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IKO

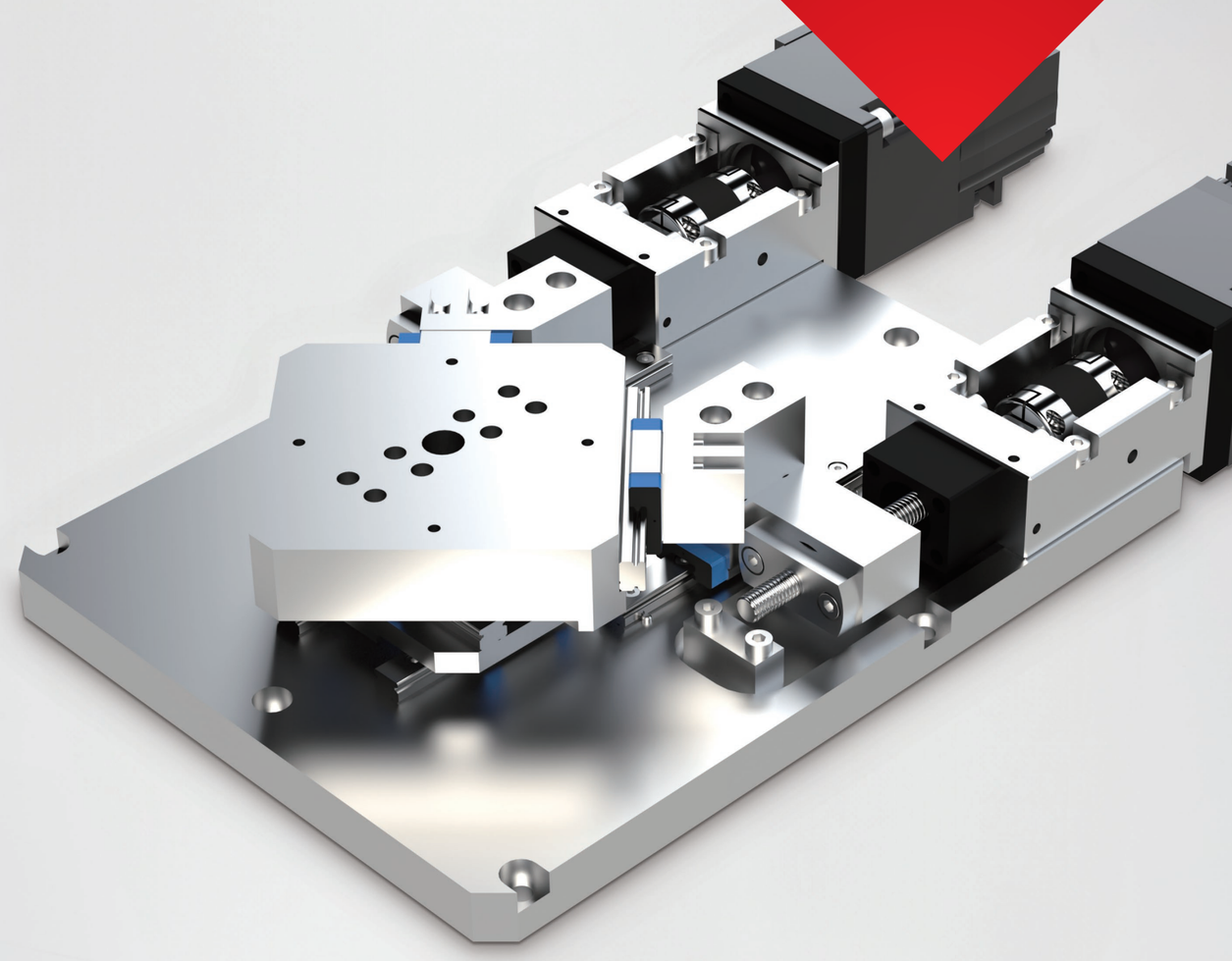
New

Parallel Drive Stage™

PD···S

A Newly Designed XY Stage with a New Structure

Patent pending

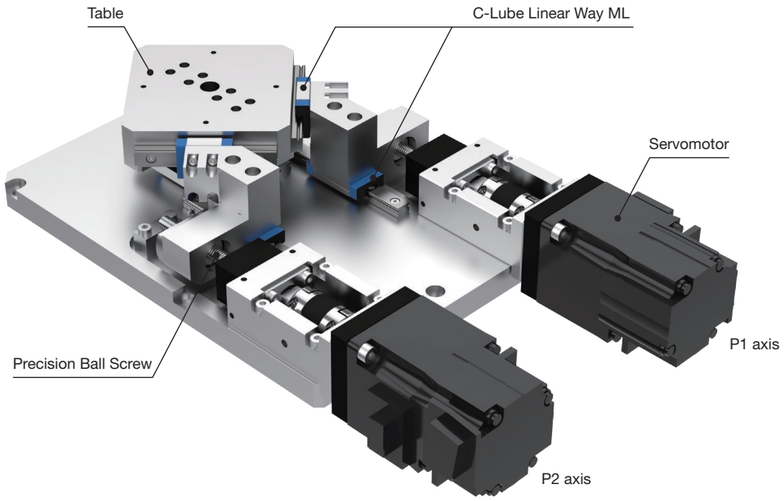


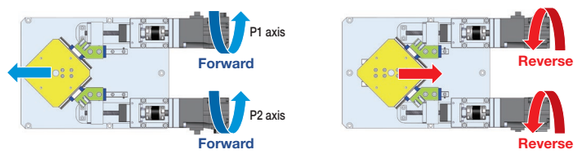
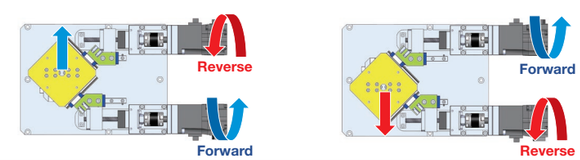
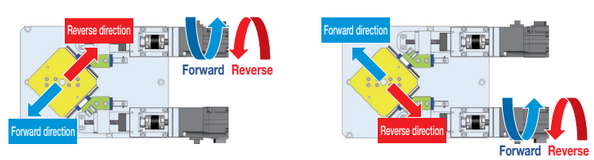
NIPPON THOMPSON CO., LTD.

Introducing the new IKO Parallel Drive Stage™ PD···S
Original design made possible with IKO's manufacturing knowhow

Structure and Characteristics

The IKO Parallel Drive Stage PD···S is an original IKO design that realizes lower sectional height because the mechanism converting the linear motion of the ball screw actuator is placed with 2 shafts parallel into XY motion. This precision positioning stage is also compact and highly durable.
Unlike conventional XY stages with layered 1-shaft actuators, there are no moving motors or cables around the stage of the PD···S, making access to the stage top from the outside easy, and allowing for freedom in equipment design with an unrestricted work area. It also utilizes IKO C-Lube maintenance-free Linear Way ML as the guiding part.



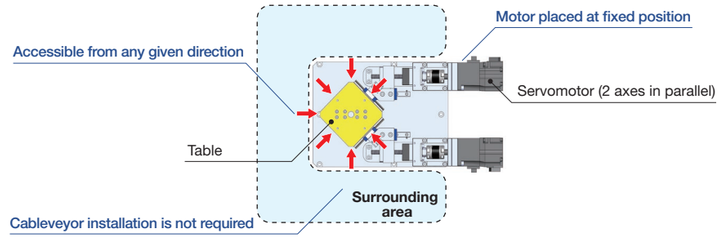
Operation explanation	Image
When the P1 and P2 axes are rotated in the same direction, the table moves in the X direction.	
When the P1 and P2 axes are rotated in reverse configuration, the table moves in the Y direction.	
When only one of the two axes is rotated, the table moves diagonally.	

Remarks
· Various movements such as arc motion are possible by combining the operations above.
· Forward motion is rotation to the right (clockwise) when looking at the motor unit from the ball screw side.

Features

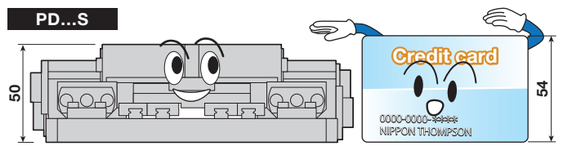
1 Original Parallel Drive Structure

This unique XY stage has motors arranged in parallel.
Since the motors are arranged in one direction, side work is easy from any direction.
The motors are fixed in one position so they will not move even when the table is operating and there is no need to provide extra space to prevent interference.
With no restrictions on the work area, there is freedom in equipment design.



2 Low Profile and Simple Appearance

By arranging the motors in parallel, PD···S has an extremely low sectional height compared to conventional stages and it is also lightweight and compact.
The wiring and cableveyors required for conventional stages are not necessary, so this stage also has a simple appearance.



3 Diverse Customization Requests Supported

The PD···S enables freedom in design while maintaining high accuracy.
Dimensions (in addition to the sizes listed on page 4) can be changed and specifications added based on the customer's requirements. Please contact IKO.

Scan the QR code below to view a video of the product in operation.

Identification Number/Specifications

Identification number

Example

PD	70	S	/	ATC01	G	1
❶	❷	❶		❸	❹	❺

❶ Model	PD···S: Parallel Drive Stage
❷ Size	70: Table width dimension
❸ Designation of motor attachment	ATC**: Select from Table 1 according to the motor in use
❹ Type of the ball screw	G: Ground screw
❺ Ball screw lead	1: Lead 1mm

Remarks
· The motor must be provided by the customer.
· Please specify the motor attachment applicable for motor use.
· Couplings shown in Table 2 are temporarily fixed in the main body before shipment. Final position adjustment should be performed by the customer.

Table 1 Application of the motor attachment

Motor to be used					Flange size mm	Motor attachment symbol	Female thread dimensions		
Type	Manufacturer	Series	Model	Rated output W			Even distribution	Dimensions	PCD
AC servomotor	YASKAWA ELECTRIC CORPORATION	Σ-7/Σ-10	SGM7J-A5A/SGMXJ-A5A	50	□40	ATC01	4	M4 Through	46
			SGM7A-A5A/SGMXA-A5A						
	Mitsubishi Electric Corporation	J4/J5	HG-MR053	50	□40	ATC01	4	M4 Through	46
			HG-KR053/HK-KT053W						
	Panasonic Corporation	MINAS A6	MSMF5A	50	□38	ATC02	4	M3 Through	45
	Hitachi Industrial Equipment Systems Co., Ltd.	AD	ADMA-R5L	50	□40	ATC01	4	M4 Through	46

Remark: For detailed motor specifications, please see the respective motor manufacturers' catalogs.

Table 2 Coupling models

Motor attachment	Coupling models	Manufacturer	Coupling inertia J_c $\times 10^{-5}$kg·m^2
ATC01	XGT-19C-5×8	Nabeya Bi-tech Kaisha	0.084
ATC02			

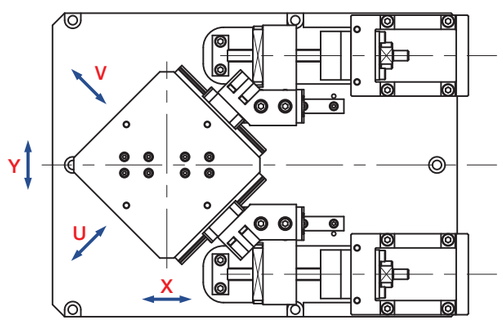
Remark: For detailed coupling specifications, please see the respective manufacturers' catalogs.

Specifications

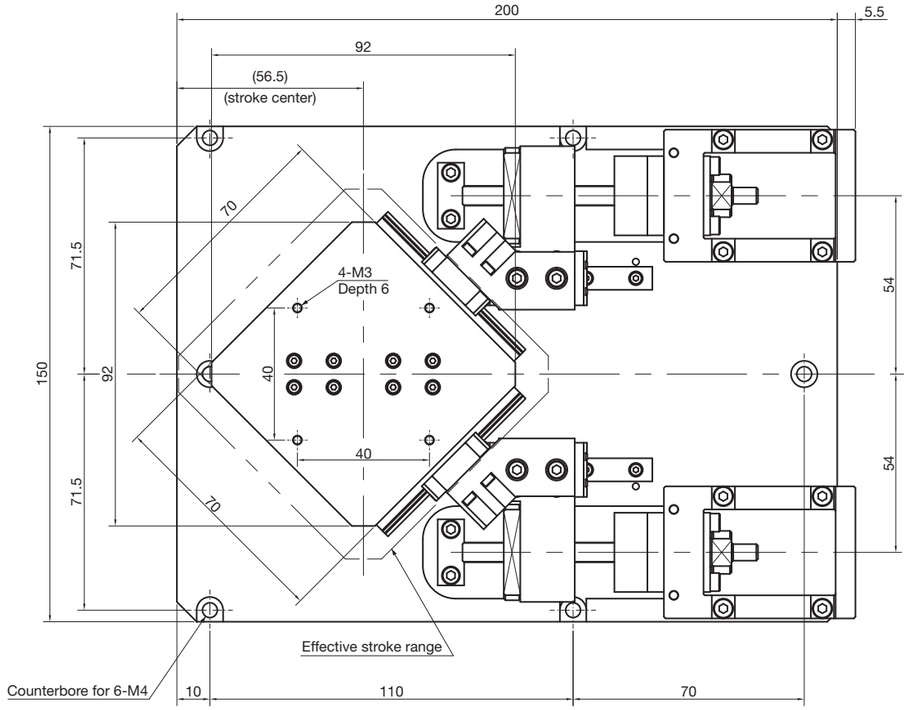
Table 3 Specifications

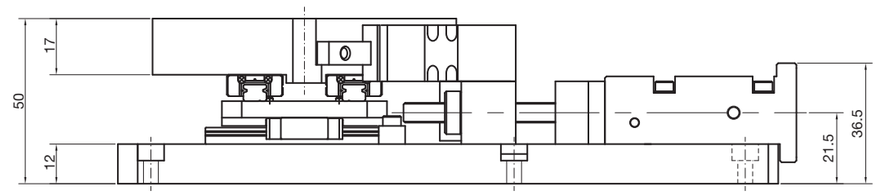
Item \ Model and size	PD70S
X/Y directions effective stroke length mm	±10
U/V directions effective stroke length mm	±7
X/Y directions maximum speed mm/s (1)	50
U/V directions maximum speed mm/s (1)	35
Maximum carrying mass kg (2)	5
Positioning repeatability mm	±0.002

Notes (1) Values when the motor rotational speed is 3000rpm. To measure the practical maximum speed, it is required to consider operation patterns based on the motor used and load conditions.
(2) The mass is with the table equipped at the center position.



Product Dimensions

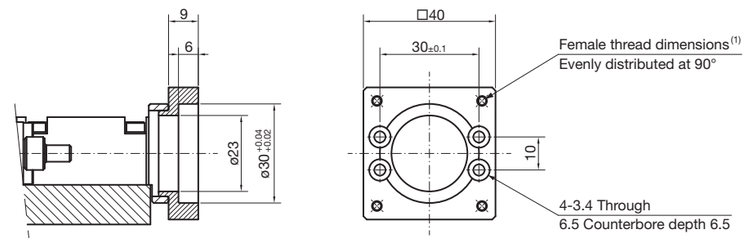




Reference mass: 1.9kg

If the fixing depth of the mounting bolt is too deep, it may affect the running performance of the moving table.
Never insert a bolt longer than the depth of the tapped hole.

Attachment Dimensions



Note (1) For female thread dimensions, see Table 1, Application of the motor attachment, on page 3.