

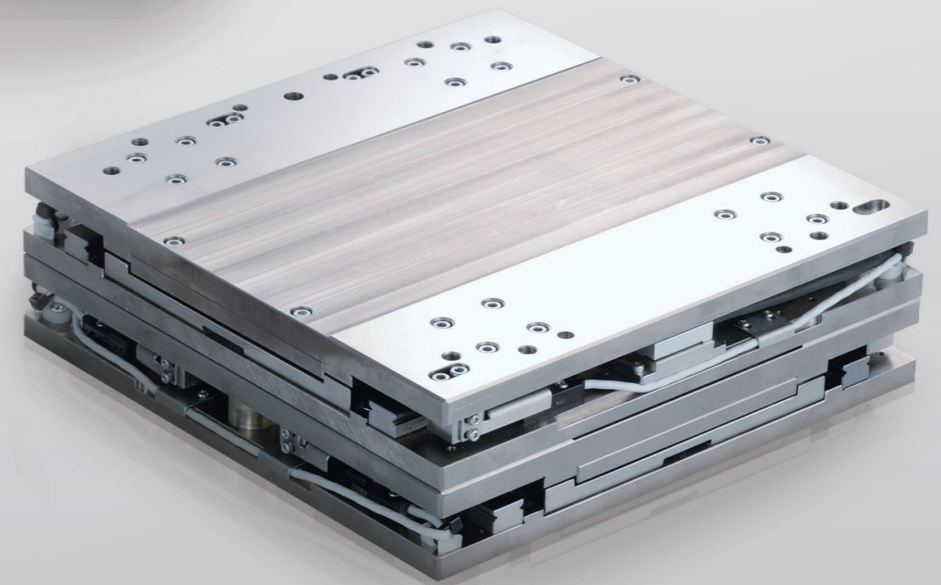
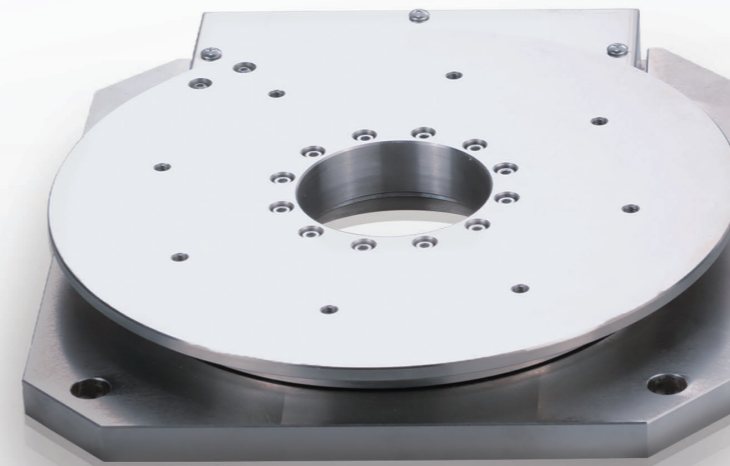
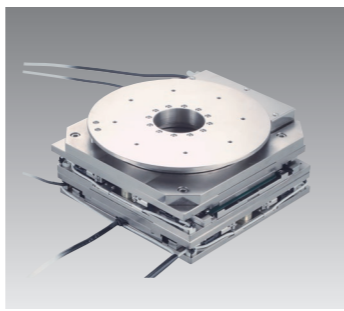
# IKO

New

Alignment Stage

# SA200DE

X-axis added for improved  $\theta$ -axis torque



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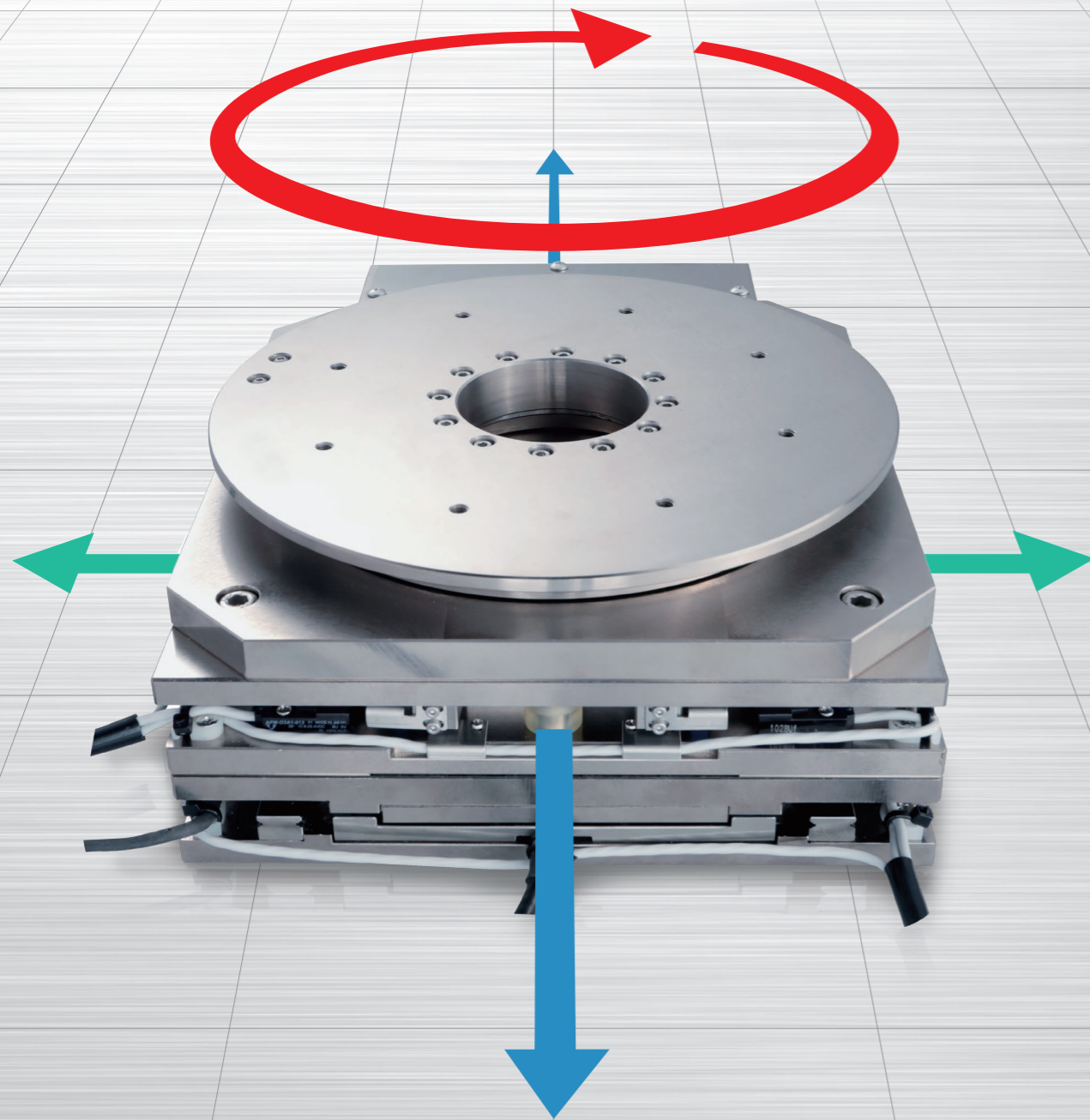
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ISO 9001 & 14001 Quality system registration certificate



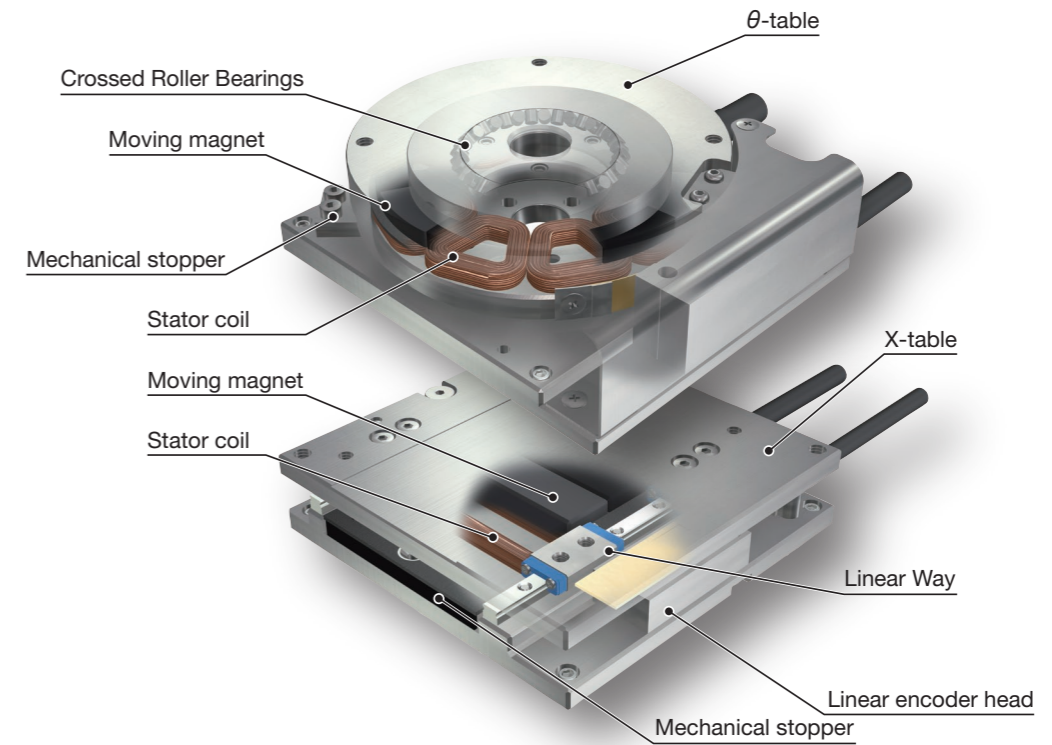
# Updated SA200DE



The SA Series Alignment Stage (200 size) has been updated with a standard-equipped X-axis and higher torque on the  $\theta$ -axis

## Alignment Stage SA Structure

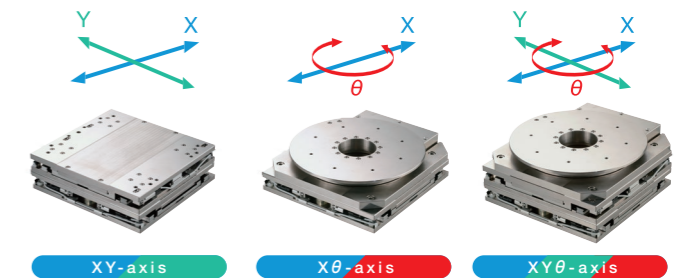
Since this alignment stage uses IKO Miniature Linear Ways in the linear motion guiding parts, IKO Crossed Roller Bearings in the rotation part and direct drive method in the drive section, it has a low profile and compact XY $\theta$  motion.



## SA200DE Features

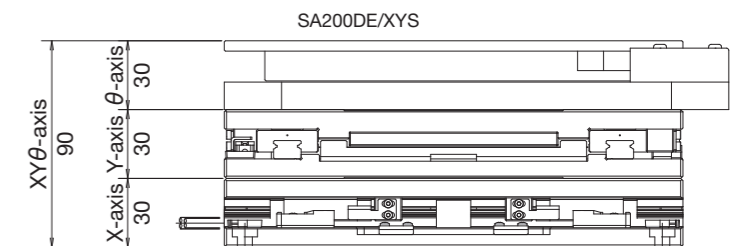
### Easy combination of X, Y, and $\theta$ axes

The SA200DE/X linear positioning X-table is now included as a standard feature. When combined with SA200DE/S for rotational positioning, it is easy to configure an extremely compact alignment stage with three directions of movement (X, Y, and  $\theta$  axes).



### Thin and Compact

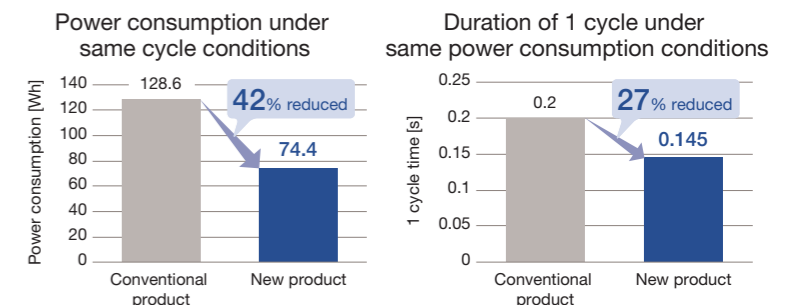
With a coreless linear motor and IKO Linear Way L and IKO Crossed Roller Bearings built in, it has an extremely low cross sectional height as compared with ball screw-driven stages.



### Low Power and High Tact

The design of the  $\theta$ -axis (SA200DE/S) motor has been revised for higher torque. Compared with conventional products, it operates at lower power and with a reduced tact time.

<Operating conditions>  
SA200DE  $\theta$ -axis  
Carrying mass: 10kg  
Operation velocity: 80deg/s



Remarks These results are theoretical values. They may differ from values during actual operation.

## Identification Number

Example

SA	200	DE	/	5	XYS	R	4
1	2	1		3	4	5	6

### 1 Model

Model code
SA···DE: Alignment Stage SA

### 2 Size

Symbol	Table size [mm]
200	□ 200, φ200

### 3 Resolution

Symbol	Resolution value
1	0.1μm
5	0.5μm

Specify the resolution of the encoder for X-axis or XY-axis. When selecting only S: θ-axis in the entry of section ④, set "No symbol" for the resolution.

### 4 Axial configuration

Symbol	Axial configuration
X	Only X-axis
S	Only θ-axis
XY	X and Y-based two-axis configuration
XS	X and θ-based two-axis configuration
XYS	X, Y, and θ-based three-axis configuration

### 5 Surface treatment

Symbol	Surface treatment
No symbol	Electroless nickel plating
R	Black chrome surface treatment

Surface treatment is performed on the surfaces of table and bed.

### 6 Specification number

Symbol	Specification number
4	Specification number 4

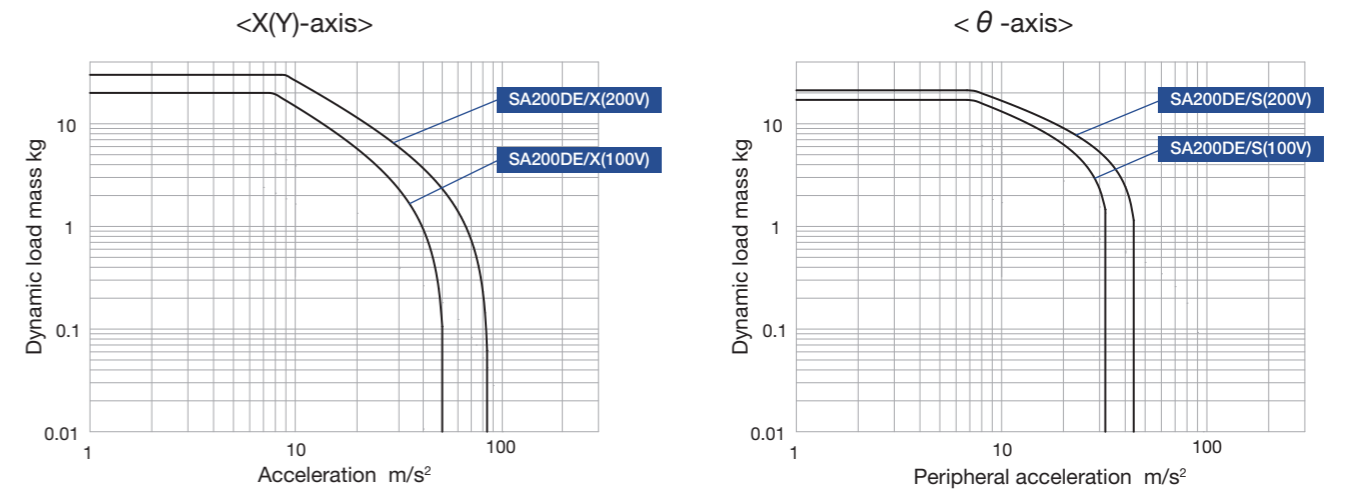
The specification number is limited to 4.

## Specifications and Performance

Model and size	SA200DE/1X	SA200DE/5X	SA200DE/S
Maximum thrust/torque <sup>(1)</sup>	400(250)N <sup>(6)</sup>		8.0(6.0)N·m <sup>(6)</sup>
Rated thrust/torque <sup>(2)</sup>	70N		2.0N·m
Maximum load mass	30.0(20.0)kg <sup>(6)</sup>		21.2(17.1)kg <sup>(6)</sup>
Effective stroke length, operating angle	20mm		280 degree
Resolution	0.1μm	0.5μm	0.25 sec 14400 pulse/deg
Maximum speed <sup>(3)</sup>	270mm/s	800mm/s	270 deg/sec
Positioning repeatability <sup>(4)</sup>	±0.5μm		±0.5 sec
Mass of moving table	3.4kg		-
Inertia moment of moving table	-		0.013kg·m <sup>2</sup>
Total mass <sup>(5)</sup>	7.2kg		6.0kg
Ambient temperature and humidity in operation	0~40°C, 20~80%RH (keep condensation free)		

Notes (1) The duration of maximum thrust/torque is up to 1 second.  
 (2) This is based on the case of mounting on a metal mating member material at an ambient temperature of 20°C.  
 (3) For the case of exceeding the displayed speed, please contact IKO.  
 (4) When the temperature of the product is constant.  
 (5) Mass of the cord is not included.  
 (6) Numbers in parentheses indicate values when used with an ADVA-R5ML driver.

### Dynamic load mass



Remark: Dynamic load mass of θ-axis is a value calculated as cube of steel. Acceleration is converted as value of stage periphery.

## Mounting

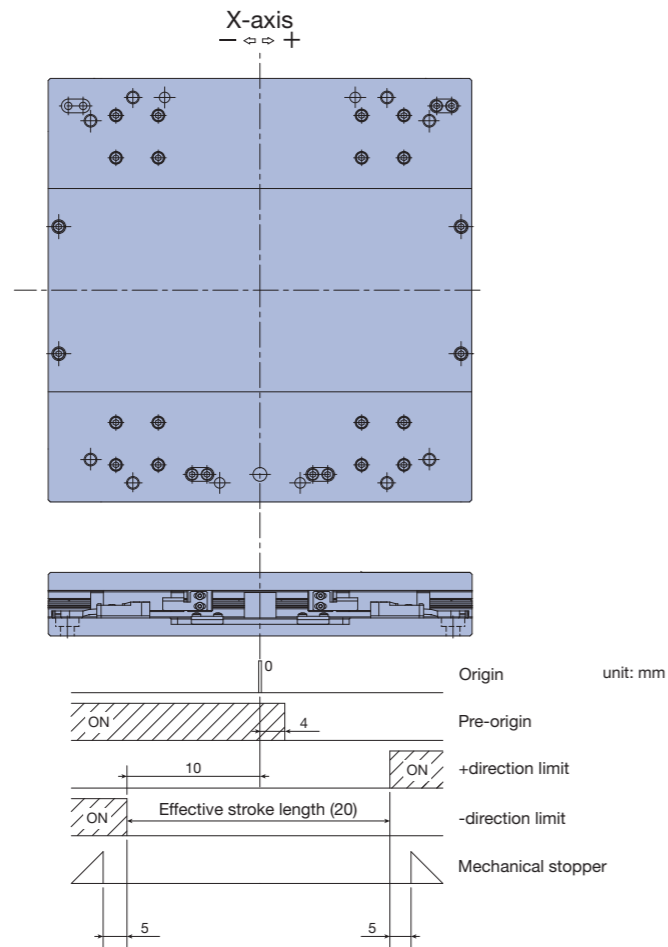
The typical tightening torque to be used when fixing SA200DE in place is indicated in the following table. When high accuracy is required with no vibration and shock, it is recommended to tighten the screws with a lower torque than that indicated in the table and use an adhesive to prevent screws from loosening.

Bolt size	Female thread component		
	Steel	Aluminum alloy	
		Screw insert	
M6 × 1	13.3	About 60% of steel value	
M5 × 0.8	7.9	About 80% of steel value	

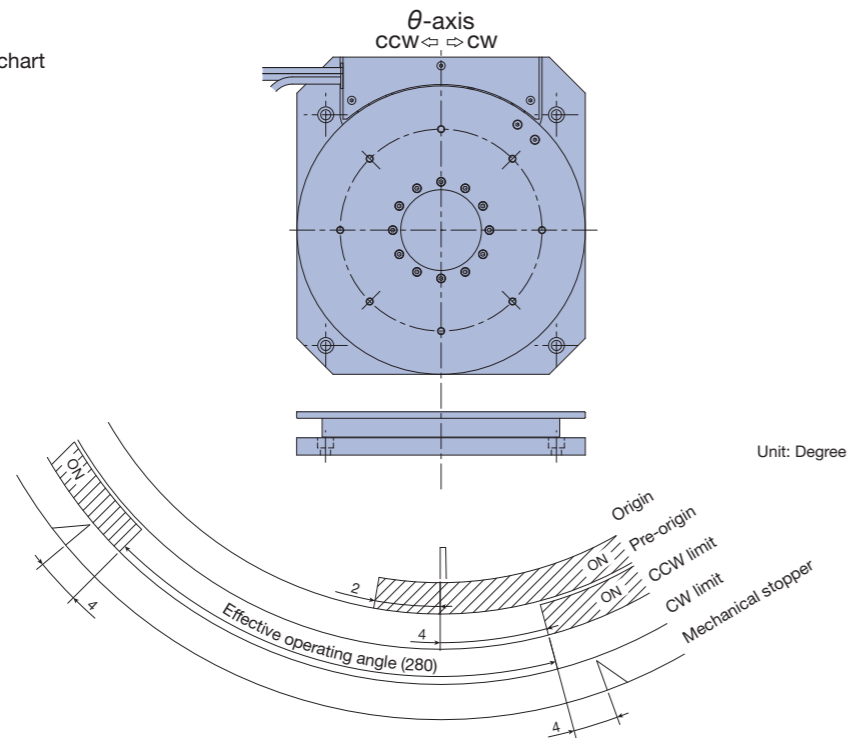
unit: N·m

## Sensor Specifications

SA200DE  
X-axis sensor timing chart



SA200DE  
 $\theta$ -axis sensor timing chart



Remarks: 1. Respective values are for reference and are not guaranteed values. For detailed dimensions, please contact IKO.  
2. For detailed specifications of respective sensors, please see the sensor specifications section in IKO Mechatronics Series General Catalog.

## System Configuration

Two series of dedicated drivers, ADVA and MR-J4, are available for the Alignment Stage SA, and the system configuration varies depending on the driver used. For ADVA, two types of specification, pulse train specification and high speed network EtherCAT specification, are available. For MR-J4, only high speed network SSCNET III/H specification is available. The following table shows an example of an ADVA identification number, as well as the identification numbers of tables and applicable MR-J4. For detailed driver specifications, please see the driver specification section in IKO Mechatronics Series General Catalog.

Identification number of ADVA

**ADVA - 01NL EC / SA200DE-S2**  
(1) Model (2) Power supply voltage (3) Command type (4) Applicable alignment stage model

(2) Power supply voltage	
01NL	Single-phase / three-phase 200V
R5ML	Single-phase 100V

(3) Command type	
No symbol	Pulse train command
EC	EtherCAT

(4) Applicable alignment stage model	
SA200DE-X	SA200DE/X
SA200DE-S2	SA200DE/S

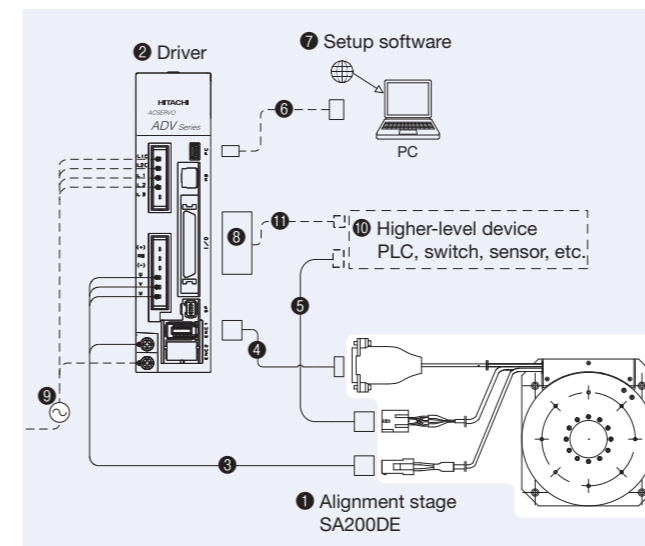
Identification numbers of SA200DE and applicable MR-J4

Identification number of table	Identification number of driver
SA200DE/X	MR-J4-10B-RJ/SA200DE-X
SA200DE/S	MR-J4-10B-RJ/SA200DE-S2

### Setup Software

To operate Alignment Stage SA, an initial setting of driver parameters is required. Driver parameter setting is performed using the setup software. It can also be used for gain adjustment and operational status check. The setup software and PC connection cable are not provided with the driver. These can be shared with other drivers but at least one set is required. Please obtain these on your own or place an order separately according to your requirement.

System configuration for SA200DE with driver ADVA



No.	Name	Identification number
3	Motor extension cord (3m) <sup>(1)</sup>	TAE20V3-AM03
4	Encoder extension cord (2m) <sup>(1)</sup>	TAE20V4-EC02
5	Sensor extension cord <sup>(2)</sup>	TAE10V8-LC□□
6	PC connection cable	USB mini B cable This must be prepared by the customer.
7	Setup software	ProDriveNext Please download from the official website of Hitachi Industrial Equipment Systems Co., Ltd.
8	I/O connector	TAE20R5-CN <sup>(3)</sup>
9	Power cord	This must be prepared by the customer.
10	Higher-level device	
11	I/O connector connection cable	

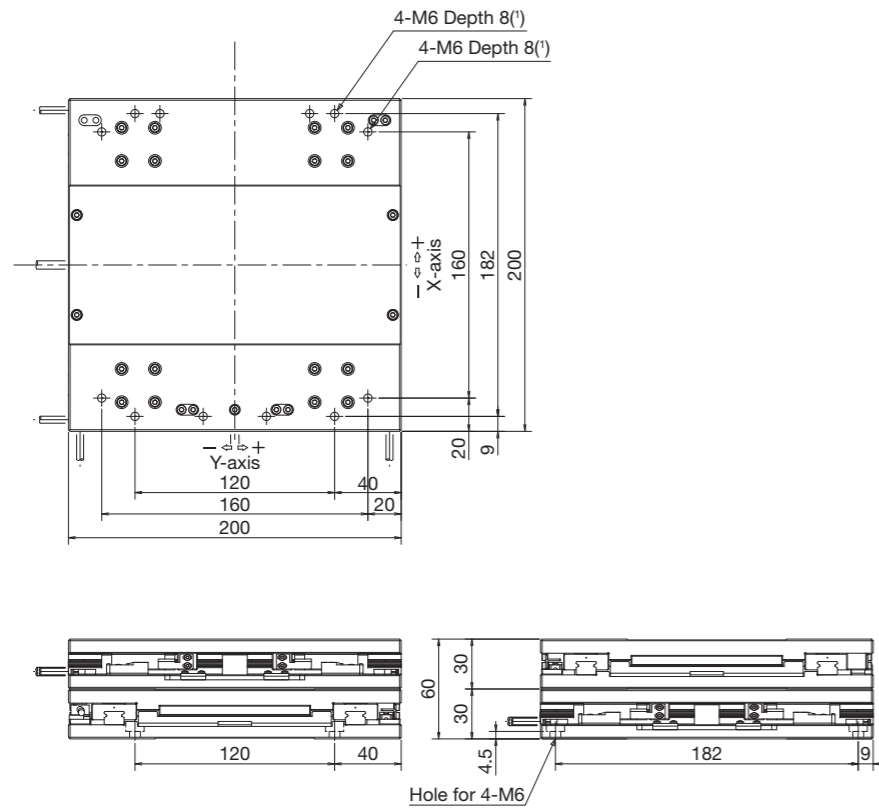
Note <sup>(1)</sup> For specific cord length, please contact IKO.  
<sup>(2)</sup> The length of the sensor extension cord are specified in the □□ located at the end of the identification number for length of 3 to 10m in units of 1m.  
<sup>(3)</sup> I/O connector TAE20R5-CN is a combined product of 10150-3000PE (connector) and 10350-52F0-008 (cover) from 3M Japan Limited.



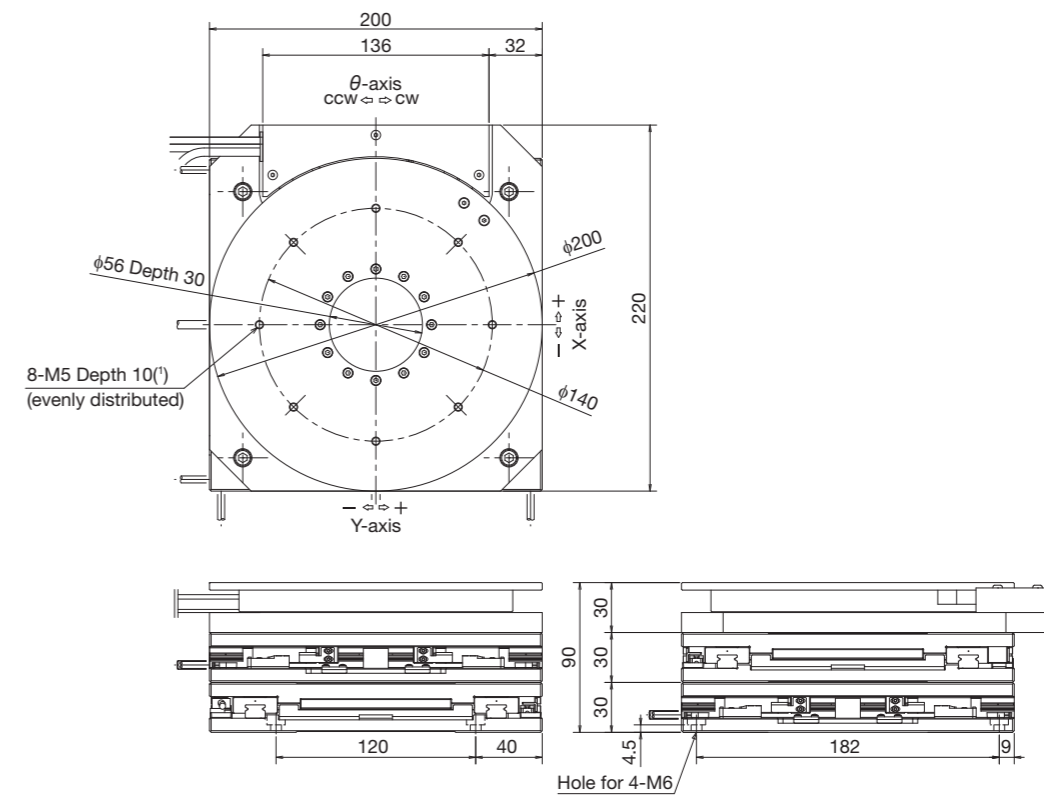


# Product Dimensions

## SA200DE/XY



## SA200DE/XYS



## SA200DE/XS

