

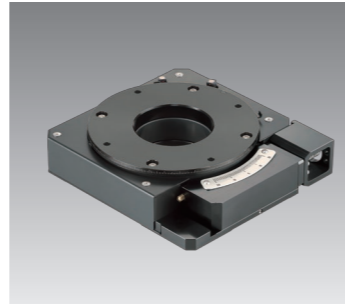
# IKO

New

Rotation Stage

# SK...W

A new rotation stage  
with precision positioning!



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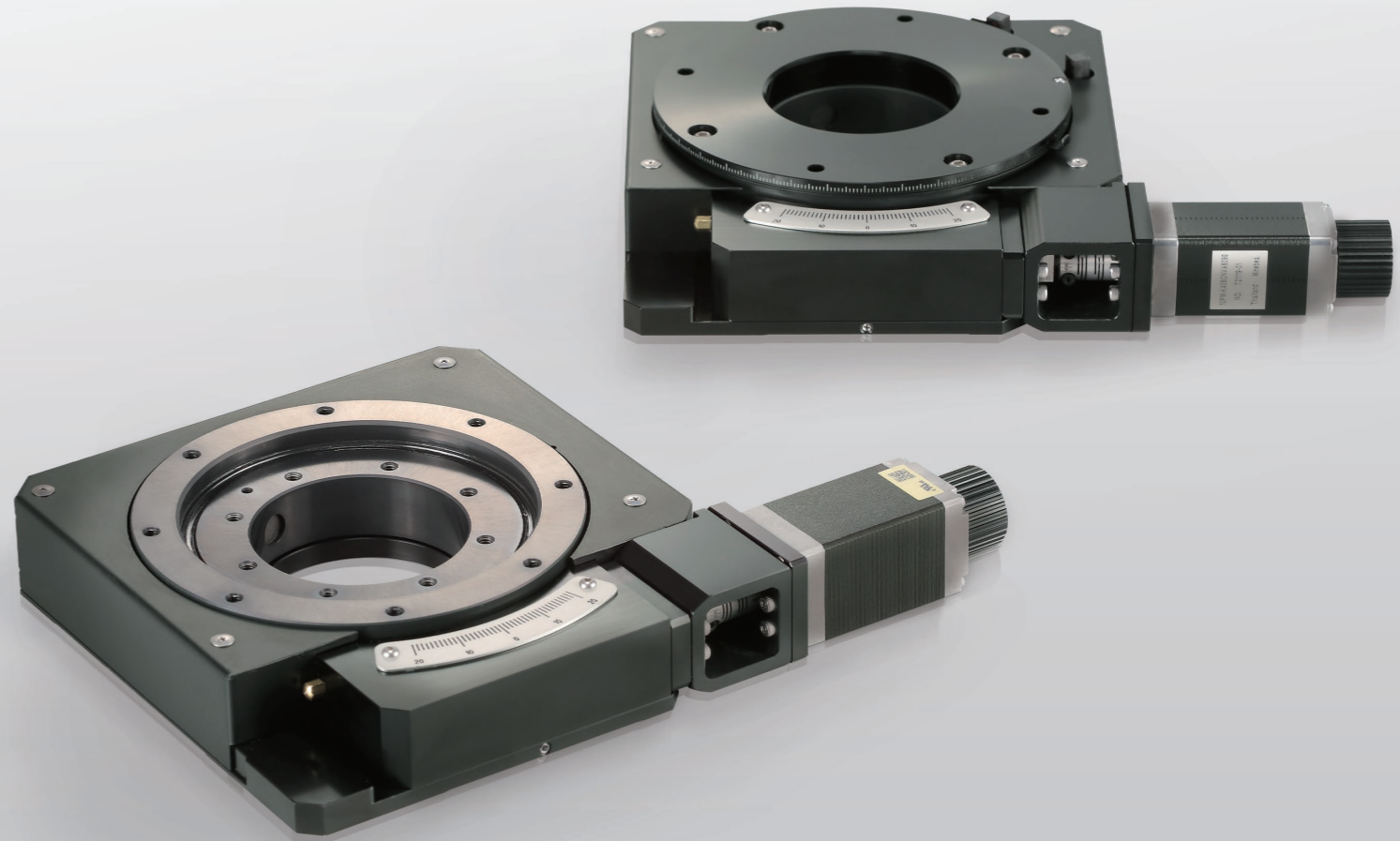
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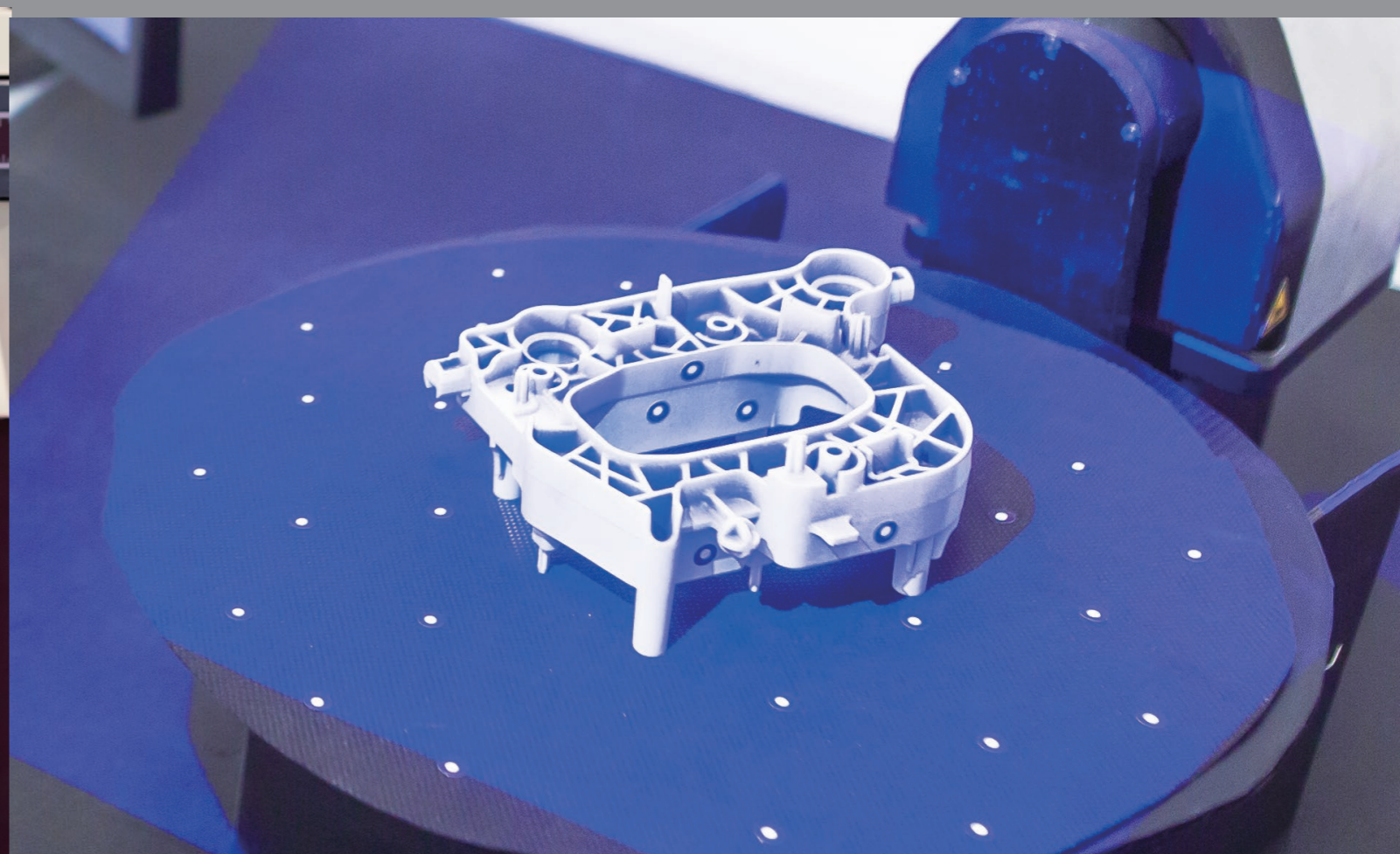
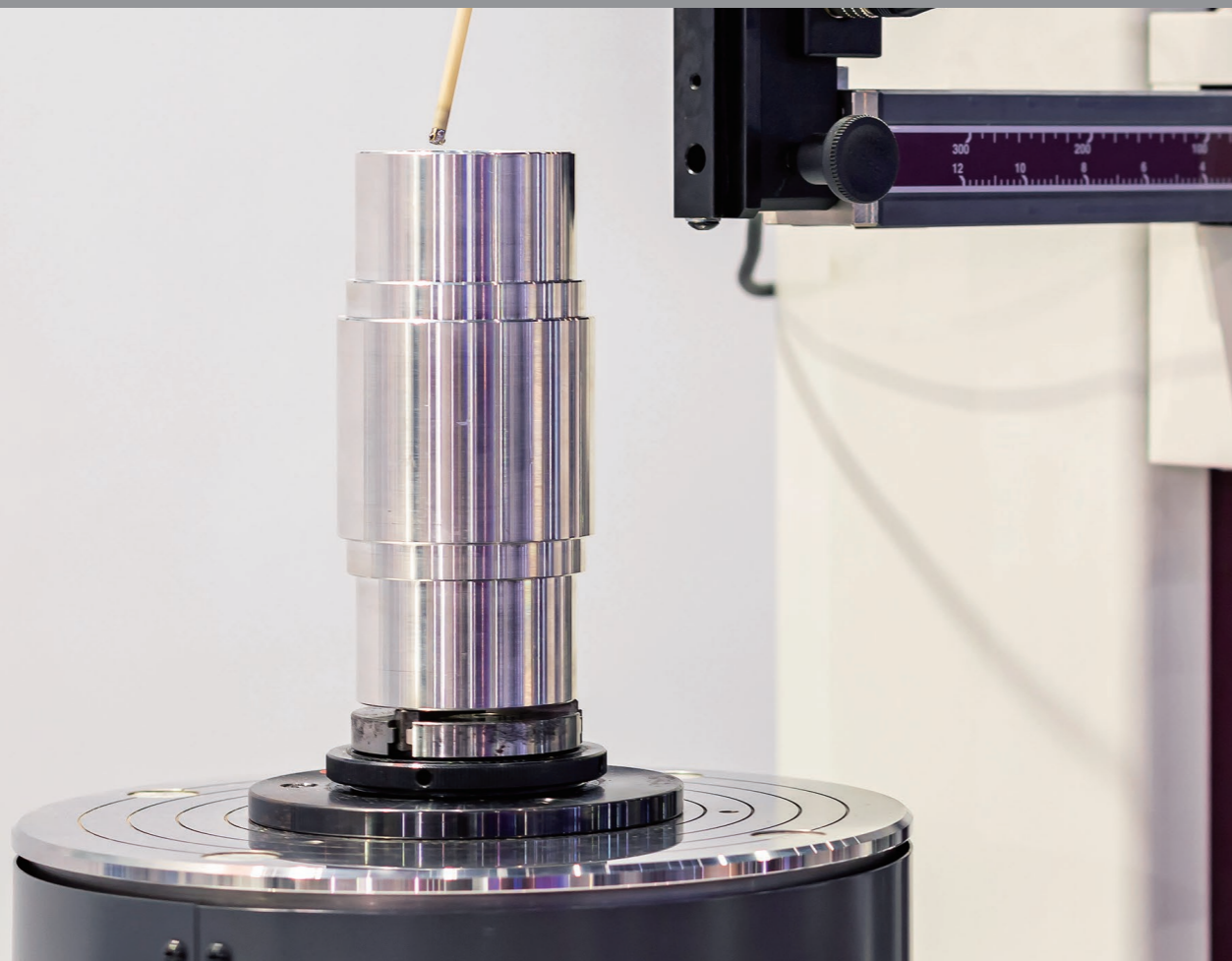


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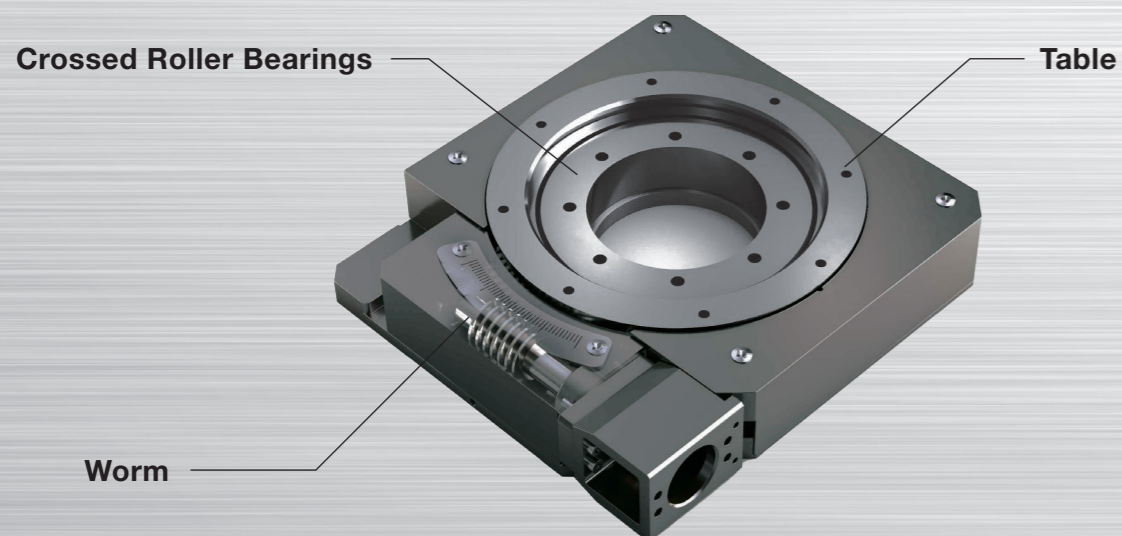




## The new SK···W Rotation Stage provides smooth positioning with high accuracy and high rigidity!

### SK···W Structure

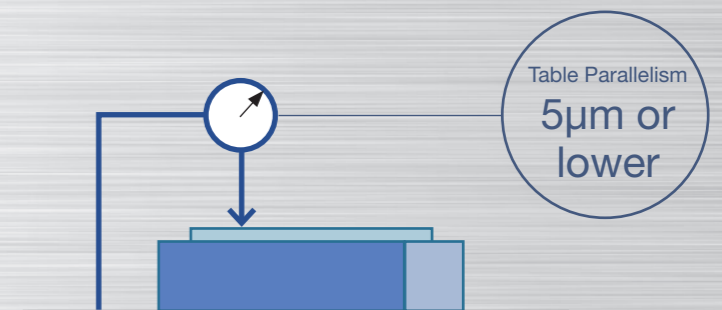
The SK···W is an unlimited rotation stage that employs a worm gear mechanism. IKO Crossed Roller Bearings are used in the rotation guiding parts and utilized directly as a table to achieve high-precision rotational runout, high rigidity and a low profile.



### SK···W Features

#### High Accuracy

IKO Crossed Roller Bearings are used in the rotation guiding parts and can achieve deflection on the table upper surface of 5 $\mu$ m or less.



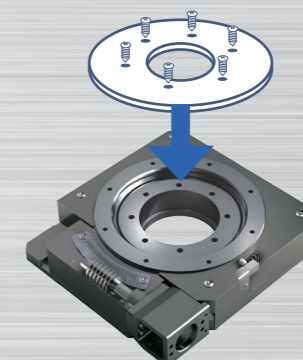
#### Low Profile, High Rigidity

IKO Crossed Roller Bearings with high rigidity in all directions are used in the rotation guiding parts. In addition, since Crossed Roller Bearings are used directly as the table, a low profile is also achieved.

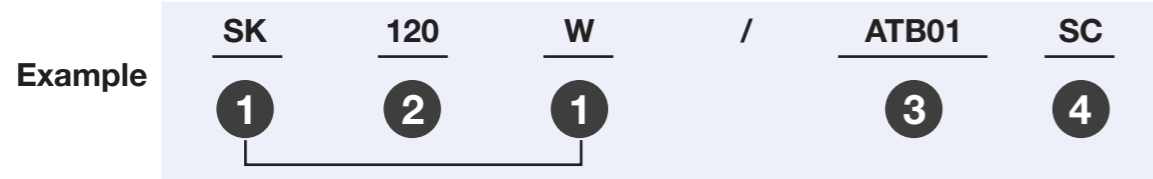


#### Reduced Design Work

The device table or test object can be mounted directly to the table. The use of mechanical parts reduces the labor hours required to design a rotating table from scratch.



## Identification Number



### 1 Model

Model
SK···W: Rotation Stage SK···W

### 2 Size

Symbol	Table diameter (mm)
120	115 (120)

Remarks: Dimensions in parentheses are for models with a limit sensor.

### 3 Designation of Motor Attachment

Select a motor attachment symbol from Table 1.

- Motor should be prepared by customer.
- Please specify motor attachment applicable to motor use.
- Couplings shown in Table 2 are temporarily fixed in the main body before shipment. Final position adjustment should be performed by customer.

Table 1 Application of motor attachment

Motor attachment symbol	Motor to be used					Flange (mm)
	Type	Manufacturer	Series	Model	Rated output (W)	
ATB01	Five-phase stepper motor	ORIENTAL MOTOR Co., Ltd.	PK	PK525HPB		□ 28
ATB02	Two-phase stepper motor (bi-polar)	MinebeaMitsumi, Inc.	10PM-K	10PM-K406CNVA6098 (1)		□ 25
ATB03	AC Servomotor	Mitsubishi Electric Corporation	J4	HG-AK0136	30	□ 25

Note (1) Dedicated IKO model number. Available for purchase from NMB Sales Co., Ltd.

Table 2 Coupling models

Motor attachment	Coupling models	Manufacturer	Coupling inertia ( $J_c \times 10^{-5} \text{kg} \cdot \text{m}^2$ )
ATB01 and ATB02	MSTS-12C-5 × 5	Nabeya Bi-tech Kaisha	0.022
ATB03	XGS-15C-5 × 5	Nabeya Bi-tech Kaisha	0.020

### 4 Limit Sensor Designation

Symbol	Limit sensor specification
No symbol	No limit sensor (built-in origin sensor is included)
SC	Includes limit sensor (includes upper table)

## Specifications / Accuracy

Table 3 Specification

Operating angle range (1) (degrees)	360
Resolution (2) (s)	1.08
Maximum number of table revolutions (min <sup>-1</sup> )	5
Maximum number of worm axis revolutions (min <sup>-1</sup> )	600
Moment rigidity (s/N · cm)	0.04
Allowable load (3) (N)	50

Note (1) Values shown are for models without a limit sensor. When models with a limit sensor are used, adjustments can be performed to any angle within a range of up to 320 degrees.

(2) The resolution indicates a value when fraction sizes of the motor are 10,000 pulses/rev.

(3) Allowable load refers to the maximum load that can be applied without affecting functions or performance.

Table 4 Accuracy

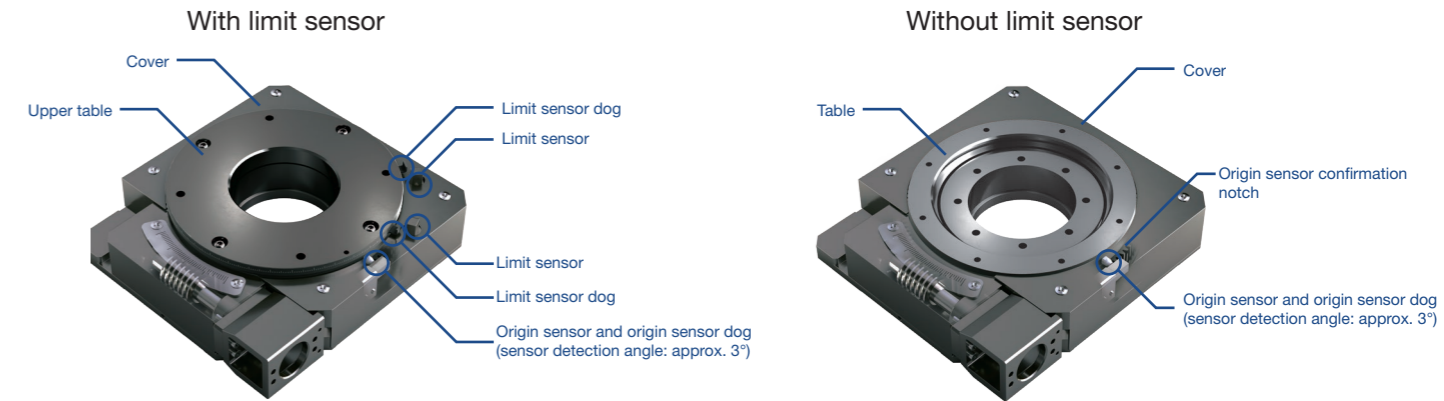
Positioning accuracy (s)	21.6
Positioning repeatability (s)	±7.2
Lost motion (s)	32.4
Backlash (s)	32.4
Parallelism of upper table surface to mounting surface (μm)	20 (40)
Radial runout of table diameter (μm)	5 (15)
Deflection on table upper surface (μm)	5 (25)

Remarks: Values in parentheses are for models with a limit sensor.

## Sensor Specification

The SK···W is fitted with an origin sensor (E2S-W13B 1M produced by Omron Corporation) as standard.

There is no precision regulation of the relative positions of the origin sensor and the table mounting hole, precise adjustment of the return to origin position should be performed by performing offset adjustment through a higher-level controller. For models with a limit sensor, a limit sensor (E2S-W14 1M produced by Omron Corporation) and an upper table are added. The position of the limit sensor dog can be adjusted. The operating range can be set to any position up to 320 degrees.



\* For models with a limit sensor, check the position of the origin sensor dog with the cover removed.

\* The cover cannot be removed after limit sensor dog adjustment. Perform limit sensor dog adjustment after fixing the base of the product to the mounting surface and mounting the cover.

\* The origin sensor position can be checked from the cover notch.

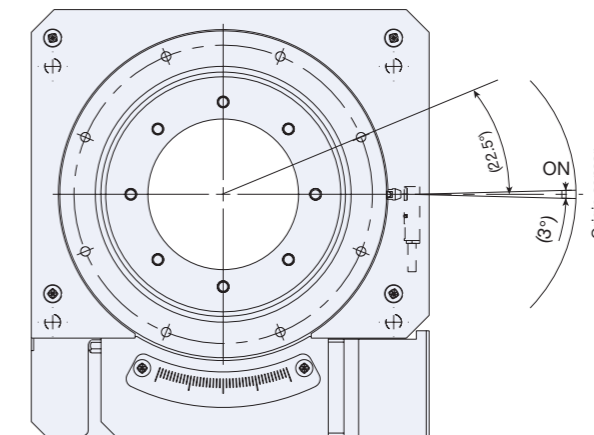


Fig. 1 Origin sensor timing chart

## Mounting

To mount the SK···W, remove the cover and use screws to fix the base to the mounting surface.

The typical tightening torque to be used when fixing the SK···W in place is indicated in Table 5.

When high accuracy is required with no vibration and shock, it is recommended to tighten the screws with a lower torque than that indicated in the table and use an adhesive to prevent screws from loosening.

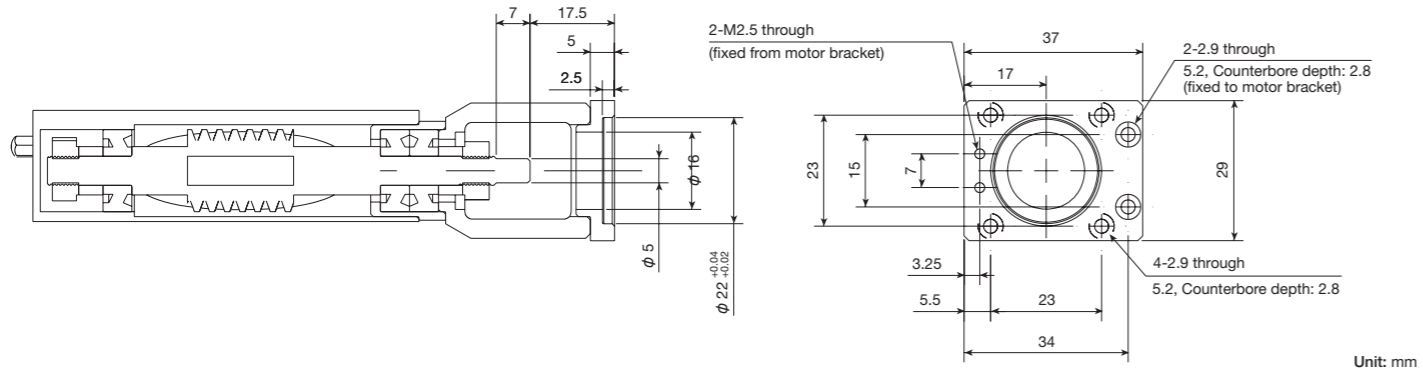
Table 5 Screw tightening torque

unit: N·m

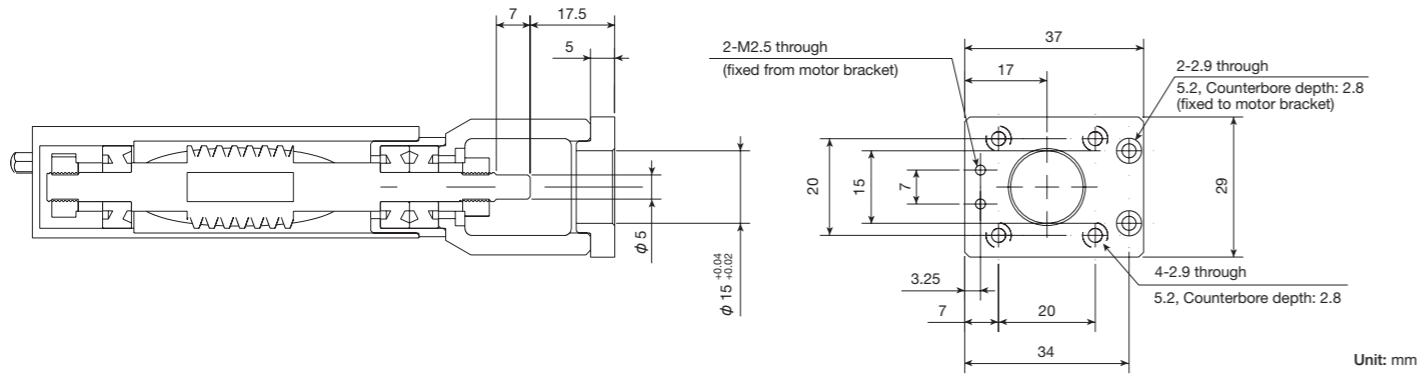
Bolt size	Female thread component	
	Steel	Aluminum alloy
M4 × 0.7	4.0	About 60% of steel value
M5 × 0.8	7.9	About 80% of steel value

## Dimensions of Motor Attachment

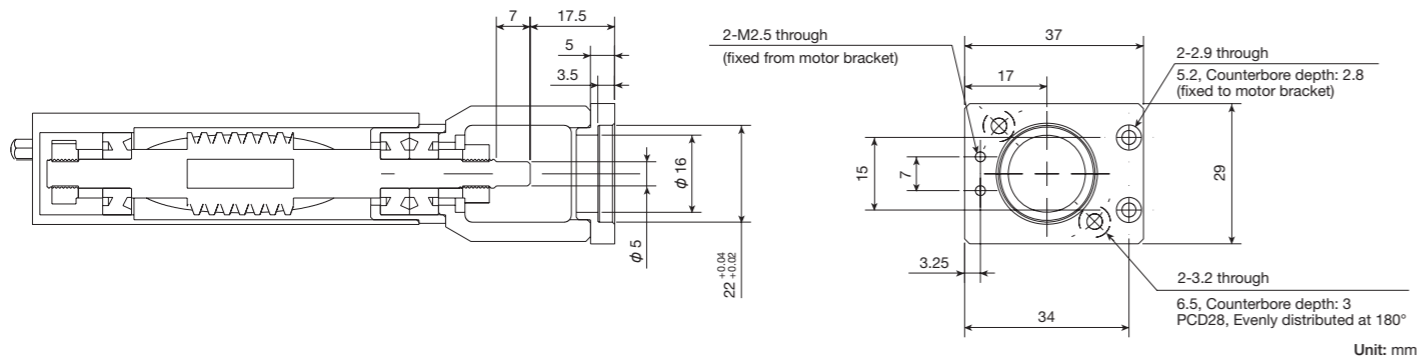
### ATB01



### ATB02



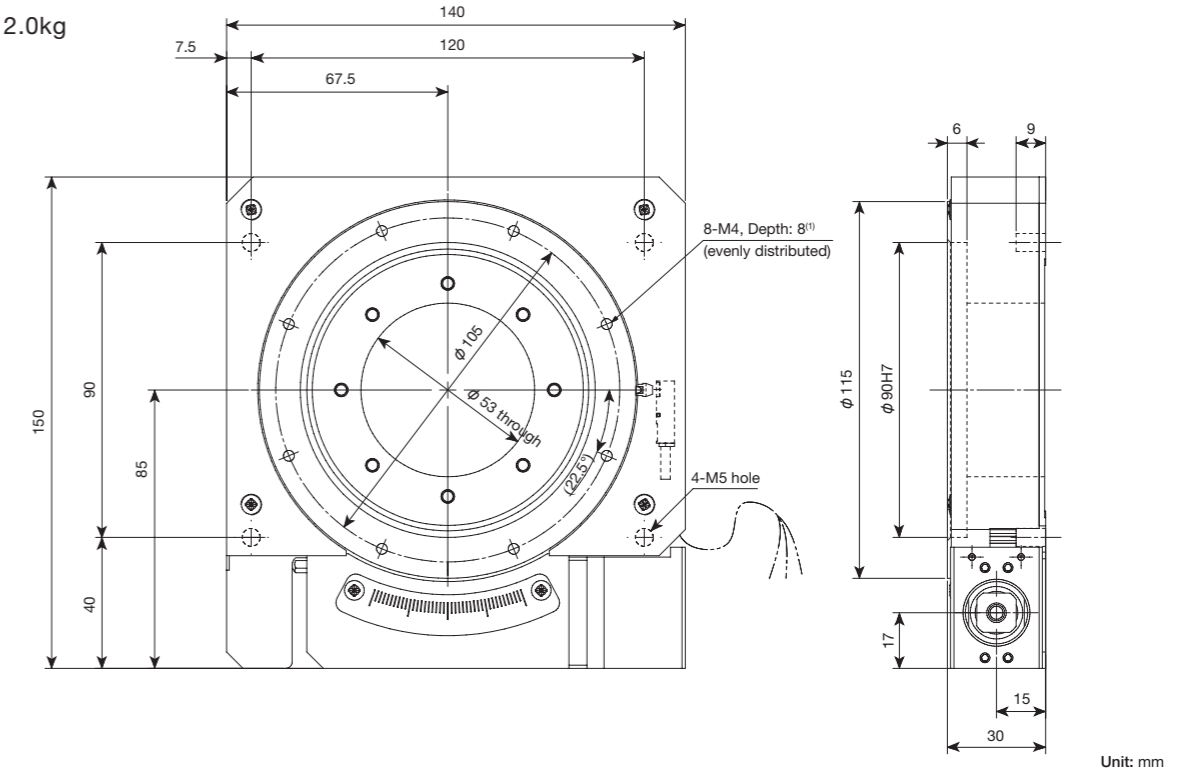
### ATB03



## Product dimensions

### SK120W: Without limit sensor

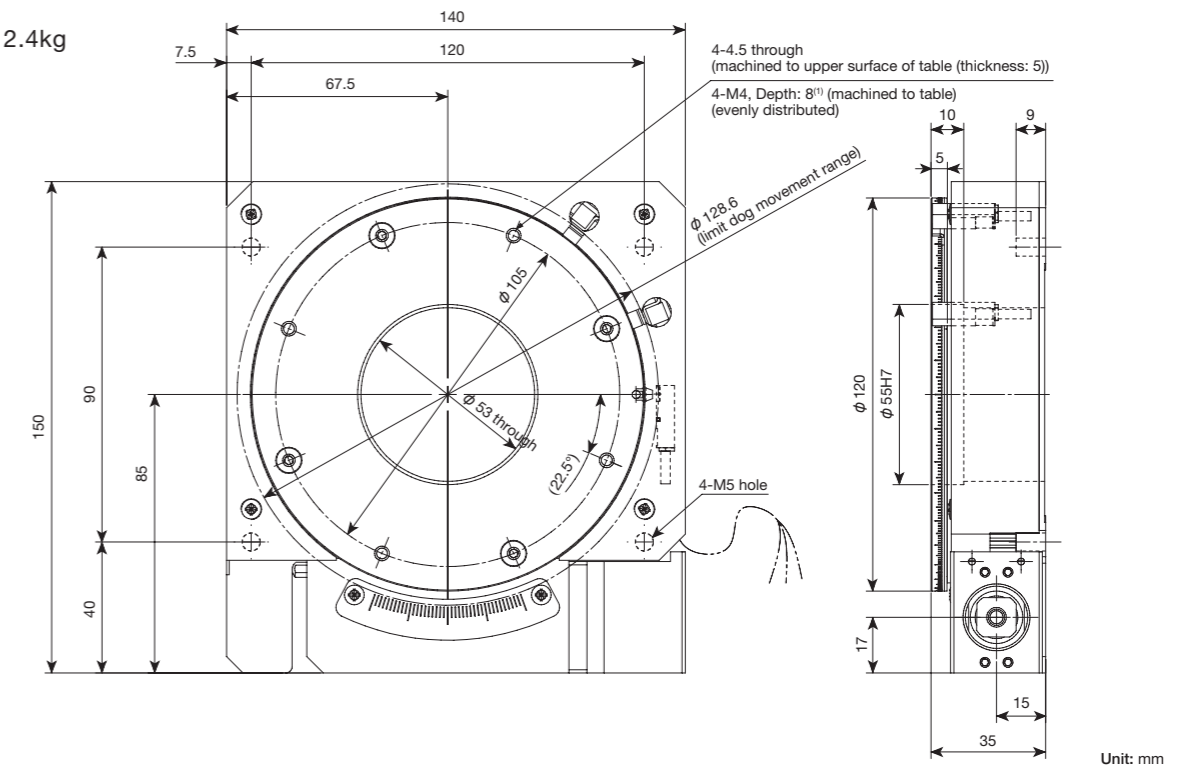
Mass: 2.0kg



Note (1) Inserting mounting screws too deeply may affect the rotation performance of the table. Never insert a screw longer than the depth of the through hole.

### SK120W: With limit sensor/with upper table

Mass: 2.4kg



Note (1) Inserting mounting screws too deeply may affect the rotation performance of the table. Never insert a screw longer than the depth of the through hole.