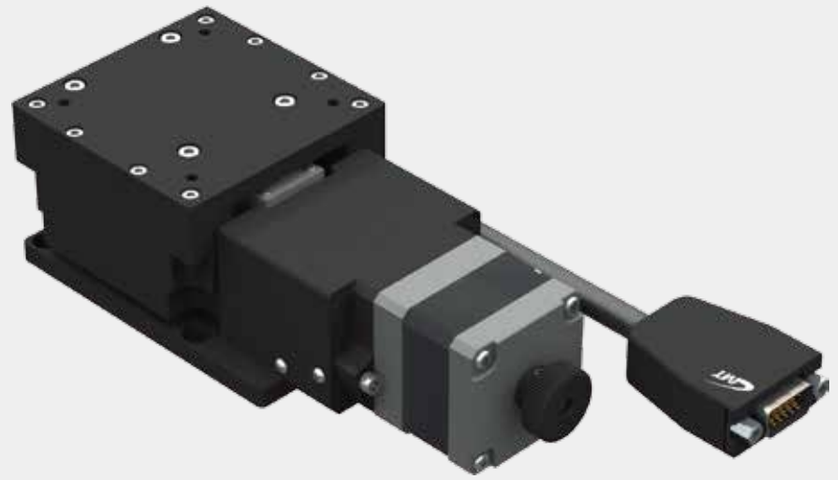
*Bending Cable
*High-Flex Cable
*Please contact our sales team if you request for stainless steel material.

Model No.			AZ7010-A6OPR	
Mechanical Specifications	Table Size		70X70 mm	
	Travel Stroke (mm)		10mm	
	Drive Type		Ball Screw Ø8 , Lead 1mm	
	Rail		Crossed-roller guiding	
	Stage Material / Surface Treatment		Aluminum alloy / Black anodized	
	Accuracy Level		OP：High-End	
	Wiring Method		R: Right wiring (Standard stock) / L: Left wiring	
Precision Specifications	Resolution (Pulse) ◎	Full / Half M	0.25 μm(Full) / 0.125 μm (Half)	
		Full / Half J	0.5 μm(Full) / 0.25 μm (Half)	
	Maximum Speed (Full Step)		5mm / sec	
	Positioning Accuracy		5 μm	
	Repeatability Accuracy		±0.5 μm	
	Load Capacity (Horizontal installation)		8 Kgf	
	Lost Motion		1 μm	
	Torque Rigidity		Pitch 0.15 / Yaw 0.05 / Roll 0.12 ("/N-cm)	
	Parallelism		20 μm	
	Dynamic Straightness		5 μm	
	Dynamic Parallelism		25 μm	
Electrical Specifications	Motor	Type / Shaft Numbers	M：5-phase high resolution stepper motor / □42 double shafts	J：5-phase stepper motor / □42 double shafts
		Brand / Model	M：Oriental motor / PKP544MN18B	J：Oriental motor / PKP544N18B
	Driver Brand / Model		Oriental motor / 5-phase CVD series (optional)	
	Connector	Stage Side Connector	15-pin male end connector D-SUB	12-pin male end connector HRS
		Controller Side Connector	15-pin female end connector D-SUB (optional)	12-pin female end connector HRS (optional)
	Sensor	Power Voltage	24V±10%	
		Control output	NPN open collector output under 24V 8mA	
		Output Control	Testing (sensing) : output transistor OFF (closed)	

◎ The value will be halved when the motor is changed to a high-resolution motor.
◎ For specifications of the linear scale, please contact our sales team.
◎ The length of the connector cable is approximately 26 cm.

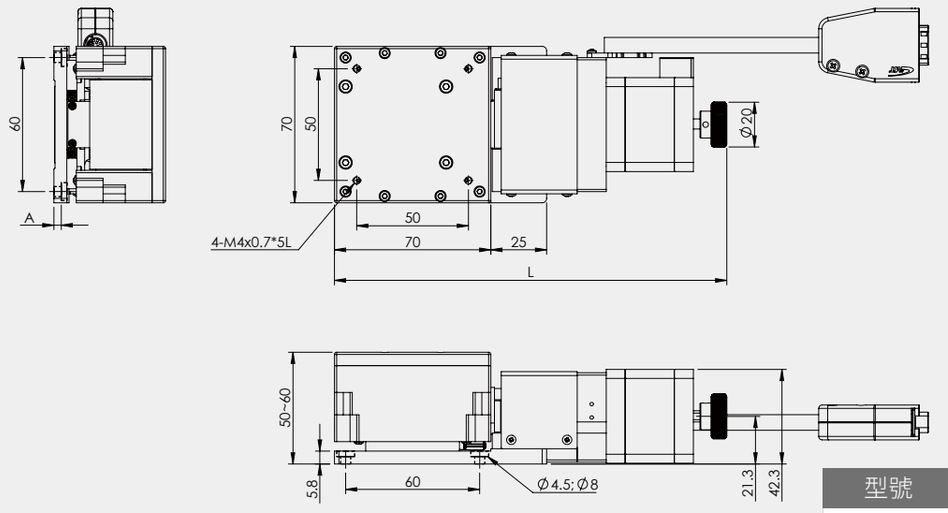
Z-Axis

AZ7010-A6OPR



* Product photo is for reference only. For detailed specifications, please refer to the catalog.

AZ7010-A6OPR



型號	A	L
AZ7010-A60P	1.8	190
AZ7010-S60P	3.3	175.7

Model Description

AZ7020

Material		Drive Type		Accuracy Level		Wiring Method		Motor Model		Connector Type	
S	Stainless steel	6	Ball screw and Slide wedge	OP	High-End	R	Right wiring	M	5-phase high resolution	D	D-SUB
A	Aluminum alloy					L	Left wiring	J	5-phase stepper motor	H	HRS

AZ 7020 - A 6 OP R - M D - 2R A

Axis & Serial Numbers	
AZ	Z-Axis

Table Size / Travel Stroke	
7010	70*70mm / 20mm

Connecting Cable (Optional)	
Blank	Not equipped
2	2m cable one end loose wire (Bending Cable)
4	4m cable one end loose wire (Bending Cable)
6	6m cable one end loose wire (Bending Cable)
2R	2m cable one end loose wire (High-Flex Cable)
4R	4m cable one end loose wire (High-Flex Cable)
6R	6m cable one end loose wire (High-Flex Cable)

Driver (Optional)	
Blank	Not equipped
A	5-phase CVD

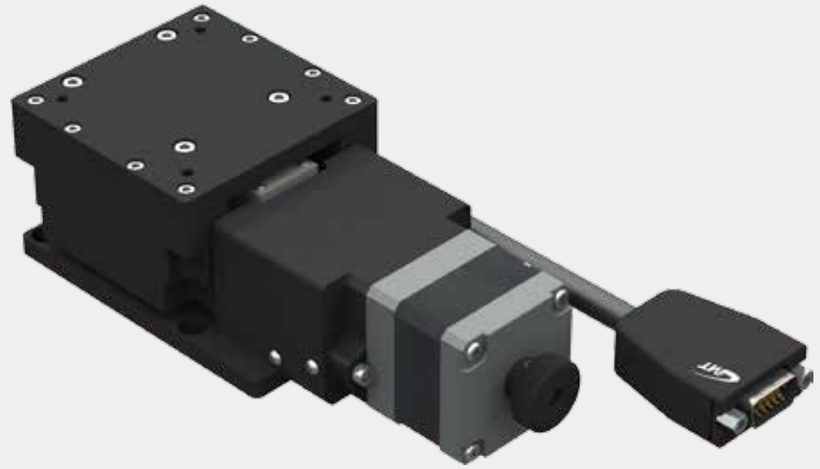
*Bending Cable
*High-Flex Cable
*Please contact our sales team if you request for stainless steel material.

Model No.			AZ7020-A6OPR	
Mechanical Specifications	Table Size		70X70 mm	
	Travel Stroke (mm)		20mm	
	Drive Type		Ball Screw Ø8 , Lead 1mm	
	Rail		Crossed-roller guiding	
	Stage Material / Surface Treatment		Aluminum alloy / Black anodized	
	Accuracy Level		OP：High-End	
	Wiring Method		R: Right wiring (Inventory specification) / L: Left wiring	
Precision Specifications	Resolution (Pulse) ◎	Full / Half M	0.25 μm(Full) / 0.125 μm (Half)	
		Full / Half J	0.5 μm(Full) / 0.25 μm (Half)	
	Maximum Speed (Full Step)		5mm / sec	
	Positioning Accuracy		5 μm	
	Repeatability Accuracy		±0.5 μm	
	Load Capacity (Horizontal installation)		8 Kgf	
	Lost Motion		1 μm	
	Torque Rigidity		Pitch 0.15 / Yaw 0.05 / Roll 0.12 ("/N-cm)	
	Parallelism		20 μm	
	Dynamic Straightness		5 μm	
	Dynamic Parallelism		25 μm	
Electrical Specifications	Motor	Type / Shaft Numbers	M：5-phase high resolution stepper motor / □42 double shafts	J：5-phase stepper motor / □42 double shafts
		Brand / Model	M：Oriental motor / PKP544MN18B	J：Oriental motor / PKP544N18B
	Driver Brand / Model		Oriental motor / 5-phase CVD series (optional)	
	Connector	Stage Side Connector	15-pin male end connector D-SUB	12-pin male end connector HRS
		Controller Side Connector	15-pin female end connector D-SUB (optional)	12-pin female end connector HRS (optional)
	Sensor	Power Voltage	24V±10%	
		Control output	NPN open collector output under 24V 8mA	
		Output Control	Testing (sensing) : output transistor OFF (closed)	

◎ The value will be halved when the motor is changed to a high-resolution motor.
◎ For specifications of the linear scale, please contact our sales team.
◎ The length of the connector cable is approximately 26 cm.

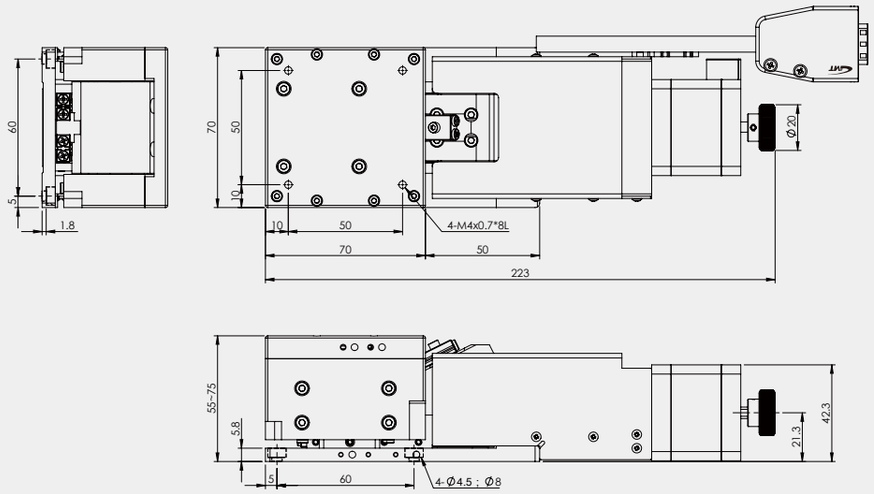
Z-Axis

AZ7020-A6OPR-MD



* Product photo is for reference only. For detailed specifications, please refer to the catalog.

AZ7020-A6OPR-MD



SAX100

Model Description

Material	Drive Type	Accuracy Level	Wiring Method	Motor Model	Connector Type
A Aluminum alloy	2 Ball screw	OP High-End	R Right wiring L Left wiring	M 5-phase high resolution	H HRS

SAX 100 - 75 A 2 OP R - M H - 2R A

Axis & Serial Numbers	Table Size	Travel Stroke
SAX linear stage_single axis	120*100mm	75mm

Connecting Cable (Optional)	
Blank	Not equipped
2	2m cable one end loose wire (Bending Cable)
4	4m cable one end loose wire (Bending Cable)
6	6m cable one end loose wire (Bending Cable)
2R	2m cable one end loose wire (High-Flex Cable)
4R	4m cable one end loose wire (High-Flex Cable)
6R	6m cable one end loose wire (High-Flex Cable)

Driver (Optional)	
Blank	Not equipped
A	5-phase CVD

*Bending Cable
*High-Flex Cable

Model No.		SAX100-75-A2OPR	SAX100-75-A2OPL
Mechanical Specifications	Table Size	120X100 mm	
	Travel Stroke	±37.5 mm	
	Drive Type	Ball screw Ø8 , lead 1mm	
	Rail	Precision crossed-roller guiding	
	Stage Material / Surface Treatment	Aluminum alloy / Original color matte anodized	
	Weight	2Kg	
	Coupling	FAMMS12-5*5	
	Accuracy Level	OP：High-End	
	Wiring Method	R: Right wiring (Standard stock) / L: Left wiring	
Precision Specifications	Resolution (Pulse)	1 μm (Full) / 0.5 μm (Half)	
	Maximum Speed (Full Step)	20 mm / sec	
	Positioning Accuracy	10 μm	
	Repeatability Accuracy	±0.3 μm	
	Load Capacity (Horizontal installation)	30 Kgf	
	Lost Motion	≦1 μm	
	Torque Rigidity	0.017 ("/N-cm)	
	Pitch / Yaw (single axis accuracy spec.)	25"/20"	
	Parallelism	20 μm	
	Dynamic Straightness	3 μm	
	Dynamic Parallelism	10 μm	
Electrical Specifications	Motor Type / Shaft Numbers	5-phase high resolution stepper motor / □42 double shafts	
	Motor Brand / Model	Oriental motor / PKP544MN18B	
	Driver Brand / Model	Oriental motor CVD518-K	
	Connector Type	12-pin male end connector HRS	

GMT GLOBAL INC.
High-End Optical Communication Application Module
SAX100-75-A2OP

Z-Axis

SAX100-75-A2OPL

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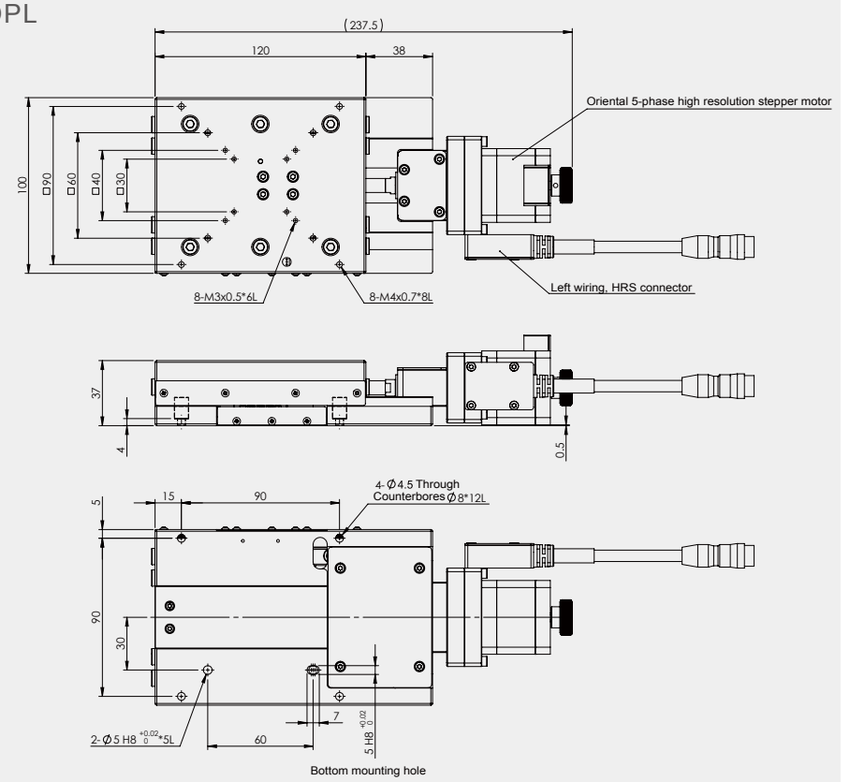
SAX100-75-A2OPL



Model Description

GXA100

Material	Drive Type	Accuracy Level	Wiring Method	Motor Model	Connector Type
A Aluminum alloy	2 Ball screw	OP High-End	R Right wiring L Left wiring	M 5-phase high resolution	H HRS

GXA 100 - 100 A 2 OP R - M H - 2R A

Axis & Serial Numbers	Table Size	Travel Stroke
GXA linear stage_single axis	100mm	100mm

Connecting Cable (Optional)	
Blank	Not equipped
2	2m cable one end loose wire (Bending Cable)
4	4m cable one end loose wire (Bending Cable)
6	6m cable one end loose wire (Bending Cable)
2R	2m cable one end loose wire (High-Flex Cable)
4R	4m cable one end loose wire (High-Flex Cable)
6R	6m cable one end loose wire (High-Flex Cable)

Driver (Optional)	
Blank	Not equipped
A	5-phase CVD

*Bending Cable
*High-Flex Cable

Model No.		GXA100-100-A2OPR	GXA100-100-A2OPL
Mechanical Specifications	Table Size	100X100 mm	
	Travel Stroke	±50 mm	
	Drive Type	Ball screw Ø8 , lead 2.0mm	
	Rail	Precision Miniature Linear Guide Rail	
	Stage Material / Surface Treatment	Aluminum alloy / Original color matte anodized	
	Weight	3.5Kg	
	Coupling	FACCS21-5*5	
	Accuracy Level	OP：High-End	
	Wiring Method	R: Right wiring (Standard stock) / L: Left wiring	
Precision Specifications	Resolution (Pulse)	2 μm (Full) / 1 μm (Half)	
	Maximum Speed (Full Step)	20 mm / sec	
	Positioning Accuracy	8 μm	
	Repeatability Accuracy	±0.5 μm	
	Load Capacity (Horizontal installation)	20 Kgf	
	Lost Motion	0.5 μm	
	Torque Rigidity	0.04"/N · cm	
	Pitch / Yaw (single axis accuracy spec.)	25"/20"	
	Parallelism	20μm	
	Dynamic Straightness	3μm	
	Dynamic Parallelism	15μm	
	Perpendicularity (dual axes accuracy spec.)	-	
Electrical Specifications	Motor Type / Shaft Numbers	5-phase high resolution stepper motor / □42 double shafts	
	Motor Brand / Model	Oriental motor / PKP544MN18B	
	Driver Brand / Model	Oriental motor CVD518-K	
	Connector Type	12-pin male end connector HRS	

Z-Axis

GXA100-100-A2OPR

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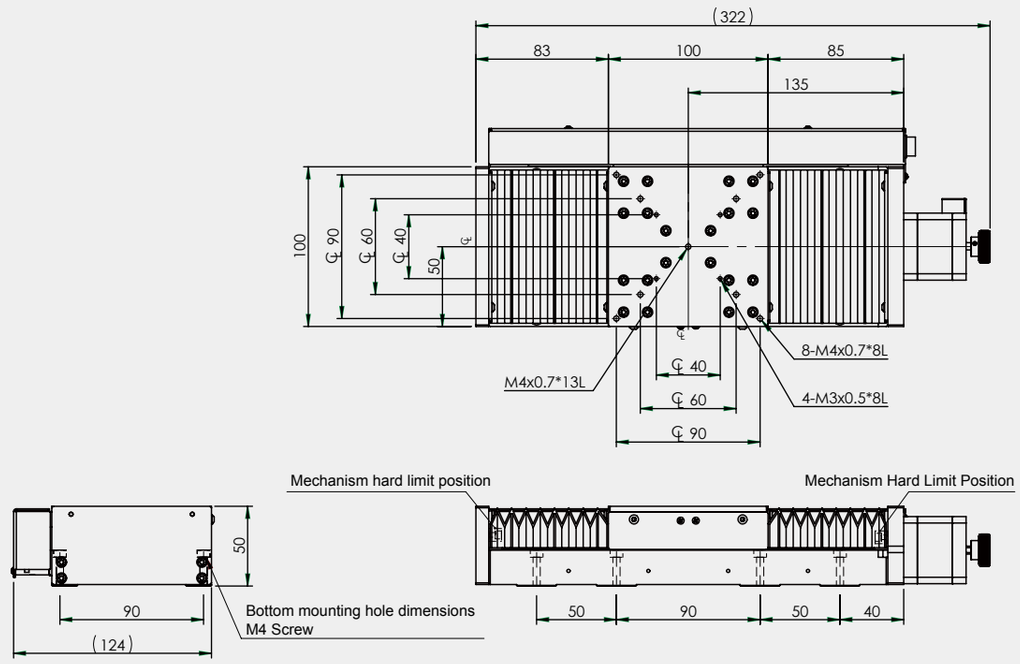
GXA100-100-A2OPR



Model Description

GYA100

Material	Drive Type	Accuracy Level	Wiring Method	Motor Model	Connector Type
A Aluminum alloy	2 Ball screw	OP High-End	R Right wiring L Left wiring	M 5-phase high resolution	H HRS

GYA 100 - 100 A 2 OP R - M H - 2R A

Axis & Serial Numbers	Table Size	Travel Stroke
GYA linear stage_sual axes	100mm	100mm

Connecting Cable (Optional)	
Blank	Not equipped
2	2m cable one end loose wire (Bending Cable)
4	4m cable one end loose wire (Bending Cable)
6	6m cable one end loose wire (Bending Cable)
2R	2m cable one end loose wire (High-Flex Cable)
4R	4m cable one end loose wire (High-Flex Cable)
6R	6m cable one end loose wire (High-Flex Cable)

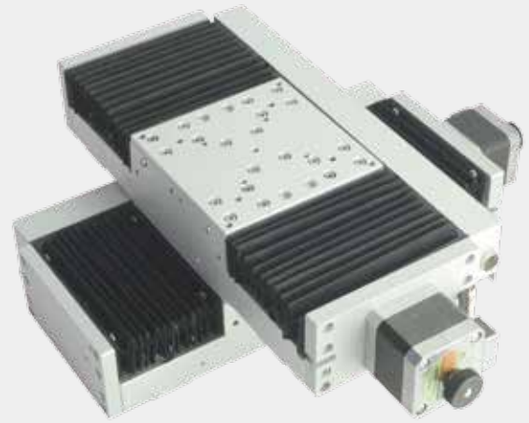
Driver (Optional)	
Blank	Not equipped
A	5-phase CVD

*Bending Cable
*High-Flex Cable

Model No.		GYA100-100-A2OPR	GYA100-100-A2OPL
Mechanical Specifications	Table Size	100X100 mm	
	Travel Stroke	±50 mm	
	Drive Type	Ball screw Ø8 , lead 2.0mm	
	Rail	Precision Miniature Linear Guide Rail	
	Stage Material / Surface Treatment	Aluminum alloy / Original color matte anodized	
	Main Unit Weight	3.5Kg	
	Coupling	FACCS21-5*5	
	Accuracy Level	OP：High-End	
	Wiring Method	R: Right wiring (Standard stock) / L: Left wiring	
Precision Specifications	Resolution (Pulse)	2 μm (Full) / 1 μm (Half)	
	Maximum Speed (Full Step)	20 mm / sec	
	Positioning Accuracy	8 μm	
	Repeatability Accuracy	±0.5 μm	
	Load Capacity (Horizontal installation)	16Kgf	
	Lost Motion	0.5 μm	
	Torque Rigidity	0.08″/N・cm	
	Pitch / Yaw (single axis accuracy spec.)	25"/20"	
	Parallelism	30μm	
	Dynamic Straightness	3μm	
	Dynamic Parallelism	25μm	
	Perpendicularity (dual axes accuracy spec.)	10μm	
Electrical Specifications	Motor Type / Shaft Numbers	5-phase high resolution stepper motor / □42 double shafts	
	Motor Brand / Model	Oriental motor / PKP544MN18B	
	Driver Brand / Model	Oriental motor CVD518-K	
	Connector Type	12-pin male end connector HRS	

Z-Axis

GYA100-100-A2OPR



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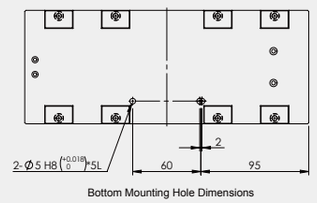
GYA100-100-A2OPR



Bottom Mounting Hole Dimensions