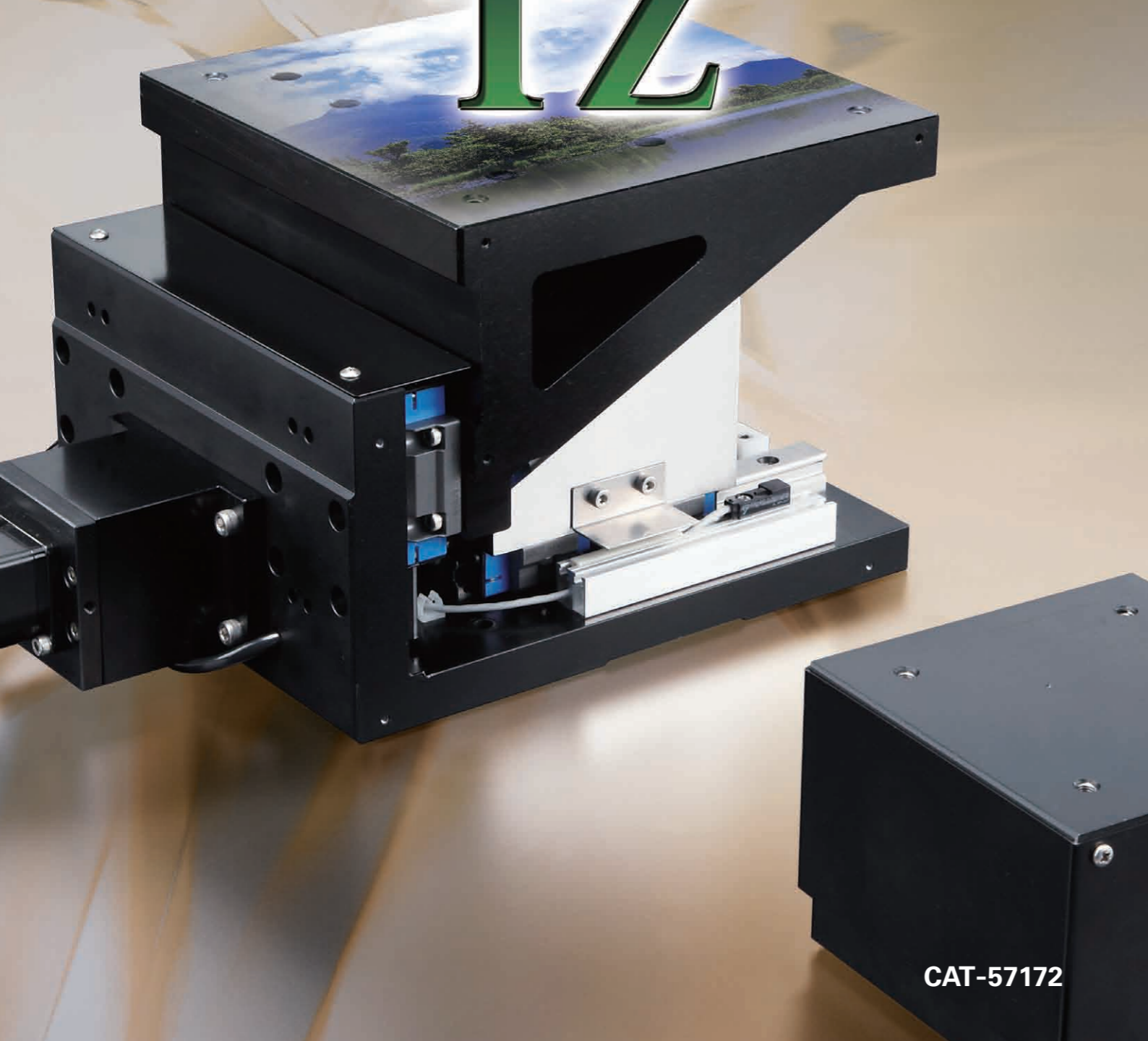


U.S. PATENTED

IKO

Precision Elevating Table

TZ



CAT-57172

IKO Clean Lubrication
C-Lube 
Friendly to Maintenance
Gentle to the Earth

Compact Precision Elevating Table

High-Precision High-Rigidity Type Newly Released

- Table dimensions: 120mm-square and 200mm-square series
- Compact size due to unique wedge mechanism
- Series of two wedge reduction ratios can be selected according to the application.

X-series

*High-precision and high-rigidity type
incorporating a linear motion rolling guides of roller type*

NEW TZ200X

H-series

High cost performance standard type

NEW TZ200H

TZ120

IKO Precision Elevating Table **TZ**

IKO Clean Lubrication

C-Lube
Friendly to Maintenance
Gentle to the Earth

※ The above TZ200X is without outer and inner covers and the TZ200H is without the outer cover to show the internal structure of the table.

IKO Precision Elevating Table

TZ

IKO Precision Elevating Table TZ is a compact elevating table that performs high precision positioning in the up and down directions by using the unique wedge mechanism.

The lineup of IKO Precision Elevating Table is TZ120 (120mm-square table) and TZ200 (200mm-square table). Each series has two kinds of wedge reduction ratios so that the customer can be selected according to the application.

Particularly, the TZ200 series contains a high-precision high-rigidity type "TZ200X" adopting a linear motion rolling guides of roller type (C-Lube Linear Roller Way Super MX). The TZ200 can be equipped with an optional linear encoder. This series is fit for works which require higher positioning performance.

Precision Elevating Table TZ is optimally applicable to semiconductor and liquid crystal manufacturing equipment and optical equipment which require an elevating positioning mechanism.



TZ 200X

Features of High-Precision High-Rigidity Type TZ200X NEW

High precision and high rigidity

Arranges two linear motion rolling guides of roller type (C-Lube Linear Roller Way Super MX) parallel as the guides of the wedge mechanism to accomplish high-precision positioning and a higher rigidity.

High positioning accuracy

Accomplishes higher positioning accuracy due to full-closed loop control by a linear encoder.

Maintenance free

Maintenance-free for 5 years or 20,000 km by using C-lube lubricating system for the linear motion rolling guides and the ball screw

Series of two reduction ratios

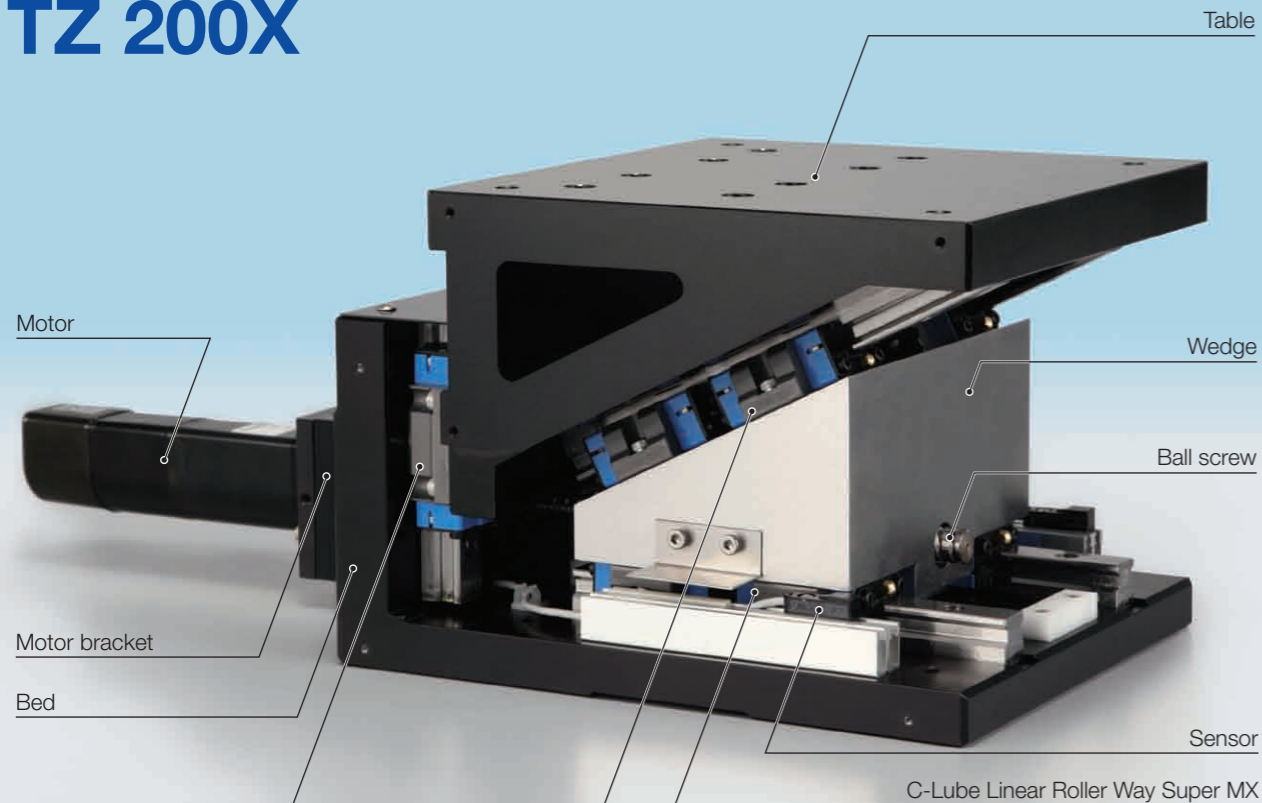
Two types with a wedge reduction ratio 1:2 and 1:4 are available as new series. A suitable stroke length and resolution for each application can be selected. Further, this enables positioning in the up and down direction of up to 24mm of stroke.

Equipped with a sensor in the standard specification

In the standard specification, a limit sensor, origin sensor, and pre-origin sensor are equipped. These sensors are incorporated in the main body in compact form. This facilitates mounting in the machines and equipment.

Structure of Precision Elevating Table TZ

TZ 200X

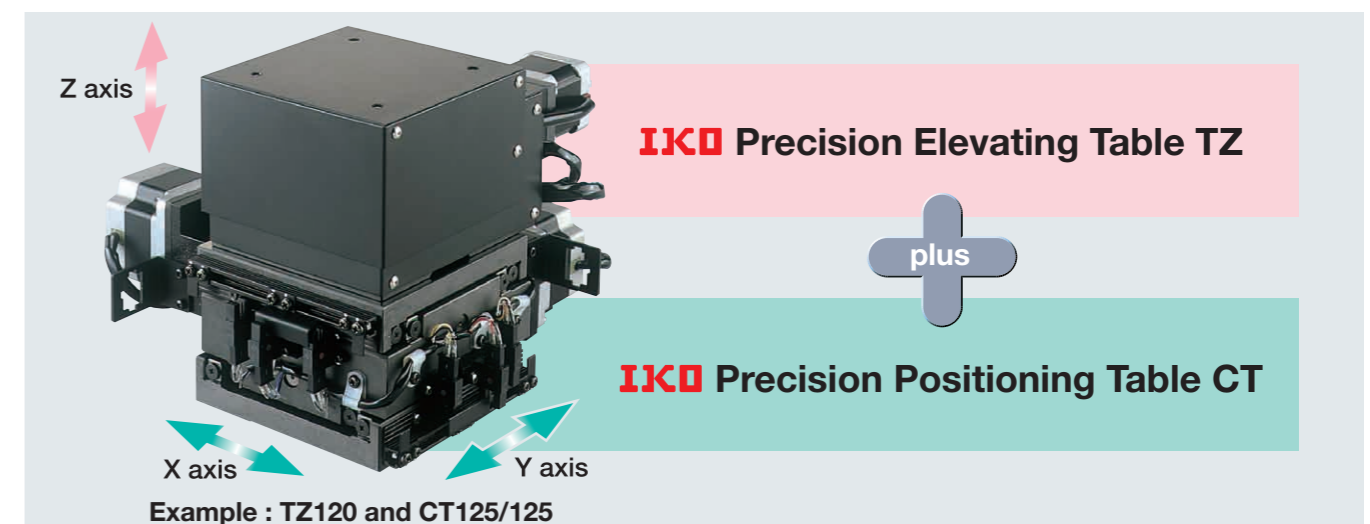


※Excluding the cover to show the internal structure

Variations of Precision Elevating Table TZ

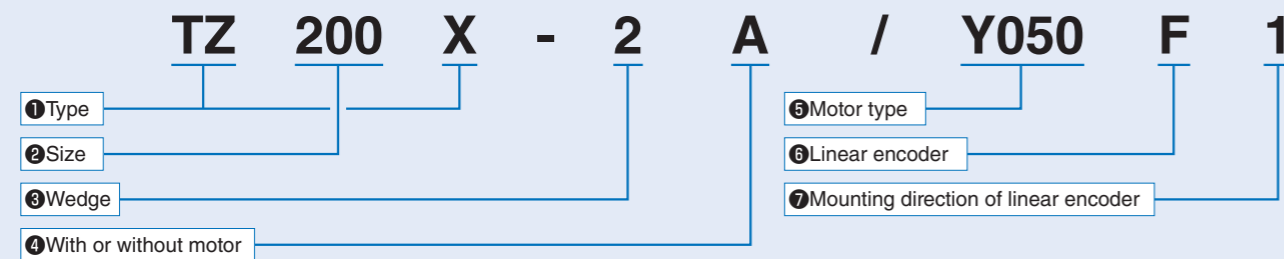
Name	Table size	Guide type	Wedge reduction ratio	Model number
Precision Elevating Table TZ	120mm × 120mm	Ball type	1 : 2	TZ120-2
			1 : 4	TZ120-4
	200mm × 200mm	Ball type	1 : 2	TZ200H-2 NEW
			1 : 4	TZ200H-4 NEW
		Roller type	1 : 2	TZ200X-2 NEW
			1 : 4	TZ200X-4 NEW

Structural example of an XYZ-axis positioning equipment using Precision Elevating Table



Identification Number

Example of identification number



1 Type	TZ : Precision Elevating Table (applicable to Size 120) TZ...H : Precision Elevating Table (applicable to Size 200) TZ...X : Precision Elevating Table, high precision and high rigidity type (applicable to Size 200)
2 Size	120 : Table width □120mm 200 : Table width □200mm
3 Wedge	2 : Wedge reduction ratio 1 : 2 4 : Wedge reduction ratio 1 : 4 <small>This ratio indicates the reduction ratio of vertical travel amount to the ball screw feed amount.</small>
4 With or without motor	No symbol : Without motor A : With motor <small>When the motor is prepared on the customer side, specify "without motor" (no symbol).</small>
5 Motor type	Specify a motor shown in Table 1. <small>If "without motor" (no symbol) is specified in "4 With or without motor," the motor attachment and coupling for each motor will be mounted.</small>
6 With or without linear encode	No symbol : Without linear encoder F : With linear encoder (applicable to Size 200) <small>Note(1) See Table 1 for applicable product types and motors.</small>
7 Mounting direction of linear encoder	No symbol : (on the right as viewed from the side opposite the motor) 1 : (on the left as viewed from the side opposite the motor) <small>Applicable to TZ...H and TZ...X</small>

Table 1 Motor types

Model	Motor types	With or without brake	Motor code	Model number	Remark		
TZ120	AC servo motor	Without brake	Y027	SGMAH-A5AAA21-E	Yaskawa Electric Corporation		
			P001	MSMA5AZA1A	Panasonic Corporation		
			J001	HC-KFS053	Mitsubishi Electric Corporation		
		With brake	Y032	SGMAH-A5AAA2C-E	Yaskawa Electric Corporation		
			P006	MSMA5AZA1B	Panasonic Corporation		
			J006	HC-KFS053B	Mitsubishi Electric Corporation		
Stepping motor	Without brake	V017	PK545BW	Oriental Motor Co., Ltd.			
	With brake	V006	PK545AWM				
TZ200H TZ200X	AC servo motor	Without brake	Y028	SGMAH-01AAA21-E	Yaskawa Electric Corporation		
			P002	MSMA012A1A	Panasonic Corporation		
			J002	HC-KFS13	Mitsubishi Electric Corporation		
			Y048(1)	SGMJV-01A3A21	Yaskawa Electric Corporation		
			P012(1)	MSMD012S1A	Panasonic Corporation		
			J012(1)	HF-KP13	Mitsubishi Electric Corporation		
			Y033	SGMAH-01AAA2C-E	Yaskawa Electric Corporation		
		With brake	P007	MSMA012A1B	Panasonic Corporation		
			J007	HC-KFS13B	Mitsubishi Electric Corporation		
			Y050(1)	SGMJV-01A3A2C	Yaskawa Electric Corporation		
			P017(1)	MSMD012S1B	Panasonic Corporation		
			J017(1)	HF-KP13B	Mitsubishi Electric Corporation		
			Stepping motor	Without brake	V018	PK564BE	Oriental Motor Co., Ltd.
				With brake	V008	PK564AEM	

Note(1) Applicable to a product with linear encoder

Remark: For more information of motors, see "Specifications of motor and driver" on Page 12 - Page 15.

Characteristics

Table 2 Characteristics

Model and Size	Wedge reduction ratio	Ball screw type	Ball screw lead mm	Resolution (1) μm/pulse	Stroke length mm	Allowable load mass(2) N
TZ120-2	1 : 2	Ground	4	2	10	200
TZ120-4	1 : 4			1	5	
TZ200H-2	1 : 2		5	2.5 (0.1)	24	400
TZ200H-4	1 : 4				1.25 (0.1)	
TZ200X-2	1 : 2			2.5 (0.1)	24	
TZ200X-4	1 : 4				1.25 (0.1)	

Note(1) The resolution indicates a value when the number of motor divisions is 1000 pulses/rev.

(2) The allowable load indicates the maximum load with which the table can be operated without causing any functional or performance trouble. The load that can guarantee the accuracy is about 1/2 of this value.

Remark: The value in parentheses indicates the resolution in the Full Closed Loop Control mode.

Table 3 Accuracies

Model and Size	Wedge reduction ratio	Positioning accuracy(1)	Repeatability	Lost motion	Parallelism in table elevating	Straightness in vertical Straightness in horizontal	
TZ120-2	1 : 2	-	±0.001	-	-	-	
TZ120-4	1 : 4						
TZ200H-2	1 : 2	(0.005)	±0.001	-	-	-	
TZ200H-4	1 : 4						
TZ200X-2	1 : 2		(0.005)	±0.001	0.001	0.010	0.010
TZ200X-4	1 : 4						

Note(1) The value in parentheses indicates the resolution in the Full Closed Loop Control mode.

Table 4 Maximum speeds

Model and Size	Wedge reduction ratio	Ball screw lead mm	Maximum speed mm/s	
			AC servo motor	Stepping motor
TZ120-2	1 : 2	4	100	60
TZ120-4	1 : 4		50	30
TZ200H-2	1 : 2	5	125	75
TZ200H-4	1 : 4		62.5	37.5
TZ200X-2	1 : 2		125	75
TZ200X-4	1 : 4		62.5	37.5

Table 5 Table inertias and starting torques

Model and Size	Wedge reduction ratio	Table inertia J_T ×10 ⁻⁵ kg·m ²	Starting torque T_0 N·m
TZ120-2	1 : 2	0.076	0.03
TZ120-4	1 : 4	0.061	0.02
TZ200H-2	1 : 2	0.581	0.07
TZ200H-4	1 : 4	0.473	0.06
TZ200X-2	1 : 2	0.581	0.07
TZ200X-4	1 : 4	0.473	0.06

Sensor Specifications

Table 6 Specifications of sensors

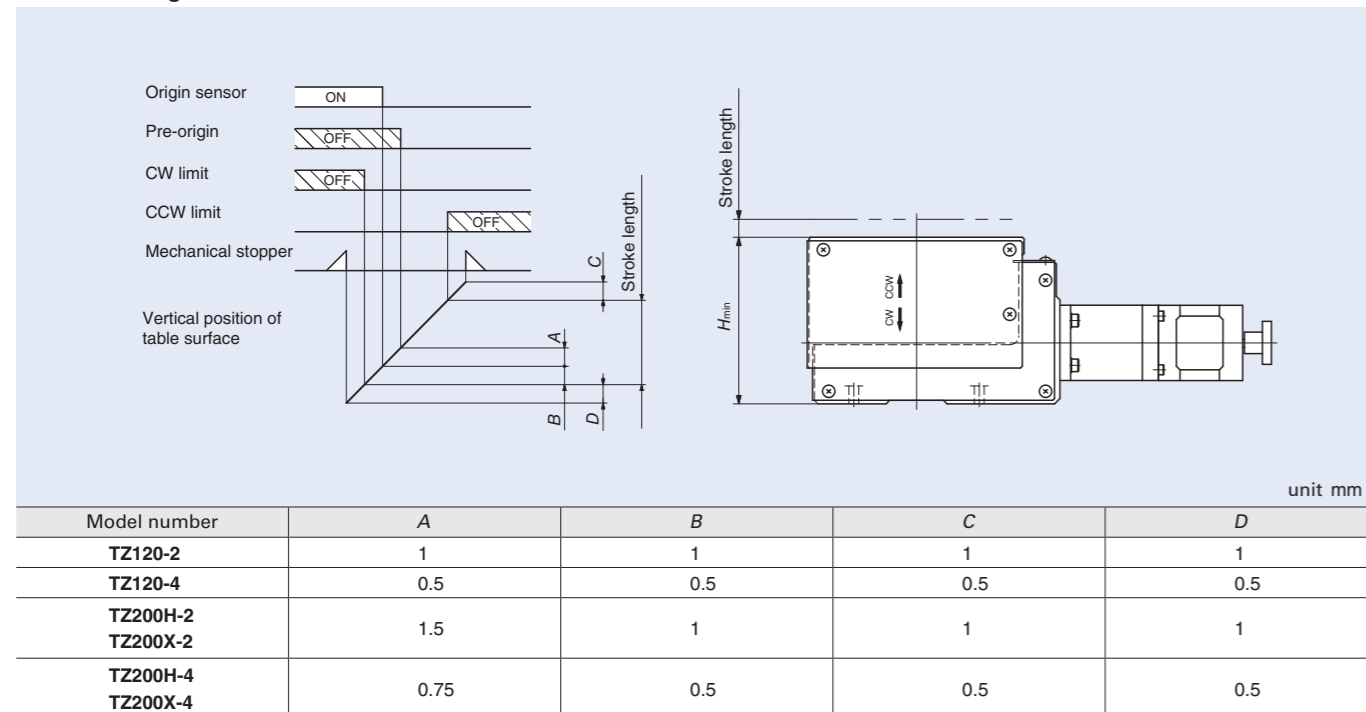
sensor Item	Limit, pre-origin sensors	Origin sensor
Type	Proximity sensor	
Power supply voltage	DC12~24V ±10%	
Current consumption	10mA or less	
Output	Open corrector · Maximum current : 100mA · Applied voltage : DC30V or less · Residual voltage : 1.0V or less at 100mA in-flow current 0.4V or less at 16mA	
Output operation	When approaching : OFF	When approaching : ON
Operation indicator	LED(orange) (OFF at detection)	LED(orange) (ON at detection)
Circuit diagram		

Table 7 Specifications of sensor connectors

Pin No.	Signal name	Sensor-side connector type	Opposite-side connector type ⁽¹⁾
1	Origin sensor	Cap housing 172160-1	Plug housing 172168-1
2	Pre-origin		
3	CW limit		
4	CCW limit	Contactor 170365-1	Contactor 170363-1
5	Power input		
6	GND		

Note⁽¹⁾ Prepare the opposite-side connector on the customer side.
 Remarks: 1. The connector is a product manufactured by Tyco Electronics AMP K.K.
 2. When the AC servo motor is used, wiring for the origin signal is not available. Use the encoder origin signal output from the driver.

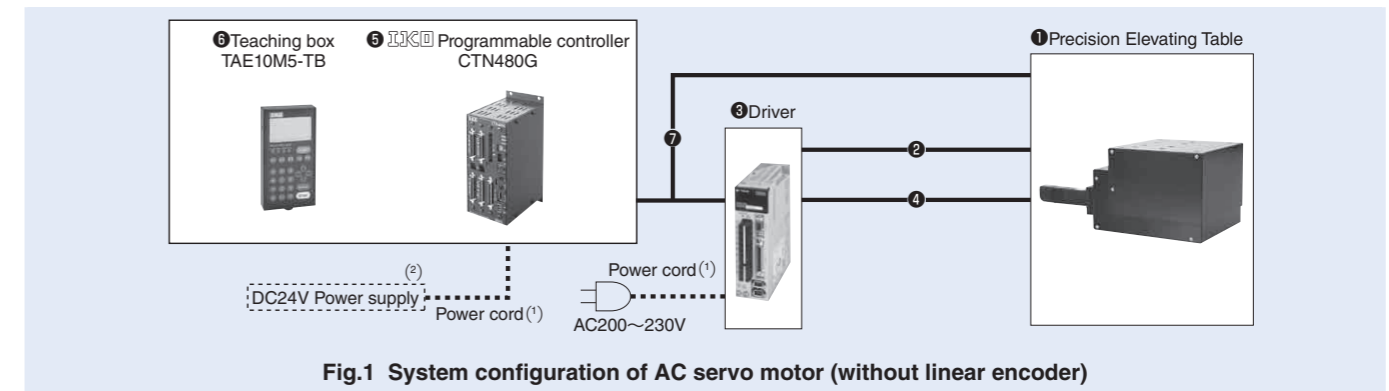
Table 8 Timing chart of sensors



System configuration

Electric devices optimum to Precision Elevating Tables are provided according to the specification of motor types and linear encoders. Models of these devices are shown below. For ordering, specify the models as shown below.

AC servo motor (without linear encoder)



Note⁽¹⁾ Power cord is prepared by customer.
⁽²⁾ DC24V power supply is prepared by customer.

Table 9 Electric devices when using a motor (Yaskawa Electric Corporation)

Items	Model code		
Precision Elevating Table	TZ120	TZ200H, TZ200X	
Motor without brake	Y027	Y028	Y048
Motor cord	TAE20G2-AM□□ (TAE20G1-AM□□)	TAE20G2-AM□□ (TAE20G1-AM□□)	JZSP-CSM01-□□-E (JZSP-CSM21-□□-E)
Motor with brake ⁽¹⁾	Y032	Y033	Y050
Motor cord	TAE20G4-AMB□□ (TAE20G3-AMB□□)	TAE20G4-AMB□□ (TAE20G3-AMB□□)	JZSP-CSM11-□□-E (JZSP-CSM31-□□-E)
Driver	SGDH-A5AE-E	SGDH-01AE-E	SGDV-R90A01A
Encoder cord	TAE20G6-EC□□ (TAE20G5-EC□□)	TAE20G6-EC□□ (TAE20G5-EC□□)	JZSP-CSP01-□□-E (JZSP-CSP21-□□-E)

Note⁽¹⁾ For "with brake model", power supply for brake release is needed.
 Remarks: 1. Cord in () have high bending resistance.
 2. The length of motor and encoder cord can be specified by □□ in the end of supplemental code. Selecting length is 3m, 5m, 10m, 15m, and 20m.
 ※The length under 10m is also selected by two digits. (Example of 3m: TAE20G2-AM03)

Table 10 Electric devices when using a motor (Yaskawa Electric Corporation) and Programmable controller CTN480G

Items	Model code
Motor code	Y027, Y028, Y032, Y033, Y048, Y050
Programmable controller	CTN480G
Teaching box	TAE10M5-TB
Pulse limit cord	TAE10M7-LD□□ (TAE10M8-LD□□)

Remarks: 1. Cord in () have high bending resistance.
 2. The length of pulse and limit cord can be specified by □□ in the end of supplemental code. Selecting length is up to 20m in increments of 1m.
 ※The length under 10m is also selected by two digits. (Example of 3m: TAE10M7-LD03)
 3. The length of pulse and limit cord is 1.5m.

System configuration

Table 11 Electric devices when using a motor (Panasonic Corporation)

Items		Model code		
① Precision Elevating Table		TZ120	TZ200H, TZ200X	
Motor without brake	Motor code	P001	P002	P012
	② Motor cord	TAE20G8-AM□□ (TAE20G7-AM□□)	TAE20G8-AM□□ (TAE20G7-AM□□)	MFMC A0□□0EED
Motor with brake ⁽¹⁾	Motor code	P006	P007	P017
	② Motor cord	TAE20H0-AMB□□ (TAE20G9-AMB□□)	TAE20H0-AMB□□ (TAE20G9-AMB□□)	MFMC A0□□0EED
	Brake cord ⁽²⁾	—	—	MFMC B0□□0GET
③ Driver		MSDA5A5A1A	MSDA015A1A	MADDT1205
④ Encoder cord		TAE20H2-EC□□ (TAE20H1-EC□□)	TAE20H2-EC□□ (TAE20H1-EC□□)	MFEC A0□□0EAD

Note⁽¹⁾ For "with brake model", power supply for brake release is needed.

⁽²⁾ Additionally, a brake cord is needed.

Remarks: 1. Cord in () have high bending resistance.

2. The length of motor, brake and encoder cord can be specified by □□ in the end of supplemental code. Selecting length is 3m, 5m, 10m and 20m.

※The length under 10m is also selected by two digits. (Example of 3m: TAE20G8-AM03)

Table 12 Electric devices when using a motor (Panasonic Corporation) and Programmable controller CTN480G

Items	Model code	
Motor code	P001, P002, P006, P007	P012, P017
⑤ Programmable controller	CTN480G	
⑥ Teaching box	TAE10M5-TB	
⑦ Pulse limit cord	TAE10M9-LD□□	TAE10V2-LD□□
	(TAE10P0-LD□□)	(TAE10V3-LD□□)

Remarks: 1. Cord in () have high bending resistance.

2. The length of pulse and limit cord can be specified by □□ in the end of supplemental code. Selecting length is up to 20m in increments of 1m.

※The length under 10m is also selected by two digits. (Example of 3m: TAE20G8-AM03)

3. The length of pulse and limit cord is 1.5m.

Table 13 Electric devices when using a motor (Mitsubishi Electric Corporation)

Items		Model code		
① Precision Elevating Table		TZ120	TZ200H, TZ200X	
Motor without brake	Motor code	J001	J002	J012
	② Motor cord	TAE20H4-AM□□ (TAE20H3-AM□□)	TAE20H4-AM□□ (TAE20H3-AM□□)	MR-PWS1CBL□M-A1-L (MR-PWS1CBL□M-A1-H)
Motor with brake ⁽¹⁾	Motor code	J006	J007	J017
	② Motor cord	TAE20H6-AMB□□ (TAE20H5-AMB□□)	TAE20H6-AMB□□ (TAE20H5-AMB□□)	MR-PWS1CBL□M-A1-L (MR-PWS1CBL□M-A1-H)
	Brake cord ⁽²⁾	—	—	MR-BKS1CBL□M-A1-L (MR-BKS1CBL□M-A1-H)
③ Driver		MR-J2S-10A	MR-J2S-10A	MR-J3-10A
④ Encoder cord		TAE20H8-EC□□ (TAE20H7-EC□□)	TAE20H8-EC□□ (TAE20H7-EC□□)	MR-J3ENCBL□M-A1-L (MR-J3ENCBL□M-A1-H)

Note⁽¹⁾ For "with brake model", power supply for brake release is needed.

⁽²⁾ Additionally, a brake cord is needed.

Remarks: 1. Cord in () have high bending resistance.

2. The length of motor, brake and encoder cord can be specified by □□ or □ in the end of supplemental code. Selecting length is 2m, 5m, and 10m.

※For □□, the length under 10m is also selected by two digits. (Example of 2m: TAE20H4-AM02)

※For □, the length under 10m is selected by one digit and the length 10m is selected by two digits. (Example of 2m: MR-PWS1CBL2M-A1-L)

Table 14 Electric devices when using a motor (Mitsubishi Electric Corporation) and Programmable controller CTN480G

Items	Model code	
Motor code	J001, J002, J006, J007	J012, J017
⑤ Programmable controller	CTN480G	
⑥ Teaching box	TAE10M5-TB	
⑦ Pulse limit cord	TAE10P1-LD□□	TAE10V4-LD□□
	(TAE10P2-LD□□)	(TAE10V5-LD□□)

Remarks: 1. Cord in () have high bending resistance.

2. The length of pulse and limit cord can be specified by □□ in the end of supplemental code. Selecting length is up to 20m in increments of 1m.

※The length under 10m is also selected by two digits. (Example of 3m: TAE10P1-LD03)

3. The length of pulse and limit cord is 1.5m.

AC servo motor (with linear encoder)

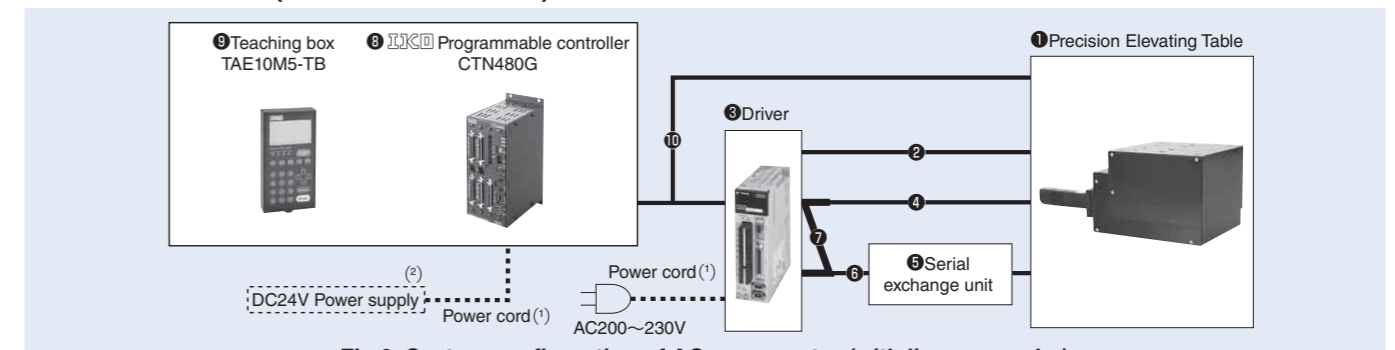


Fig.2 System configuration of AC servo motor (with linear encoder)

Note⁽¹⁾ Power cord is prepared by customer.

⁽²⁾ DC24V power supply is prepared by customer.

Table 15 Electric devices when using a motor (Yaskawa Electric Corporation)

Items		Model number
① Precision Elevating Table		TZ200H, TZ200X
Motor without brake	Motor code	Y048
	② Motor cord	JZSP-CSM01-□□-E (JZSP-CSM21-□□-E)
Motor with brake ⁽¹⁾	Motor code	Y050
	② Motor cord	JZSP-CSM11-□□-E (JZSP-CSM31-□□-E)
③ Driver		SGDV-R90A01A-000000001
④ Encoder cord		JZSP-CSP01-□□-E (JZSP-CSP21-□□-E)
⑤ Serial exchange unit		JZDP-D005-000-E
⑥ Serial exchange unit cord		(JZSP-CLP70-□□-E)
⑦ Encoder power supply branch cord		Not required

Note⁽¹⁾ For "with brake model", power supply for brake release is needed.

Remarks: 1. Cord in () have high bending resistance.

2. The length of motor and encoder cord can be specified by □□ in the end of supplemental code. Selecting length is 3m, 5m, 10m, 15m, and 20m.

※The length under 10m is also selected by two digits. (Example of 3m: JZSP-CSM01-03-E)

3. The length of serial exchange unit cord can be specified by □□ in the end of supplemental code. Selecting length is 3m, 5m, 10m, 15m, and 20m.

※The length under 10m is also selected by two digits. (Example of 3m: JZSP-CLP70-03-E)

Table 17 Electric devices when using a motor (Panasonic Corporation)

Items		Model number
① Precision Elevating Table		TZ200H, TZ200X
Motor without brake	Motor code	P012
	② Motor cord	MFMC A0□□0EED
Motor with brake ⁽¹⁾	Motor code	P017
	② Motor cord	MFMC A0□□0EED
	Brake cord ⁽²⁾	MFMC B0□□0GET
③ Driver		MADDT1205F
④ Encoder cord		MFEC A0□□0EAD
⑤ Serial exchange unit		Not required
⑥ Linear encoder cord		TAE20T6-EC□□
⑦ Encoder power supply branch cord		TAE20T3-EC

Note⁽¹⁾ For "with brake model", power supply for brake release is needed.

⁽²⁾ Additionally, a brake cord is needed.

Remarks: 1. Cord with high bending resistance is not set.

2. The length of motor, brake, and encoder cord can be specified by □□ in the end of supplemental code. Selecting length is 3m, 5m, 10m and 20m.

※The length under 10m is also selected by two digits. (Example of 3m: MFMC A0030EED)

3. The length of linear encoder cord can be specified by □□ in the end of supplemental code. Selecting length is 1m and 2m.

※The length is selected by two digits. (Example of 1m: TAE20T6-EC01)

4. The length of the encoder power supply branch cord is 0.2m.

Table 16 Electric devices when using a motor (Yaskawa Electric Corporation) and Programmable controller CTN480G

Items	Model number
Motor code	Y048, Y050
⑤ Programmable controller	CTN480G
⑥ Teaching box	TAE10M5-TB
⑩ Pulse limit cord	TAE10M7-LD□□
	(TAE10M8-LD□□)

Remarks: 1. Cord in () have high bending resistance.

2. The length of pulse and limit cord can be specified by □□ in the end of supplemental code. Selecting length is up to 20m in increments of 1m.

※The length under 10m is also selected by two digits. (Example of 3m: TAE10M7-LD03)

3. The length of pulse and limit cord is 1.5m.

Table 18 Electric devices when using a motor (Panasonic Corporation) and Programmable controller CTN480G

Items	Model number
Motor code	P012, P017
⑤ Programmable controller	CTN480G
⑥ Teaching box	TAE10M5-TB
⑩ Pulse limit cord	TAE10V2-LD□□
	(TAE10V3-LD□□)

Remarks: 1. Cord in () have high bending resistance.

2. The length of pulse and limit cord can be specified by □□ in the end of supplemental code. Selecting length is up to 20m in increments of 1m.

※The length under 10m is also selected by two digits. (Example of 3m: TAE10V2-LD03)

3. The length of pulse and limit cord is 1.5m.

System configuration

Table 19 Electric devices when using a motor (Mitsubishi Electric Corporation)

Items	Model number
① Precision Elevating Table	TZ200H, TZ200X
Motor without brake	Motor code
	② Motor cord
Motor with brake ⁽¹⁾	Motor code
	② Motor cord
	Brake cord ⁽²⁾
③ Driver	MR-J3-10A-KE005
④ Encoder cord	MR-J3ENCBL□M-A1-L (MR-J3ENCBL□M-A1-H)
⑤ Serial exchange unit	Not required
⑥ Linear encoder cord	TAE20T6-EC□□ (TAE20T7-EC□□)
⑦ Encoder power supply branch cord	Not required

Note⁽¹⁾ For "with brake model", power supply for brake release is needed.
⁽²⁾ Additionally, a brake cord is needed.

- Remarks: 1. Cord in () have high bending resistance.
 2. The length of motor, brake, and encoder cord can be specified by □ in the end of supplemental code. Selecting length is 2m, 5m and 10m.
 ※The length under 10m is selected by one digit and the length 10m is selected by two digits. (Example of 2m: MR-PWS1CBL2M-A1-L)
 3. The length of linear encoder cord can be specified by □□ in the end of supplemental code. Selecting length is 1m and 2m.
 ※The length is selected by two digits. (Example of 1m: TAE20T6-EC01)

Table 20 Electric devices when using a motor (Mitsubishi Electric Corporation) and Programmable controller CTN480G

Items	Model number
Motor code	J012, J017
⑤ Programmable controller	CTN480G
⑥ Teaching box	TAE10M5-TB
⑩ Pulse limit cord	TAE10V4-LD□□ (TAE10V5-LD□□)

- Remarks: 1. Cord in () have high bending resistance.
 2. The length of pulse and limit cord can be specified by □□ in the end of supplemental code. Selecting length is up to 20m in increments of 1m.
 ※The length under 10m is also selected by two digits. (Example of 3m: TAE10V4-LD03)
 3. The length of pulse and limit cord is 1.5m.

Stepping motors

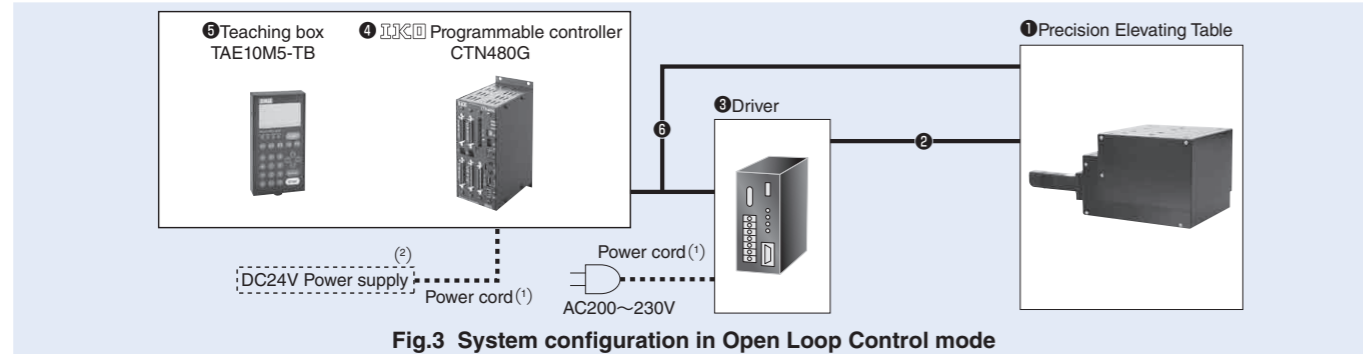


Fig.3 System configuration in Open Loop Control mode

Note⁽¹⁾ Power cord is prepared by customer.
⁽²⁾ DC24V power supply is prepared by customer.

Table 21 Electric devices when using a motor (Oriental Motor Co.,Ltd.)

Items	Model number			
① Precision Elevating Table	TZ120		TZ200H, TZ200X	
	Without brake	With brake ⁽¹⁾	Without brake	With brake ⁽¹⁾
Motor type	V017	V006	V018	V008
Motor code				
② Motor cord	TAE20R8-SM□□ (TAE20R9-SN□□)	TAE20S1-SMB□□ (TAE20S2-SNB□□)	TAE20R8-SM□□ (TAE20R9-SN□□)	TAE20S1-SMB□□ (TAE20S2-SNB□□)
③ Driver	RKD507-A	RKD507M-A	RKD514L-A	RKD514LM-A

- Note⁽¹⁾ For "with brake model", power supply for brake release is needed.
 Remarks: 1. Cord in () have high bending resistance.
 2. The length of motor cord can be specified by □□ in the end of supplemental code. Selecting length is up to 10m in increments of 1m.
 ※The length under 10m is also selected by two digits. (Example of 3m: TAE20R8-SM03)

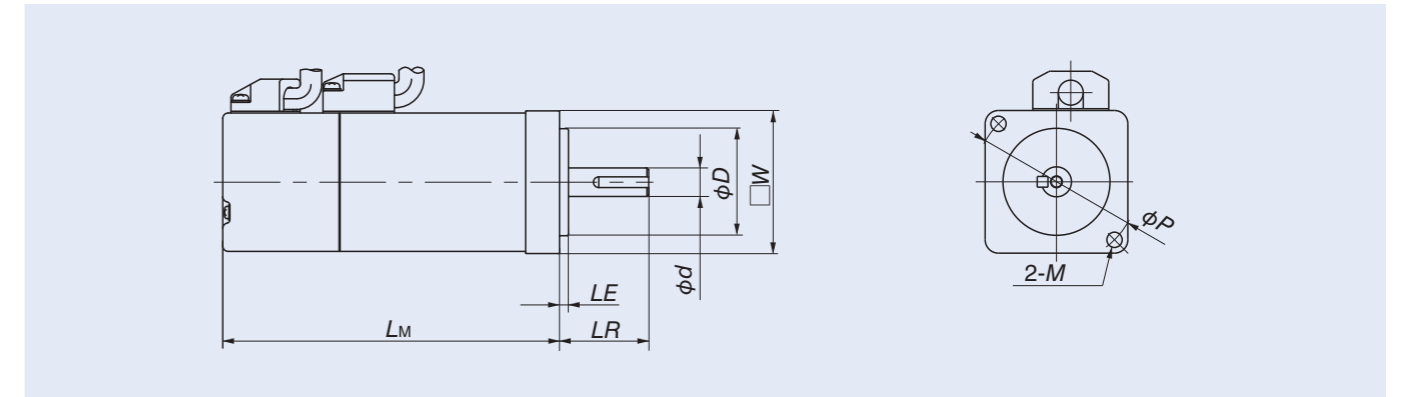
Table 22 Electric devices when using a motor (Oriental Motor Co.,Ltd.) and Programmable controller CTN480G

Items	Model number
Motor type	V006, V008, V017, V018
④ Programmable controller	CTN480G
⑤ Teaching box	TAE10M5-TB
⑥ Pulse limit cord	TAE10S3-LD□□ (TAE10S4-LD□□)

- Remarks: 1. Cord in () have high bending resistance.
 2. The length of pulse and limit cord can be specified by □□ in the end of supplemental code. Selecting length is up to 20m in increments of 1m.
 ※The length under 10m is also selected by two digits. (Example of 3m: TAE10S3-LD03)
 3. The length of pulse and limit cord is 1.5m.

Specifications of motor and driver

AC servo motor and driver Yaskawa Electric Corporation (RoHS conformed)



Motor specifications

Motor code	Model code	Power supply voltage V	Rated output W	Rated torque N·m	Instantaneous maximum torque N·m	Rated number of revolution r/min	Motor inertia J _M ×10 ⁻⁴ kg·m ²	Encoder specification	Mass kg
Y027	SGMAH-A5AAA21-E	200	50	0.159	0.477	3000	0.0220	Incremental 13 bits (8192pulse/rev)	0.4
Y028	SGMAH-01AAA21-E		100	0.318	0.955		0.0364		0.5
Y032	SGMAH-A5AAA2C-E		50	0.159	0.477		0.0305		0.7
Y033	SGMAH-01AAA2C-E		100	0.318	0.955		0.0449	0.8	
Y048	SGMJV-01A3A21		100	0.318	1.110		0.0665	Incremental/absolute 20 bits (1048576pulse/rev)	0.4
Y050	SGMJV-01A3A2C		100	0.318	1.110		0.0812		0.7

Motor mounting dimension

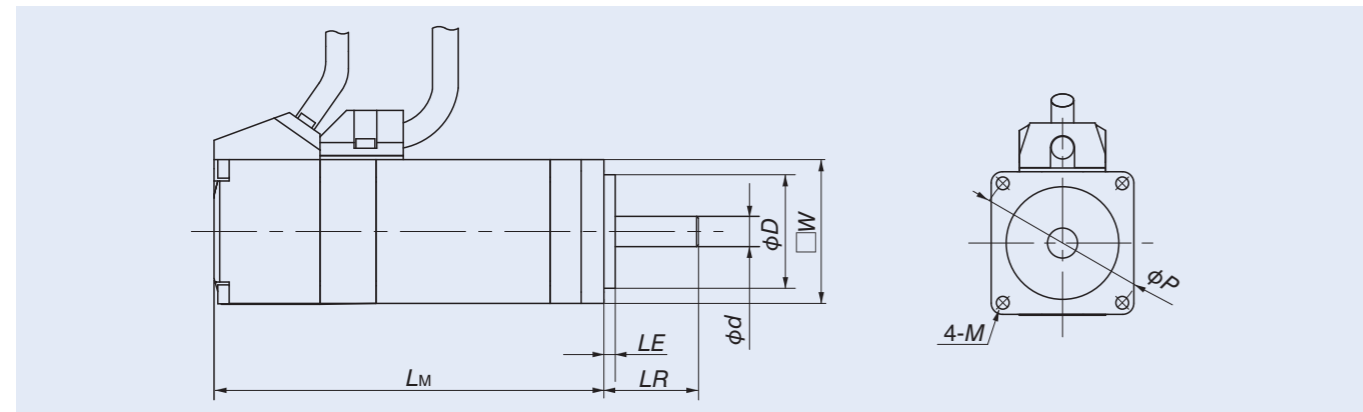
Motor code	□W×L _M	LR	LE	d	D	P	M
Y027	40×77	25	2.5	6	30	46	φ4.3
Y028	40×94.5			8			
Y032	40×108.5			6			
Y033	40×135			6			
Y048	40×82.5			8			
Y050	40×127.5			8			

Driver specifications

Item	Model code of driver	SGDH-A5AE-E	SGDH-01AE-E	SGDV-R90A01A	SGDV-R90A01A-00000001
Applicable motor code		Y027, Y032	Y028, Y033	Y048, Y050	Y048, Y050
Supply voltage		200V	200V	200V	200V
Rated output of applicable motor		50W	100W	100W	100W
Feedback	Servo motor	Serial encoder			
	Linear encoder	—	—	—	Serial encoder
Command input pulse	Selection one from symbol with pulse line, CCW or CW with pulse line, two phases pulse with 90-degree difference				
Type of command input pulse	Line driver, open corrector				
Maximum input pulse count	500kpps			4Mpps	
Main power supply voltage	Single phase AC200~230V -15~10% 50/60Hz		3 phases AC200~230V -15~10% 50/60Hz		
Control circuit supply voltage	Single phase AC200~230V -15~10% 50/60Hz				
Continuous output current Arms	0.64	0.91	0.91	0.91	0.91
Maximum output current Arms	2.0	2.8	2.9	2.9	2.9
Ambient temperature in operation	0~55°C				
Ambient temperature in storage	-20~85°C				
Ambient humidity in operation and storage	90% RH or less (No condensation)				
Mass kg	0.8	0.8	0.9	0.9	0.9

Specifications of motor and driver

■AC servo motor and driver Panasonic Corporation (RoHS conformed)



Motor specifications

Motor code	Model code	Power supply voltage V	Rated output W	Rated torque N·m	Instantaneous maximum torque N·m	Rated number of revolution r/min	Motor inertia $J_M \times 10^{-4} \text{kg} \cdot \text{m}^2$	Encoder specification	Mass kg
P001	MSMA5AZA1A	200	50	0.16	0.48	3000	0.025	Incremental (10000pulse/rev)	0.34
P002	MSMA012A1A		100	0.32	0.95		0.062		0.56
P006	MSMA5AZA1B		50	0.16	0.48		0.030		0.53
P007	MSMA012A1B		100	0.32	0.95		0.066		0.76
P012	MSMD012S1A		100	0.32	0.95		0.051		Incremental/absolute 17 bits (131072pulse/rev)
P017	MSMD012S1B		100	0.32	0.95		0.054	0.68	

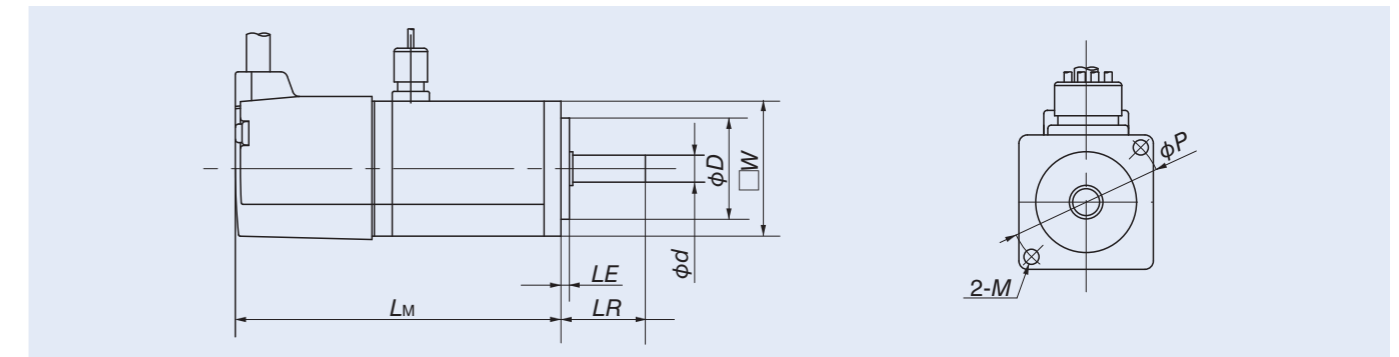
Motor mounting dimensions

Motor code	$W \times L_M$	LR	LE	d	D	P	M
P001	38 × 73	25	3	8	30	45	φ 3.4
P002	38 × 103						
P006	38 × 105						
P007	38 × 135						
P012	38 × 92						
P017	38 × 122						

Driver specifications

Item	MSDA5A5A1A	MSDA015A1A	MADDT1205	MADDT1205F
Applicable motor code	P001, P006	P002, P007	P012, P017	P012, P017
Supply voltage	200V	200V	200V	200V
Rated output of applicable motor	50W	100W	100W	100W
Feedback	Incremental encoder		Serial encoder	
	Servo motor	Serial encoder		Incremental encoder
	Linear encoder	—		Incremental encoder
Command input pulse	Selection one from Symbol with pulse line, CCW or CW with pulse line, two phases pulse with 90-degree difference			
Type of command input pulse	Line driver open corrector			
Maximum input pulse count	500kpps		Line driver : 4Mpps Open corrector : 500kpps	
Main power supply voltage	Single phase/3 phases AC200~230V -15~10% 50/60Hz		Single phase AC200~240V -15~10% 50/60Hz	
Control circuit supply voltage	Single phase AC200~230V -15~10% 50/60Hz			
Continuous output current Arms	1.0	1.0	1.1	1.1
Maximum output current Arms	4.3	4.3	4.7	4.7
Ambient temperature in operation	0~55°C (No freezing)			
Ambient temperature in storage	-20~85°C (No freezing)			
Ambient humidity in operation and storage	90% RH or less (No condensation)		85% RH or less (No condensation)	
Mass kg	1.0	1.0	0.8	0.8

■AC servo motor and driver Mitsubishi Electric Corporation (RoHS compliance)



Motor specifications

Motor code	Model code	Power supply voltage V	Rated output W	Rated torque N·m	Instantaneous maximum torque N·m	Rated number of revolution r/min	Motor inertia $J_M \times 10^{-4} \text{kg} \cdot \text{m}^2$	Encoder specification	Mass kg
J001	HC-KFS053	200	50	0.16	0.48	3000	0.053	Incremental/absolute 17 bits (131072pulse/rev)	0.4
J002	HC-KFS13		100	0.32	0.95		0.084		0.53
J006	HC-KFS053B		50	0.16	0.48		0.056		0.75
J007	HC-KFS13B		100	0.32	0.95		0.087		0.89
J012	HF-KP13		100	0.32	0.95		0.088		Incremental/absolute 18 bit (262144pulse/rev)
J017	HF-KP13B		100	0.32	0.95		0.090	0.86	

Motor mounting dimension

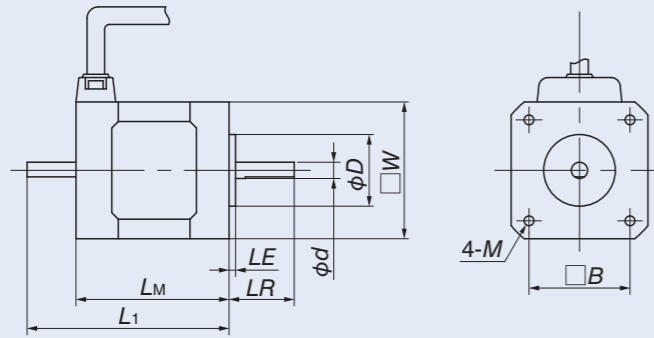
Motor code	$W \times L_M$	LR	LE	d	D	P	M
J001	40 × 81.5	25	2.5	8	30	46	φ 4.5
J002	40 × 96.5						
J006	40 × 109.5						
J007	40 × 124.5						
J012	40 × 82.4						
J017	40 × 123.5						

Driver specifications

Item	Model code of driver	MR-J2S-10A	MR-J3-10A	MR-J3-10A-KE005
Applicable motor code		J001, J006	J012, J017	J012, J017
Supply voltage		200V	200V	200V
Rated output of applicable motor		50W	100W	100W
Feedback	Servo motor	Serial encoder		
	Linear encoder	—	—	Serial encoder Incremental encoder
Command input pulse		Selection one from Symbol with pulse line, CCW or CW with pulse line, two phases pulse with 90-degree difference		
Type of command input pulse		Line driver open corrector		Line driver
Maximum input pulse count		500kpps	Line driver : 1Mpps Open corrector : 200kpps	4Mpps
Main power supply voltage		3 phases AC200~230V -15~10% 50/60Hz or single phase AC230V -15~10% 50/60Hz		3 phases AC200~230V -15~10% 50/60Hz or single phase AC200~230V -15~10% 50/60Hz
Control circuit supply voltage		Single phase AC200~230V -15~10% 50/60Hz		
Continuous output current		0.83	0.71	0.8
Maximum output current		2.5	2.2	2.4
Ambient temperature in operation		0~55°C (No freezing)		
Ambient temperature in storage		-20~65°C (No freezing)		
Ambient humidity in operation and storage		90% RH or less (No condensation)		
Mass kg		0.7	0.7	0.8

Specifications of motor and driver

Stepping motor and driver Oriental Motor Co., Ltd. (RoHS compliance)



Motor specifications

Motor code	Model code	Step angle degree	Maximum holding torque N·m	Current A-phase	Rotor inertia J_M $\times 10^{-4} \text{kg} \cdot \text{m}^2$	Mass kg
V006	PK545AWM	0.72	0.24	0.75	0.083	0.52
V008	PK564AEM		0.42	1.4	0.335	0.9
V017	PK545BW		0.24	0.75	0.068	0.4
V018	PK564BE		0.42	1.4	0.175	0.6

Motor mounting dimension

Motor code	$W \times L_M$	L_1	LR	LE	d	D	B	M
V006	42×77	—	20	2	5	22	31	M3 depth 4.5
V008	60×88.5	—	24	1.5	8	36	50	$\phi 4.5$
V017	42×47	62	20	2	5	22	31	M3 depth 4.5
V018	60×48.5	69.5	24	1.5	8	36	50	$\phi 4.5$

Driver specification

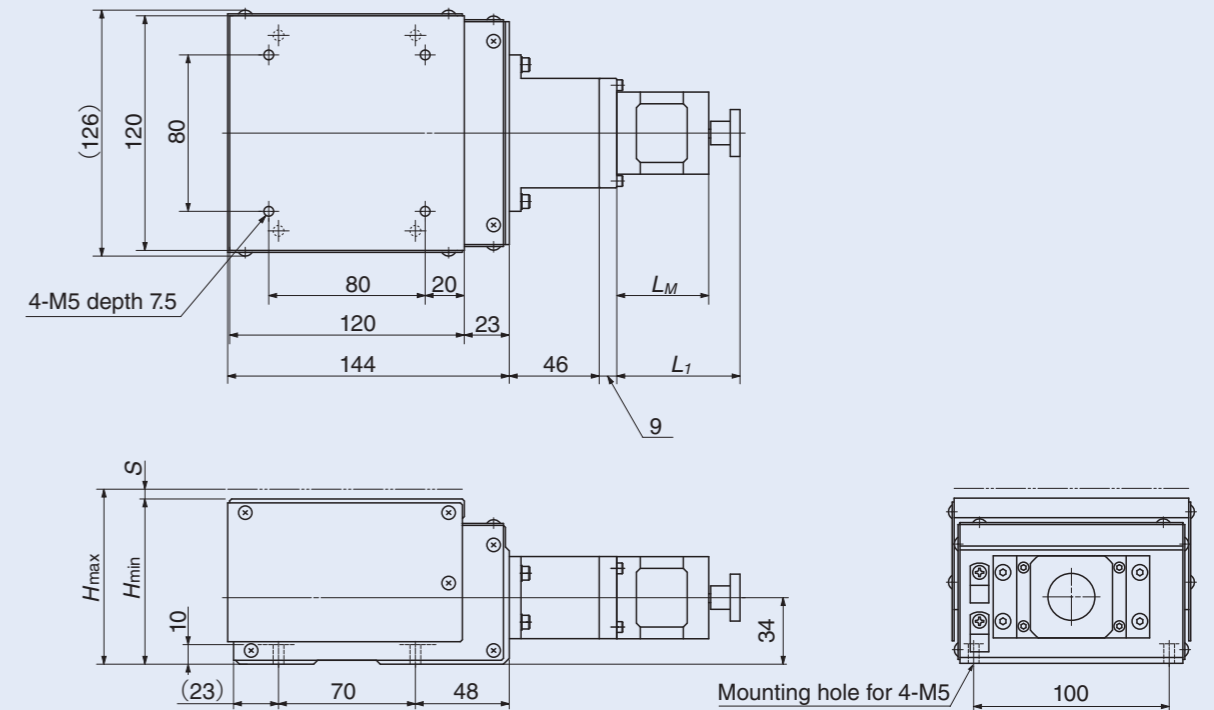
Item	Model code of driver	RKD507M-A	RKD514LM-A	RKD507-A	RKD514L-A
Applicable motor code		V006	V008	V017	V018
Excitation type		Micro step			
Command input pulse		Selection one from Symbol with pulse line, CW/CCW signal, pulse signal, rotation direction signal			
Type of command input pulse		Photo coupler input, input resistance 220Ω, Input current of 10 to 20mA			
Main power supply voltage		Single phase 100~115V±15% 50/60Hz 1A	Single phase 100~115V±15% 50/60Hz 4.5A	Single phase 100~115V±15% 50/60Hz 1A	Single phase 100~115V±15% 50/60Hz 4.5A
Ambient temperature in operation		0~50°C (No freezing)			
Ambient humidity in operation		85% RH or less (No condensation)			
Mass kg		0.4	0.85	0.4	0.85

Caution in Use

- ◆ Precision Elevating Table is a precision device. Excessive loads and impacts on the table will cause reduction in its accuracy and damages of its components. Therefore, handle it with great care.
- ◆ Make sure the object surface to be mounted on the table is clean and free from any harmful protuberances.
- ◆ The linear motion rolling guide and ball screws assembled in Precision Elevating Table are lubricated with grease. It is necessary to protect the inside of the table unit against invasion of dust or foreign matters. If the table unit is contaminated with dust or others, completely remove them and the contaminated grease and apply new grease.
- ◆ The best way to lubricate Precision Elevating Table varies by operating conditions. In general, every 6 months in normal services or every 3 months when the table reciprocally runs a long distance although the frequency of replacement of grease depends upon the running conditions. Wipe off old grease and apply new clean grease.
- ◆ Precision Elevating Table is machined, assembled and adjusted with high accuracy. Accordingly never disassemble or remodel it in any case.
- ◆ Do not apply any excessive load or strong impact to the linear encoder.
- ◆ Make sure that the linear encoder surface is free from dirt. If it is dirty, it may not be able to detect table positions. In such a case, wipe clean the surface with clean cloth dipped with ethyl alcohol or the like. Cover the linear encoder with a proper protector when using the linear encoder in a dusty environment.

IKO Precision Elevating Table

TZ120



Model number	Wedge reduction ratio	Mass ⁽¹⁾ (Ref.) kg	Height		Stroke length S
			H_{min} (CW limit position)	H_{max} (CCW limit position)	
TZ120-2	1 : 2	3.8	93	103	10
TZ120-4	1 : 4	3.4	84.5	89.5	5

Note⁽¹⁾ Motor weight is not included.

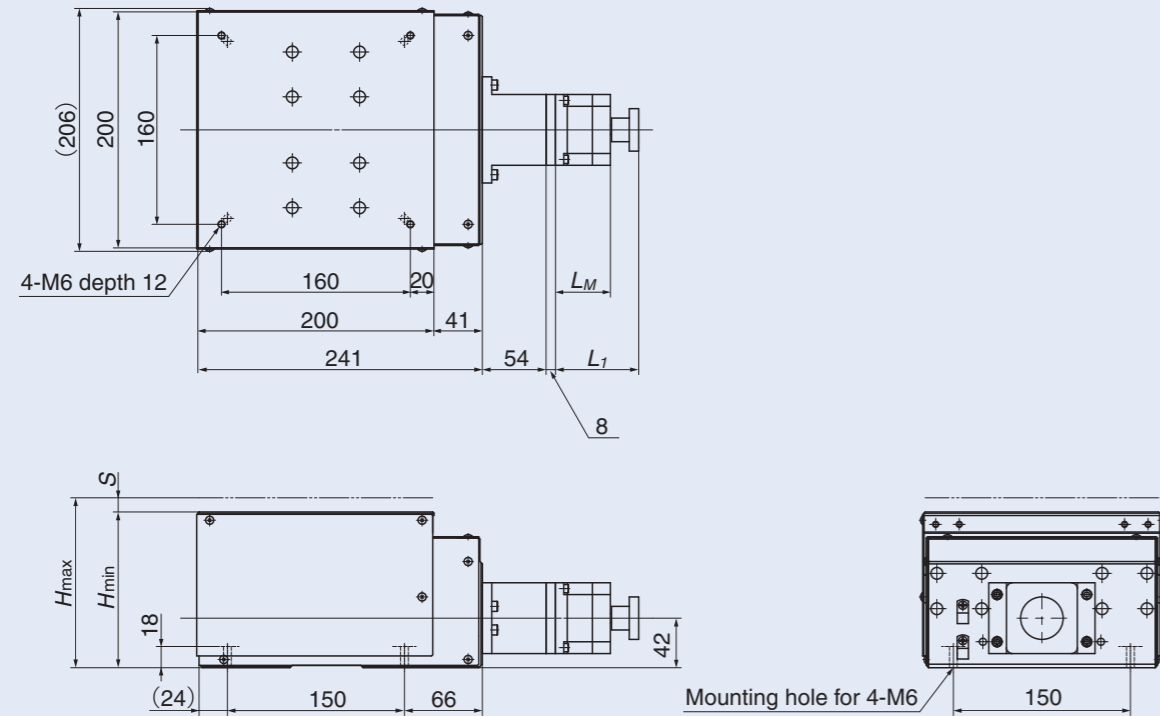
Motor dimensions

Motor type	With or without brake	Motor code	L_M	L_1
AC servo motor	Without brake	Y027	77	—
		P001	73	—
	With brake	J001	81.5	—
		Y032	108.5	—
Stepping motor	Without brake	P006	105	—
		J006	109.5	—
	With brake	V017	47	63
		V006	77	—

Remark: Only V017 has a manual knob on the end of the motor.

IKO Precision Elevating Table

TZ200H and TZ200X Without linear encoder



unit mm

Model number	Wedge reduction ratio	Mass ⁽¹⁾ (Ref.) kg	Height		Stroke length S
			H_{min} (CW limit position)	H_{max} (CCW limit position)	
TZ200H-2	1 : 2	13.3	146	170	24
TZ200H-4	1 : 4	12.3	132	144	12
TZ200X-2	1 : 2	13.3	146	170	24
TZ200X-4	1 : 4	12.3	132	144	12

Note⁽¹⁾ Motor weight is not included.

Motor dimensions

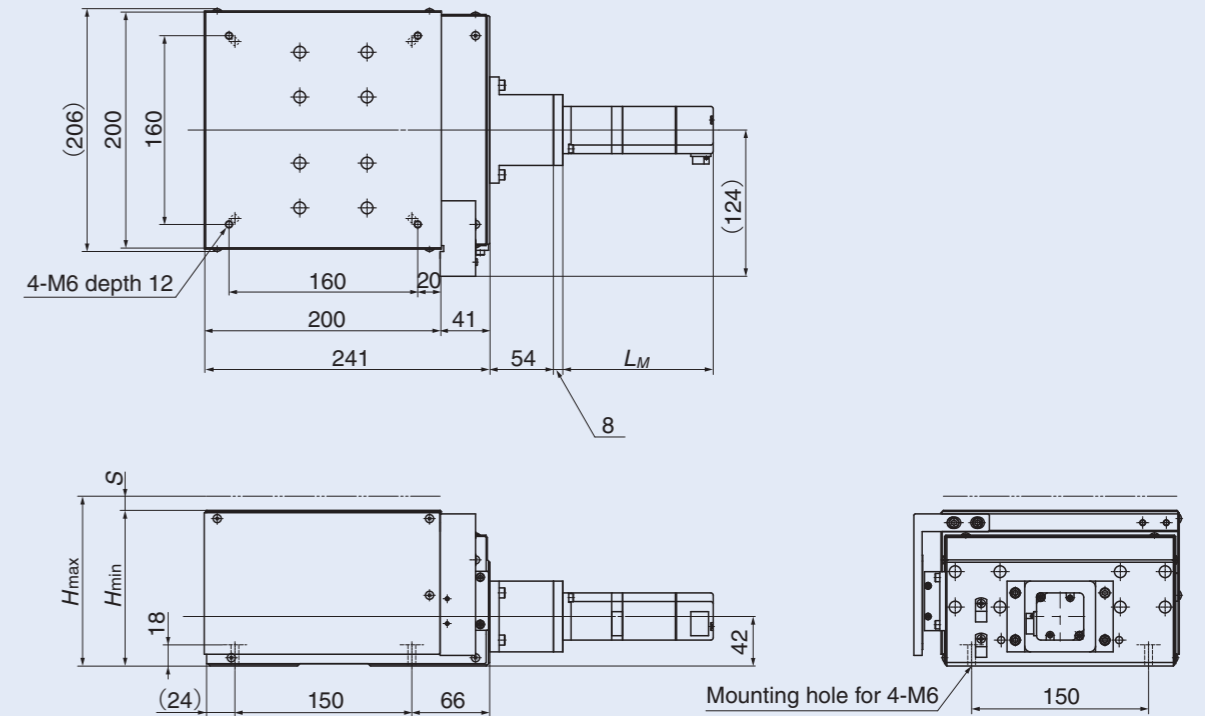
unit mm

Motor type	With or without brake	Motor code	L_M	L_1
AC servo motor	Without brake	Y028	94.5	—
		Y048	82.5	—
		P002	103	—
		P012	92	—
		J002	96.5	—
		J012	82.4	—
	With brake	Y033	135	—
		Y050	127.5	—
		P007	135	—
		P017	122	—
Stepping motor	Without brake	V018	48.5	72.5
	With brake	V008	88.5	—

Remark: Only V018 has a manual knob on the end of the motor.

IKO Precision Elevating Table

TZ200H and TZ200X With linear encoder



unit mm

Model number	Wedge reduction ratio	Mass ⁽¹⁾ (Ref.) kg	Height		Stroke length S
			H_{min} (CW limit position)	H_{max} (CCW limit position)	
TZ200H-2	1 : 2	13.3	146	170	24
TZ200H-4	1 : 4	12.3	132	144	12
TZ200X-2	1 : 2	13.3	146	170	24
TZ200X-4	1 : 4	12.3	132	144	12

Note⁽¹⁾ Motor weight is not included.

Motor dimensions

unit mm

Motor type	With or without brake	Motor code	L_M
AC servo motor	Without brake	Y048	82.5
		P012	92
		J012	82.4
	With brake	Y050	127.5
		P017	122
		J017	123.5

The invention in gratitude for rich global environment

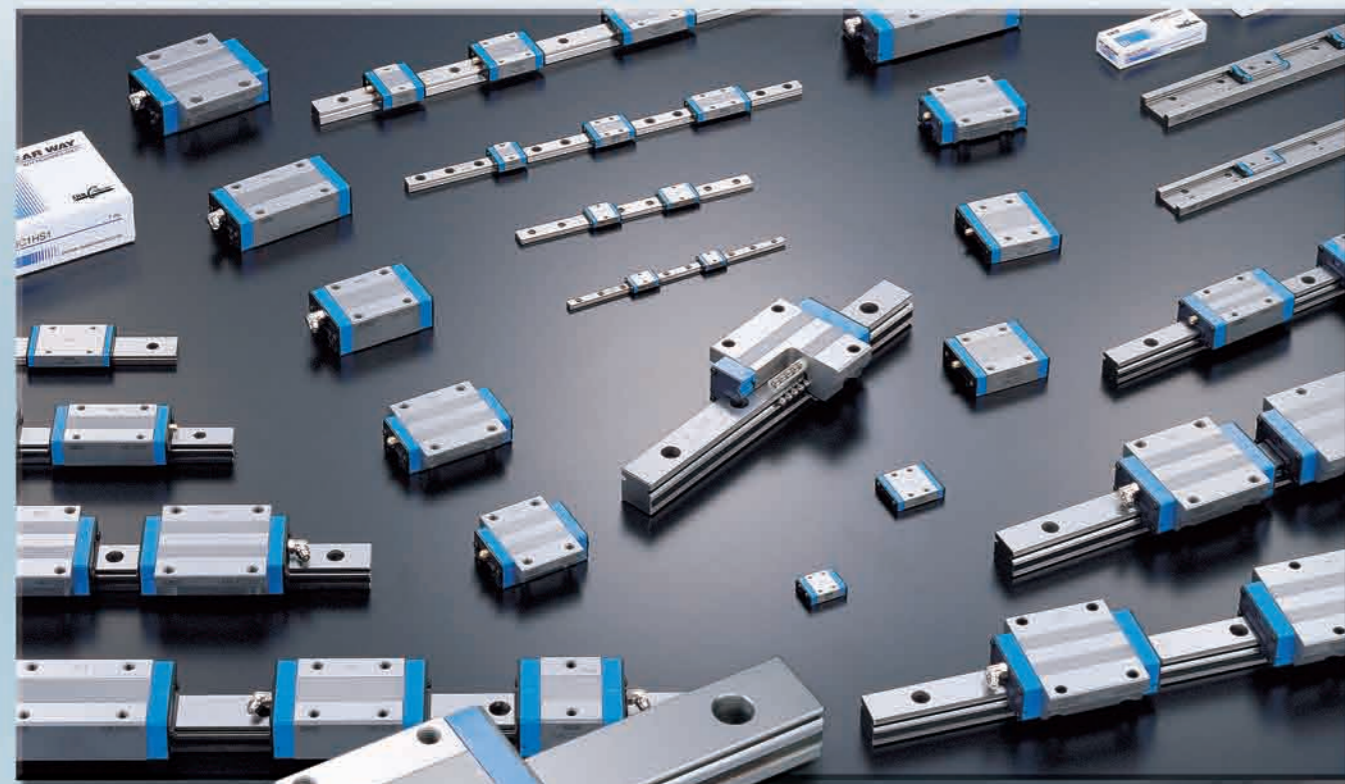
Maintenance free for 20,000km or 5 years

IKO Maintenance Free & Interchangeable

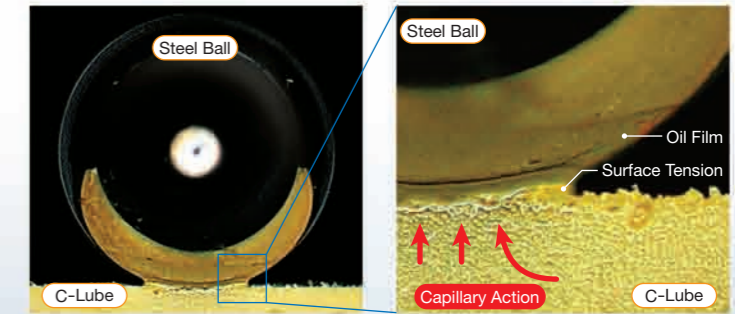
CAT-57168

C-Lube Linear Way

ML ME MH MUL



The Capillary system that IKO has developed is a new method of lubrication. The Lube-body is formed by sintering fine resin powder to act as reservoir and the open pores are impregnated with a large amount of lubrication oil. The capillary action deposits the appropriate amount of lubrication on the rolling elements to protect the raceways for long periods.



Interchangeable series is available.

C-Lube slide units can be supplied by themselves not with rails, and can be matched, replaced and added freely to the interchangeable track rail. This feature is useful in machine design, facilitating standardization of product specification and quick changes of specification.

Maintenance Free

Efficiency of lubrication is maintained for a long term allowing to reduce the cost of lubrication management and control.

Ecology

As C-Lube technology minimizes the amount of lubricant required that contributes to the global environment protection.

Compact

Unlike attached-on external lubrication parts, there is no increase in carriage length. No loss of available stroke length when replacing standard units.

Smooth

Light and smooth running is achieved by the improvement of internal design. C-Lube is designed not to have direct contact with the track rail allowing very smooth operation.

IKO Clean Lubrication



Miniature type **ML** series



Compact **ME** series



High load capacity **MH** series



U-shaped track rail **MUL** series





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Recognizing that conservation of the global environment is the top-priority challenge for the world's population, IKO will conduct its activities with consideration of the environment as a corporate social responsibility, reduce its negative impact on the environment, and help foster a rich global environment.

**ISO 9001 & 14001 Quality system
registration certificate**

